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EVERYTHING REGARDING THE MANUFACTURE
SALE AND USE OF PULP AND PAPER

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Grinding Temperature of Woodpulp

Effect of Temperature on Properties on Mechanical Woodpulp—Microscopic Analysis of Results at Various Temperatures—Details of Investigaton

It is almost eighty years since the first American patent was issued on a process of injecting steam into pulpwood grinders for the purpose of loosening up the woody structure and attaining a greater degree of freeness in the wood fiber. (See United States patent No. 239,040.

Attempts were made to obtain the same effects by increasing the pressure surface and decreasing the quantity of spray water. It has also been emphasized by many paper technologists that the wood ground by this process was better suited for manufacture into the paper—that the consummation of power in the grinding process was not so great, writes Dr. Johannes Teicher in Der Papierfabrikant, pages 153-158 and 165-168.

Several Scandinavian mills tried out the process, but they did not find it to be as advantageous as was represented. All sorts of opinions were obtained from manufacturers, some of whom said that the Norwegian pulp wood was particularly well suited for being worked up into pulp by the hot grinding process, that the fibers of the pulp were longer and tougher than those obtained by the cold grinding process, that the latter yielded a larger percentage of coarse stock than the hot process and that the grinding was carried out to better advantage, the higher the temperature. Certain Finnish mills also reported themselves to be well-pleased with this process. A German mill advised that the wood pulp obtained by the hot grinding process possessed a high degree of felting; a paper board mill said that it was able to manufacture a high grade of paperboard from hot ground wood pulp and that it could finish the board in greater thicknesses than when the cold grinding process was used. Various other favorable reports have been obtained from other paper mills both in Europe and in America.

The general concensus of opinion is, therefore, that the hot grinding process is decidedly advantgeous. Nevertheless, as the majority of paper mills manufacturing mechanical wood pulp were driven with water and consequently the power consumed in the grinding operation varied with the ever-changing level of the water in the grinder, it was not possible to determine the conditions under which the process operated with any degree of certainty. This referred particularly to the temperature at which the grinding was carried out.

Distribution of Heat and Work in the Grinder

A large part of the mechanical energy consumed in the grinding of wood is converted into heat by friction and a relatively small portion is actually utilized in the production of mechanical pulp. It has been calculated that approximately 50 to 51 percent of the total power consumed in the grinding operation is converted into heat. It was natural that efforts should have been made to utilize this energy, which is lost in the form of heat, in some useful manner.

The heat that is evolved during the process of grinding, due to the friction between the blocks of wood and the grinding stones, is transferred to the spray water used in wetting down the wood. When the amount of spray water added is kept constant the temperature developed in the grinder is proportional to the energy consumed in the grinding opera-

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tion or, vice versa, the temperature of the spray water is dependent on the quantity of water used when the energy consumed is maintained constant.

In the case of air-dried wood water is present in invisible form within the wood itself. A part of this water is evaporated by the rise in the temperature of the spray water and this results in the wood splitting open. In this manner a part of the mechanical energy which is converted into heat is utilized directly in splitting open the wood. This partly explains the fact that when wood is ground by the hot or warm process a considerably smaller proportion of stock requiring refining is produced, so that in mills where this process is used it is possible to get along with a much smaller number of refining engines than when the cold process is employed. It has also appeared to be most advantageous to return the waste water to the stones by the shortest path so as to avoid any unnecessary loss in heat, in power.

As in the manufacture of papers containing larger amounts of wood pulp the beater serves mainly to beat up the fibers, the grinder has to solve problems which belong to the beater in the manufacture of fine papers. A certain degree of freeness must be obtained at the grinder so as to furnish a stock which yields a well-made, strong paper. This condition is partly attained by the evaporation of the absorbed water. This fact is substantiated by the tests that were made by the author.

Experimental Details

In order to determine the properties of mechanical wood pulp made at different temperatures and to study them more closely experimental grindings were made. In these experiments great care was taken to see that all the other factors which have an effect on the quality of the mechanical wood pulp were maintained constant. Only the grinding temperature was allowed to vary and this was controlled by the amount of spray water employed. In this way only the one factor, variation in temperature, was examined as to its effect on the properties of the product.

For this purpose a high powered Voith grinder was employed. The stone had a diameter of 1370 millimeters and a width of 1200 millimeters. The pressure in the presses was obtained by hydraulic means. At a speed of 345 revolutions per minute the circumferential velocity was 24.7 meters per second.

During the removal of samples of the stock the grinders worked on all three cylinders. The hydraulic pressure on the press cylinders amounted to 2.3 atmospheres. As the hydraulic pressure does not yield any information regarding the magnitude of the specific pressure without going through a calculation, the total pressure on the piston of the hydraulic cylinder was determined from the pressure—measured in atmospheres—that the water exerted when this total pressure in kilograms was divided by the area of the grinding press surface in square centimeters. The diameter of the piston of the hydraulic cylinder was 400 millimeters; the area of the pressure piston surface was accordingly 1256 square centimeters. As the pressure in the pressure cylinder was 2.3 atmospheres, the total pressure exerted on the piston of the pressure cylinder was 2888 kilograms.

The surfaces at which the pressure was applied to the wood were one meter broad and 563 millimeters high; hence, they possessed an area of 5630 square millimeters in each press cylinder.

In carrying out the calculation of the pressure it must be remembered that there must be taken into consideration the fact that the actual pressure surface, that is the surface of the compressed wood, is smaller than that calculated, for the reason that there is a certain amount of clearance between the pieces of wood and the grinding surfaces. It is accordingly customary to take two thirds of the total press surface as the proper figure when working with round logs of small diameters and split pieces, and three quarters of the calculated area when working with round wood of greater diameter.

As the wood that was used in the experimental grinding tests was cut from large picked round logs, three quarters of the total grinding press surface was used in the calculations and for this reason each press was assumed to have an effective pressure surface area of 4223 square centimeters.

As indicated above, the total pressure on the total grinding surface was 2888 kilograms. It follows then that the pressure per square centimeter of the press grinding surface was 684 kilograms. The power used in the grinding amounted to 550 horsepower. The grinding stone was manufactured artificially and it was previously sharpened by two hours' grinding. The angle made by the stone and the longitudinal axis through the wood fiber was an acute angle, as is the practice in wood grinding today. The wood used for grinding was choice, dry round pine logs, which had been machine barked, but in which the knots had not been bored out.

Conditions in the Operation of the Grinder

During the operation of the grinder it was customary to allow the apparatus to grind at a temperature of from 40 to 50 degrees C. In order to conduct the grinding at a lower temperature the grinding was started Monday morning, as by standing idle over Sunday the grinder had assumed the temperature of the room in which it was located. The room temperature during the grinding was about 12 degrees C and the temperature of the spray water about 10 degrees C.

During the grinding experiments great care was taken to see that both the pressure in the presses and the speed of the grinding stones were maintained constant at all times. Inasmuch as the entire experimental grinding test required only from one to one and one half hours for completion it was unnecessary to take into consideration the dulling of the stones brought about by the grinding itself. In this manner it was established that the difference in temperature which was brought about by the reduction in the quantity of water sprayed on the stones was the only factor influencing the grinding process.

As has been mentioned heretofore the temperature of the spray water, and accordingly the temperature of the grinding process at the start was 10 degrees C. Soon after the grinding process had progressed to some degree, the temperature rose to 18 degrees C. All these temperatures were measured in the body of the water. At a temperature of 35 to 40 degrees the stock began to steam. The typical grinding odor that is prevalent around grinding machines became more distinct until a temperature of 64 degrees C was reached, at which point a thick mass of ground wood, strongly steaming, was obtained.

The samples of mechanical ground wood which were used for further testing were taken from the mass of wood and water in the trough of the grinding machine while the temperature was maintained constant and they were placed in bottles and conserved for future use. In this way the decomposition which air induces in samples of mechanical pulp under these conditions was avoided.

Measurement of Spray Water

It did not seem advisable to take samples from the material in board form as in that condition the pulp has already passed through the screening devices and the refining engines, which might have some effect on its properties. The dehydrating machines as well may have some influence on the stock. Furthermore, it was found to be impossible to take samples of the stock in this form and still maintain the prevailing temperature at a constant point. Then, again, the paper stock in board form did not appear to be suitable for further investigation, for the reason that the board had to be broken up again in the laboratory and this process influenced both the degree of the beating to which the paper stock had been subjected as well as its other properties. This, needless to say, led to all sorts of errors in the results and incorrect conclusions drawn from them.

It was unfortunately impossible to measure the quantity of spray water which was used in the experiments. However, in order to arrive at some idea as to how the temperature was caused to rise in a numerical relation by a reduction in the amount of spray water fed to the grinders, the stock was scooped out of the grinder pit into which the ground stock and water flowed. These samples were tested to determine the proportion of water present therein, which gave the experimenter some conception of how much water was being used.

The determination of the dry weight of paper stock in these samples, which was carried out in the testing laboratory, indicated the dilution of the stock at any point during the grinding text. These determinations were carried out in such a manner that at first the greatest part of the water was removed in a drying oven and then the last traces of moisture in the pulp removed by means of an air pump in the usual manner. The following table shows the averages of various tests made in this manner.

Grinding temperature in degrees C.	Concentration of the stock in %	Ratio of dilution. stock to water.
18	0.87	1 : 115
25	1.56	1 : 64
33	2.40	1 : 42
40	2.89	1 : 34.6
46	3.63	1 : 27.6
57	4.58	1 : 21.8
60	4.90	1 : 20.4
64	5.20	1 : 19.2

If the temperatures are plotted as abscissae and the dilution ratios, stock to water, as ordinates, then the curve shown in Figure 1, is obtained.

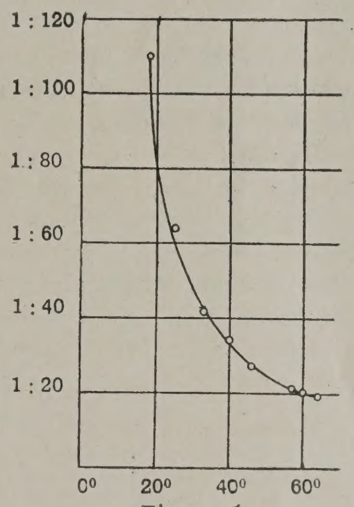


Figure 1.

From the dilution ratio 1 to infinity at a temperature of 10 degrees C the curve declines steeply and reaches the dilution ratio of 1 to 100 at a temperature of 19 degrees C. It changes its direction to the horizontal, slowly at first and then more rapidly and reaches a dilution ratio of one to 19 at a temperature of approximately 64 degrees C.

Grinding Test Carried out in Cold Weather

The grinding test was started on a day that was extraordinarily cold, so that the spray water had a temperature of only 10 degrees C. It is ordinarily customary to use over again as spray water the heated waste water from the dehydration machine, the heat in which is derived from the grinding of wood in a previous operation. The result is that the temperature of this water is between 30 and 40 degrees C. However, in order to investigate the effect of lower temperatures, the experiments were also carried out with fresh spray water. It is natural to expect other degrees of dilution when using spray water whose temperature is higher than usual. The results which are given in the following also include the dilution ratios which correspond to the different temperatures at which the grinding tests were carried out.

Microscopic Investigation

The microscopic investigation of the fibers shows just what condition the fibers are in when the structure of the fibers and their properties are known and used in conjunction with the observations that are made and the photographs that are taken.

Examination of the stock under the microscope reveals the length and thickness of the particles of wood. It will afford information regarding the character of the ends of the wooden particles and will also reveal whether the individual particles are uniform. It will show if these occur as isolated particles and solid tubular membranes of woody cells or as strips of tubular membrane cut in the longitudinal direction or if they are just squeezed. These particles of wood may also be cut up into unrecognizable fragments or the fibers may appear as fragments of a texture made up of many woody cells cut up into pieces.

It is, however, impossible to classify the stock in accordance with its appearance under the microscope, as an individual sample of stock may consist of larger or smaller proportions of the different kinds of fiber structures just described.

The different grades of wood pulp obtained in the foregoing experiments by variation of the temperature of grinding were examined under the microscope and it was found, as might be expected, that the appearance of the various wood pulps varies considerably with the treatment to which the wood was subjected during the grinding process. Each grade of mechanical wood pulp possesses a characteristic microphotograph.

Details of Microscopic Examination

In examining the different samples under the microscope a magnification of 65 diameters was employed. It was found that when a greater magnification was used it was not so easy to obtain a clear image of the fiber sample so that both the total length of the fibers and the general appearance of the same could be observed accurately. It was also inadvisable to use a lesser magnification, as when this is done, it is not possible to distinguish the internal structure of the woody cells.

It was found to be a simple matter to distinguish between the thick-walled and thin-walled cellular fibers when the 65 power microscope was employed. The woody cells were seen to be covered with the characteristic spots exhibited by pine wood fibers, which appeared mostly as double concentric circles under the microscope. It is also possible to distinguish accurately the medullary ray cells which run from the middle of the stem outward in a star-shaped arrangement. These cells are characterized by their lattice-like structure.

A Nernst lamp was employed as the source of light in making the microscope examination. The light from this lamp was first passed through a liquid light filter. The filter was arranged in the form of a small bulb about 3 centimeters thick between the microscope and the lamp. The liquid employed in the filter was ammoniacal copper oxide and consisted of 200 cubic centimeters of distilled water, one hundred cubic centimeters of ammonia and 15 grams of copper sulphate. Orthochromatic photographic plates were used in taking the pictures. The time of exposure varied from approximately twenty to thirty seconds.

Examination of the Micro-Photographs

There are three distinct phases to be considered in the examination of the photographs. The mechanical wood pulp that was ground in the cold, at temperatures varying from 18 to 33 degrees C, showed a distinctly open structure. It is very easy to distinguish splinters, double and triple fibers, pieces of woody texture and woody cells clinging together in a mass. The fibers appear to possess little felting power, as they are a little bent and appear to be rather stiff.

The mechanical wood pulp which was ground at an elevated temperature, that is at temperatures which varied from 33 to 46 degrees C, showed many average length bundles of fibers, fewer splinters and also possessed well isolated, long and average length fibers. These appears to be wound up into coils and hence seemed to be better able to felt together than the fibers of the cold ground mechanical wood pulp. Furthermore, there is a certain freeness in the fibers which is very advantageous for the luting or cementing together of the felted fibers.

The mechanical wood pulp which was ground in the hot conditions, at temperatures varying between 57 and 64 degrees C, showed almost no woody cells cemented together in a mass. The pulp also possessed a greater degree of freeness. The photo-micrograph showed a conglomeration of fibrilles intertwined with one another and held together by a mass of hydrated material. This kind of wood pulp sometimes exhibits the fineness of chemical pulp and appeared to be very well disintegrated into fibers.

It was interesting to note the exact characteristics of woodpulps ground at different temperatures as they appeared under the microscope. In the first case the sample of wood ground at a temperature of 18 degrees C looked like splintered wood. The woody cells, combined in masses, were scattered through the microphotograph in every direction but were not wound up in coils. The ends of the fibers were broken off short or splintered off.

The sample of woodpulp ground at a temperature of 25 degrees C appeared to have more texture than the one just described. It also had more of a tendency to felt. However, scattered through it was quite a quantity of bundles of fibers, splinters, double and triple fibers and fiber ends broken off short. It was also possible to distinguish the lattice-like structure of medullary cells.

The sample ground at a temperature of 33 degrees C was somewhat denser but, on the other hand, possessed a splintery character and showed a quantity of woody cells which had been destroyed by the grinding of the wood. Nevertheless the felting power of the fibers seemed to be greater and isolated woody fibers were distinguished.

In the sample ground at a temperature of 40 degrees C it was easy to distinguish individual fibers, which appeared to be longer. The fiber ends were wound up more and easily twisted into a compact mass. They also appeared to be well suited for admixture with the main body of the stock.

The pulp ground at a temperature of 46 degrees C was composed of long fibers and contained much fewer splintered ends. It contained many isolated fibers, although there was still a certain proportion of double and triple fibers in the mixture. There was a certain amount of hydration in the sample and this served to hold together the felted fibers in a compact mass.

The pulp ground at a temperature of 57 degrees C possessed a distinct chemical pulp appearance. The fibers were twisted up into coils scattered throughout the mass in every direction. This condition makes for good felting quality. The fiber also seemed to have been hydrated in part, which means that there is more cohesion between the individual fibers and also means that a better grade of paper can be manufactured from such pulp.

The hot mechanical woodpulp ground at a temperature of 60 degrees C contained many isolated fibers in a similar manner, mixed with intertwined fiber ends, as well as with many agglomerations of fibrilles. It also contained considerable hydrated material which had partly given up its fibrous nature and had a cloudy appearance.

Finally, the number of long fibers in the mechanical wood pulp manufactured at a temperature of 64 degrees C was somewhat less than in the 60 degree pulp but, on the other hand, the fineness of the pulp was considerably greater. This condition may possibly be brought about by the fact that the small amount of spray water added to the grinder during the manufacture of the pulp had no longer the power of washing the stone clean and the grinder therefore performed part of the work of the refining engine. Otherwise the appearance of this pulp was much the same as that of the 60 degree pulp. The mass of pulp was full of interviewed agglomerations of fibrilles, a cloudy mass of hydrated matter and a number, of strands of individual fibers. The entire mass of fibers and hydrated matter, which was almost colloidal in character, was compact and firmly knit together so that a well-formed, homogenous sheet of paper was obtainable from the pulp.

(To Be Continued.)

Fall Business Conference

Successful Meeting in Chicago of American Paper and Pulp Association and National Paper Trade Association—Forestry a Prominent Feature

THE expression of universal belief that basic conditions seem to favor increased prosperity in all industries, plans to put into effect helpful principles of the standardization and simplification of paper sizes and weights, and a study of forest fire prevention were the outstanding developments of the convention of the American Paper & Pulp association and the National Paper Trade association, held in Chicago October 8th to 11th.

All branches of the conference declared faith in the belief that the paper industry is approaching the fall months with confidence, anticipating continued business gains with no serious handicap to overcome in getting away to a good start.

Address of President Stokes

Encouraging views regarding the paper trade outlook were stressed by Henry W. Stokes, of the York Haven Paper Company, Philadelphia, President of the American Paper and Pulp association, to members of the two associations assembled in joint convention. Mr. Stokes submitted his statement as expressing the views of manufacturers on general business conditions. Similar views of a continued prosperity were expressed by J. A. Carpenter, of the Kansas City Paper House, Kansas City, vice president of the merchant's organization, and Walter J. Raybold of the B. D. Rising Paper company, Housatonic, Mass., former president of the producers' association.

The joint session was the closing business meeting of "Paper Week, and delegates representing all branches of the industry were in attendance when President Stokes called the gathering to order.

In addition to the discussion and reports on general conditions, W. A. Durgin, chief of the Division of Simplified Practice, Department of Commerce, told of the work being accomplished in the matter of standardization. A resolution was adopted endorsing the principles of standardization and simplification of paper sizes and weights as exemplified in reports of committees made to the General Conference in Washington last June. It also was the sense of the resolution that the two associations stand ready to cooperate with the users of paper in making the specific recommendations of the general conference effective.

The statement submitted by President Stokes follows in substance:

"In general, basis conditions seem to favor an upturn of all industries. Transportation problems are being met successfully, labor conditions are stable with increasing rather than decreasing wages, and foreign complications, if not favoring a better development of trade, are certainly not such as to warrant undue anxiety.

"The transportation situation should not be ignored by the student of business conditions. The more rapid handling of freight by the railroads has a direct bearing upon business conditions. The fact that there is now a shorter time in transit for raw materials, and between the manufacturer of the finished product and the consumer, is a factor to be carefully weighed when considering stocks on hand either of raw materials in the mills, or of finished products in the hands of the distributors.

"The general labor situation is satisfactory, with no surplus of workers, and at the same time enough of a labor supply to eliminate any immediate danger of such a labor shortage as would force existing high prices for manufactured goods to abnormally high levels.

"Some students of fundamental economics are coming to the belief that too much stress has been laid upon the possible effects of Europe's political troubles upon American industry. It is their further contention that conditions abroad are such that America's high cost of production, due largely to the high standard of wages paid in this country, can hardly enable the American manufacturer to sell abroad at a profit. With the stabilizing of Europe there may be low cost production abroad, due to the readiness of European labor to work for wages that an American workman would not accept, and an amount of production that would not require America's manufactures. Such stabilization, however, should give a buying power for American agricultural products but would increase the buying power of the American farmer.

"In any event it would appear that the future prosperity of American industry will be increasingly dependent chiefly on domestic, rather than foreign conditions.

"It should be noted that for the first time since March prices of general commodities are showing an upturn. Special significance should be attached to the gain in relative value of agricultural products, and the resultant accentuated buying power of the middle west and south."

Forest fire prevention as the primary objective of the Woodlands departments of the paper companies of this country, was urged by O. M. Porter of New York City, secretary of the Woodlands section of the American Paper and Pulp association Tuesday at the opening session of the fifth annual business conference of that organization. Mr. Porter said that probably the largest single problem confronting the paper industry is adequate supplies of pulp wood, a problem which in a large measure, according to his belief, may be solved by fire protection.

Necessity for Forestry Recognized

C. W. Hurtubis of the Hammermill Paper Company, Erie, Pa., chairman of the Woodlands section, called that gathering to order and presided. He said that notwithstanding the organization is but three years old it was his opinion that much of great importance to the industry has been accomplished. It was apparent that all in attendance at the meeting realized that the proposed Canadian pulpwood embargo will have the effect of forcing an appreciation upon this country of what must be done in the matter of intensive forestry.

Secretary Porter submitted a report in which he outlined the work to be accomplished. He said that the Woodlands section has been able to complete the survey of the pulpwood supplies of the United States, and told of an investigation concerning pulpwood decay and its effect on pulpwood production that is now being carried on by the United States Forest Products Laboratory in co-operation with the Newsprint Service Bureau and the Woodlands section of the Canadian Pulp and Paper association. Mr. Porter offered the suggestion that for the balance of the fiscal year, the Woodlands section devote its funds and activities to the further development of the reforestation data of the association.

Raphael Zon of the United States Forest Service told the delegates much of interest. Dr. Zon is in charge of the Lake States forest experiment station. He told of the work that is now being done in the Northern producing regions. John E. Alexander of the Nekoosa-Edwards Paper company, Port Edwards, Wis., told of results of experiments in the manufacture of pulp from inferior wood. The Woodlands session closed following motion pictures demonstrating the use of a machine in snow hauling of pulpwood. One picture taken at the camps of the C. C. Collins Lumber Company, at Long Lake, Wis. showed the machine hauling 84 tons of wood. This is an entirely new method of applying the automotive principle to a machine for Winter hauling.

Considerable interest was displayed by the wrapping paper group in the address given Wednesday by John R. Mauff, executive vice president of the new organized Paper Industries Exchange. Mr. Mauff explained in detail the exchange system of trading and price determination. He said that the success of the new exchange is now assured and told of the plans for the opening of the New York branch of the organization on October 16, in the Pershing Square building. The opening of this New York exchange is the acid test of the success of the new organization attained in less than two months of trading, Mr. Mauff declared. Numerous delegates visited the board rooms of the Paper Industries Exchange during their visit here.

The conference was the most largely attended of any meeting in the history of the paper industry. It was not only a gathering of producers, foresters, and others interested in the manufacture of paper and paper products, but also a gathering of those engaged in the merchandising branch of the industry.

Business Conditions Are Sound

"The paper industry has little to fear from the future, for the basic conditions of the country are sound," says the October market review of the Paper and Pulp Industry, the monthly bulletin of the American Paper and Pulp association. "In the paper industry itself there is a general sentiment of conservative optimism.

"In the fine paper field, the costs are as high as they have been, stocks at the mills are normal, while those in the hands of merchants and printers are below normal. The market is very firm for higher grades of paper, and the demand is fast returning. In this field, the manufacturers anticipate very good business all this fall, and well into if not all through the year.

"Book paper production for August showed a 20 percent increase over July, and shipments were 18 percent above those of July. Canadian coated paper quotations have gone up a half cent, based somewhat on the high prices for casein, but the casein situation at present is much more favorable than in the early part of the year. Coated paper consumption suffered somewhat from enforced changes to super-paper by big consumers, owing to the increased cost of marking casein coated paper. With Argentine casein again in the market, even though at high prices owing to the unwarranted duty, the situation is somewhat less difficult than earlier in the year.

"The wrapping paper situation will certainly be quick to show a response to an improvement in business, as in many ways the wrapping paper field is more responsive than other grades to changes in business. When the housewife is a free buyer of food stuffs, the wrapping paper demand immediately mirrors this improved situation.

"The improvement in the paper board group is also indicative of an improvement in public commodity buying, and the wrapping and bag groups should not be far behind the 25 per cent increase in board production recorded for August as compared with July.

"Specialties, such as waxed, vegetable parchment, and other food protective papers, as well as the glazed and fancy papers used by the box manufacturers are already showing improvement.

"The New York newspaper pressmen's strike will not be a long time factor in the newsprint situation. Some of those close to the situation expect an increase of 10 percent in newsprint consumption the coming year, over 1923."

New York Paper Exchange Opens

IF the interest manifested in its opening is any criterion, the Paper Industries Exchange promises to become a huge success in New York. Not in a long time has any event in the paper and stock trade aroused such enthusiasm or attracted such a large crowd as the opening of the New York branch of the exchange Tuesday, October 16, in the Pershing Square building, 100 East Forty-second street. More than a hundred paper and board mill representatives, box dealers, waste paper packers and brokers, wood pulp importers and others interested in the exchange were on hand to witness the start of trading in box board and the raw materials consumed by paper board mills on an exchange basis.

The large room on the eight floor of the building engaged for the exchange quarters was scarcely large enough to accommodate the crowd. All the chairs provided for the traders were filled long before the noon hour, which was the time fixed for opening the exchange, and by the time the session was under way there was a large gathering that for every one fortunate enough to occupy a chair two or three were standing around the room watching the proceedings.

Just prior to the start of trading John R. Mauff, executive vice president of the exchange, explained the system of trading, and also announced that at a board of directors meeting earlier in the day classifications of waste paper as recommended by the paper stock group of the board had been adopted, these classifications to apply to all waste paper sold on the exchange.

Mr. Mauff wielded the gavel during the trading which followed and called out the bids, offers and sales. As each bid or offer or sale was made it was marked up on a large blackboard which extended nearly the length of one side of the room by A. J. Neumann, assistant to Mr. Mauff, who is to be manager of the New York exchange. Mr. Neumann was for three years secretary and treasurer of the Container Club, an organization of paper box manufacturing with headquarters in Chicago, and is thoroughly familiar with paper and board as well as the exchange system of trading.

Trading on the exchange lasted for one hour, from 12 o'clock noon until 1 p. m., this hour being chosen to conform with the hour between 11 a. m. and noon during which trading is conducted on the exchange in Chicago. It is planned to have a record of the bids, offers and sales telegraphed every day between the two exchange branches so that traders in New York may offer or accept merchandise on the Chicago exchange, and vice versa.

Initial Trading in Waste Paper

Probably the most noticeable feature of the opening season on the New York exchange was the large tonnage of waste paper offered. New York dealers and packers of old paper were extended a cordial invitation to attend the opening whether members or not and they responded almost a hundred per cent, and were not the least backward in making offers of waste paper. In fact, in view of the large and representative gathering of mill men and paper stock packers and the amounts of stock offered, the tonnage of old paper sold at the initial session was rather small. A total of 15 sales was made, involving some 1,300 tons of waste paper.

The prices realized on waste paper disclosed no surprises. Most of the stock sold was of western origin and sold by western packers, and the prices figuring were in line with those recently prevailing on the exchange in Chicago. Three lots of stock were sold by New York packers, and the prices secured were if anything, slightly under the levels ruling in the open market in this city.

No sales of paper board, wood pulp, felts, machines wires or other affiliated products which will be dealt in on the exchange were effected during the first day's session. There were some offerings of board, and one bid for sulphite pulp, but the prices apparently were not attractive enough to lure buyers or sellers, as the case may have been.

Following the close of trading at 1 p. m., George A. Gair, president of the exchange and also president of the Robert Gair Company, board manufacturers and producers of paper boxes and shipping containers, addressed the gathering, and outlined briefly the purposes of the exchange and extended an invitation to all present to become members of the exchange, pointing out the advantages to be gained by membership in the trading body.

Sales of waste paper on the opening day on the exchange were as follows: 100 tons of No. 1 mixed paper at $21.50 per ton f. o. b. Chicago, 100 tons of No. 1 mixed peper at $21 per ton f. o. b. Cleveland, 100 tons of No. 1 mixed paper at $24.50 per ton f. o. b. Grand Rapids, 100 tons of No 1 mixed paper at $21.50 per ton delivered Chicago, 100 tons of No. 1 mixed paper at $21.50 per ton f. o. b. Chicago, five carloads of No. 1 print manilas at $32 per ton f. o. b. Chicago, 75 tons of No. 1 print manila at $32 per ton f. o. b. Chicago, 50 tons of No. 2 news at $22.50 per ton delivered Chicago, 100 tons of No. 2 news at $18 per ton f. o. b. New York, 100 tons of No. 1 news at $23 per ton f. o. b. New York, 100 tons of No. 2 mixed paper at $16.50 per ton f. o. b. Boston, 100 tons of No. 1 mixed paper at $22.50 per ton f. o. b. Red Bank, O., 50 tons of No. 1 craft paper at $43 per ton f. o. b. New York, 100 tons of No. 2 news at $17.50 per ton f. o. b. Whippany, N. J., and 100 tons of No. 1 news at $22 per ton f. o b. Boston.

Offerings of box board were as follows: 100 tons of A-B plain chip at $60 per ton delivered sidewalk New York, 100 tons of A-B plain chip at $50 per ton f. o. b. Alton, Ill.; 100 tons of straw board at $40 per ton f. o. b. Lafayette, Ind.; 100 tons of chip board at $60 per ton f. o. b. Boston, 100 tons of chip at $60 per ton f. o. b. New York, 100 tons of chip at $55 per ton f. o. b. Philadelphia, 100 tons of new board at $60 per ton f. o. b. New York, 100 tons of news board at $60 per ton f. o. b. Boston, and 50 tons of chip at $54.50 per ton f. o. b. Philadelphia.

May Lose Paper Plant

The Oregon City Manufacturing company objected to the vacating of Third street, which is used for the parking of the automobiles of its employes. Following this, W. P. Hawley, president of the Hawley Pulp and Paper company, located at Oregon City, has issued a statement declaring that because of the objection to vacating Third street his company has entirely given up all plans to build the new $1,200,000 addition to its plant at Oregon City.

The company has rearranged its plans but he does not state whether it will build a paper plant elsewhere or not.

Oregon City people hope that some agreement can yet be made so that the new addition will be built in their city. When completed it would have furnished employment to 250 men.

Edward P. Gleason, chief engineer, and John E. Alexander, chemical engineer of the Nekoosa Edwards Paper company of Port Edwards, Wisconsin, have left for a month's trip in the interests of their company. They will visit a good many of the larger mills in the East and in Canada, and also some paper and pulp machinery manufacturers. Mrs. Gleason and Mrs. Alexander accompanied their husbands on the trip.

Wisconsin Men on Forest Policy Advisory Committee

Research Work in Madison Has Important Bearing on Industry

Out of twenty leaders in the American pulp and paper industry asked by Secretary Wallace to function as an advisory committee in forestry policies, three men are from Wisconsin.

They are: L. M. Alexander, president of the Nekoosa-Edwards Paper company, Port Edwards; D. C. Everest, vice president of the Marathon Paper Mills company, Rothchild, and O. Bache-Wiig, vice president of the Wausau Sulphite Fiber company, Mosinee. Hugh P. Baker, secretary of the American Pulp and Paper association, was active in the formation of the committee and conferred upon it with Chief Forester Greeley and E. H. Clapp, director of research for the forest service.

"The members of the committee, and through them the entire pulp and paper industry, should become more directly concerned in the development of forestry policies and in the conduct of our research work, whether that of the forest products laboratory, of the forest experiment stations, or along economic lines," said Secretary Wallace.

"Furthermore, I believe that in the long run such a committee ought to help materially in the department's relationship with the public in all matters concerning forestry practices and the utilization of timber and its products. In short, through the appointment of such an advisory committee I can see a splendid opportunity for an increasingly effective contact and cooperation."

Research in pulp and paper making for the forest service is being conducted in the forest products laboratory in Madison and its progress is closely watched by manufacturers.

One experiment, now going forward, to determine how useful decayed wood may be in the manufacture of pulp, is in part financed by the American Pulp and Paper association.

Forest research in the growing of timber crops now under way at various forest experiment stations, and the development of federal and state policies for the production of timber upon the country's forest lands, are other activities with which the department is closely concerned.

Joint Meeting at Appleton

Appleton, Wis., is preparing to entertain the joint meeting of the Technical association, the northwest division of the Accountants' association and the northwest division of the Superintendents' association, all branches of the American Pulp and Paper association, which will be in session Oct. 26 and 27.

It is expected to be the largest gathering of paper mill men ever held in Appleton. Delegates from all the paper mill cities in the central west will be represented.

The convention will be opened by an address of welcome by Mayor Henry Reuter and responses by officials of three associations.

Some of the greatest paper mill authorities of the country are scheduled to make an address. There will also be talks by authorities on industrial subjects such as that of George P. Hambrecht, former chairman of the Wisconsin Industrial commission. Among the other speakers are Prof. White of the University of Michigan; Lyman Beeman of the Consolidated Waterpower and Paper company; K. T. King of the du Pont company and others.

The three associations will meet for a joint session at a banquet on the closing night of the convention. Officers will be selected by the superintendents and the cost accountants at business sessions on Friday and Saturday.

The delegates will visit the large paper mills at Kimberly on Saturday and at noon will be guests of the Kimberly-Clark company at luncheon in the company's new community hall. The delegates will return to Appleton immediately after the luncheon to resume their sessions. The technical association will formerly open its convention with a business session Friday at 9 a. m. There will be a dinner for the technical men at 7 a. m. Friday at the Conway house when the testing committee will present its report. This will be followed by a discussion.

A number of papers will be read before the meeting of superintendents, among the following:

"Colors," by K. T. King of th duPont company.

"Wires," by G. E. Buchanan of the Appleton Wire Works.

"Sulphite," by some one yet to be determined.

Officers of the Superintendents' association are to be elected at a business session at 7 p. m. Friday. After the visit to the Kimberly mills and the luncheon Saturday noon the superintendents will meet in Eagle hall and the following papers will be read:

"Heat Losses," by E. P. Gleason of the Nekoosa-Edwards Paper company.

"Oiling," by C. H. Brownley of the Appleton Woolen Mills. Waterpower and Paper company.

"Groundwood," by Lyman Beeman of the Consolidated

The superintendents will end their convention at the joint banquet in the evening.

Fire in Wisconsin Mill

Fire that was caused by the use of an acetylene torch caused damage in the wood room of the Riverside Fibre and Paper company at Appleton, Wis., to an extent of several hundred dollars.

The floor of the woodroom was considerably burned, as was also the wood work such as timbers, beams and posts supporting platforms. The blaze was confined entirely to the first floor, however.

The woodroom was not in operation at the time of the fire, but repair work had been going on and it is believed that sparks from the acetylene torch ignited some of the sawdust on the floor. The fire had to be extinguished with water as the distance was too great to be reached with the chemical hose.

Gift to B. T. McBain

Soon after B. T. McBain's return from the Michigan Division meeting of the Superintendents association of the American Pulp and Paper Industry at Kalamazoo he was presented by the Michigan division with a large desk pad and file with the following inscription:

B. T. McBain

"KING ON WASTE"

Mr. McBain's paper aroused considerable discussion at the Kalamazoo meeting. He is assistant general manager of the Nekoosa Edwards Paper company with mills at Port Edwards and Nekoosa, Wisconsin.

Fox River Mills Keep Up Production

Paper mills of the Fox river valley in Wisconsin are emerging from the usually dull period of the summer months without having had to close down or being forced at any time to materially reduce their number of employees, a survey shows.

Although the mills in this section have been handicapped to some extent by the necessity of using auxiliary steam power because of low water, permitting during the last sixty days only a 30 per cent normal draw, the outlook for the future is considered extremely bright.

For the first time in recent years the shipment of pulpwood to mills of the Fox river valley has continued interruptedly throughout the summer.

Why Have "Cycles" in Business?

By B. T. McBain *Assistant General Manager, Nekoosa-Edwards Paper Co.*

A RECENT report of the press says our friend Babson means to continue his tactics until business men are all honest, or words to that effect. Our firm subscribes for Babson's reports and I always read them with interest. We also subscribe to the work of the Wrapping Paper division of the American Paper and Pulp association and the meetings are always attended by a representative of our company.

But, while all this data and these reports are of value in many ways and interesting, I believe we are all influenced by them entirely too much and that the buyers of the country are watching what Babson has to say to the point that when he says "Two months hence there is to be a slack period" they quit buying at about that time to be on the safe side with the result that the prediction comes true. It cannot be otherwise.

There is no more reason for cycles in business, in my opinion, than there is that we should have to starve ourselves one day, week or month, and then gorge ourselves the next period. It is true that we have had these cycles in the past; but I cannot see that Babson's work is doing anything to correct this condition. In fact, it is having the opposite effect; it is almost making these cycles positive at certain intervals and the longer business men generally continue to be governed entirely by the reports sent out by Mr. Babson and other like agencies, the surer we are to have these ups and downs.

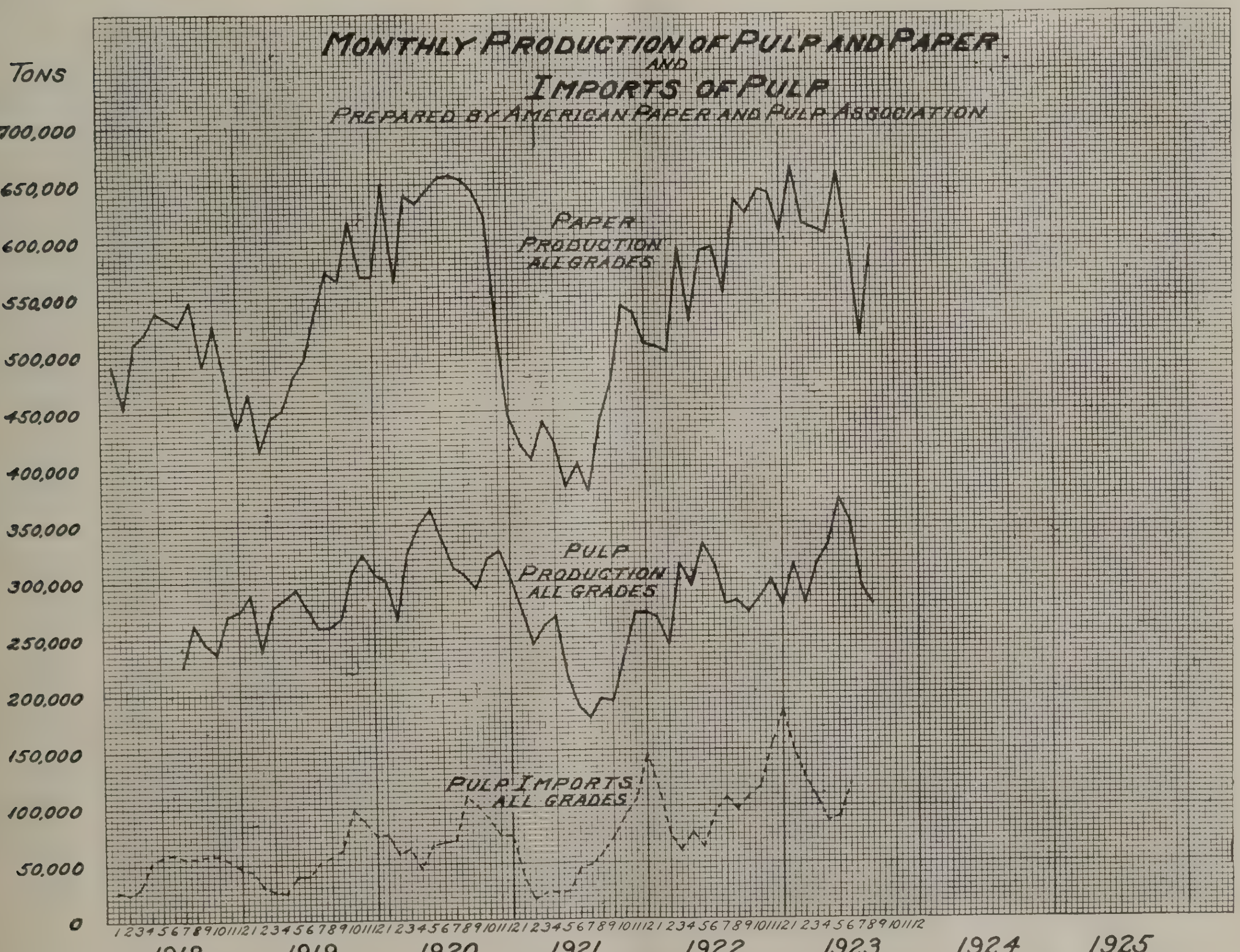
We are seemingly more and more depending upon the fortune teller in business and when this happens, failure results. As I look upon the condition today, business is good. We are running full 200 tons per day and selling all we are making. If you make it good enough, no matter what your product, there is usually a demand.

The longer business men play this "Monkey see, Monkey do" game with Babson and others, the longer will they have these regular ups and downs in business, which they please to term cycles.

No Rise in Newsprint Price

No upward revision in newsprint prices for the first half of 1924 is expected now as the result of recent letting of contracts by some of the smaller companies at $75 a ton, or 3¾ cents a pound, the price that has held all through this year as against $70 in 1922 and the peak price of $130 reached two years ago.

The International Paper Company, which generally sets American print prices, has taken no formal action yet, but it was reported in the New York financial district that Canadian companies were planning on keeping the present rate in force, and American companies are not expected to do otherwise.



SOURCE OF DATA PAPER AND PULP PRODUCTION – PREVIOUS TO JUNE, 1923, FED TRADE COMM, SUBSEQUENTLY, AMER PAPER + PULP ASSN.
PULP IMPORTS – DEPT. OF COMMERCE

Chart issued by Statistical Department, American Paper & Pulp Association

Chemical Equipment Exposition

The Chemical Equipment association's annual meeting was held at the Chemists' club, New York, September 20 at 2:30 P. M., President Schenck in the chair.

The work of the association in the ten months since it began active operations with a central executive office and a secretary was reviewed by President Schenck. Recommendations for the broadening of this work along lines of general service, advertising to equipment using fields and interchange of information among members were made.

The association by unanimous vote of the members present instructed the new president to appoint a committee to formulate plans for an exposition of chemical equipment. This action followed a general discussion of the relation of expositions in general to the chemical industries in their present stage of development.

It was very plainly the sense of the association that, valuable although the presentation to the general public or to selected sections of it of the development of chemical manufactures may be, the interests of producers of equipment and supplies for the chemical industries and current conditions inherent in those industries, point to the advisability of a selling exposition also.

Officers and directors for the ensuing year were elected as follows:

President, T. C. Oliver, Chemical Construction company. Vice-Presidents, E. E. Finch, Karl Kiefer Machine company; J. George Lehman, Bethlehem Foundry & Machine company; Peirce D. Schenck, The Duriron company. Treasurer, P. S. Barnes, The Pfaudler company. Directors, Harlowe Hardinge, Hardinge company; P. B. Sadtler, Swenson Evaporator company; H. N. Spicer, The Dorr company; R. Gordon Walker, Oliver Continuous Filter company; G. O. Carter, Union Carbide company.

For the sixth place on the board of directors Messrs. Robert McKay, International Nickel company and L. S. Thurston, General Electric company, received an equal number of votes. One of these two will be elected to the Board by the balance of the directors.

President Oliver has announced the appointment of a committee to formulate plans for an exposition as follows: Edwin C. Alford, T. Shriver & Company, Chairman; Peirce D. Schenck, The Duriron company; E. E. Finch, The Karl Kiefer Machine company.

The committee has been in session and has made considerable progress, it has been announced, in establishing general principles upon which definite plans will be based for presentation to the association.

The new board of directors of the association has been in session also and it is announced that every confidence exists that the activities of the association will both widen and become more intensive within the next year.

Link-Belt Acquires Meese & Gottfried Co.

Charles Piez, president of the Link-Belt company, Chicago, announces the purchase of the Meese & Gottfried Co., of San Francisco, Los Angeles, Seattle and Portland.

For the past ten years Link-Belt company has been distributing its products on the West Coast through its subsidiaries, the Link-Belt Northwest company, of Seattle, and the Link-Belt Pacific company, of San Francisco. The improvement in distributing facilities effected by the consolidation, and the additional manufacturing facilities acquired, should give the rapidly-growing industries of the Pacific coast highly economical and efficient service.

Meese & Gottfried Co. and its predecessors have been manufacturers of power transmission machinery and distributors of conveying and transmission machinery on the coast for more than forty years, and were well and favorably known from the Canadian to the Mexican border. It is the intention of the new owners to add to the facilities and enlarge present stocks, so that prompter service to its customers will be insured.

The new organization will be known as Link-Belt Meese & Gottfried Co., with headquarters at San Francisco. The officials will be: Charles Piez, chairman of the board; B. A. Gayman, president; Harold H. Clark, vice-president and sales manager; Leslie W. Shirley, treasurer; Richard W. Yerkes, secretary.

Mr. Yerkes came to Chicago from the Link-Belt Philadelphia plant, as the newly-elected treasurer and secretary of the Link-Belt company, to succeed Mr. Gayman. All officers, with the exception of Mr. Piez and Mr. Yerkes, are located at the company's headquarters, San Francisco.

In Seattle, the Link-Belt Northwest offices, warehouse and shop will house the new organization, while at San Francisco, Portland and Los Angeles, the former Meese & Gottfried plants will be used.

Housing Shortage at Vancouver

The steel for the paper mill proper of the Columbia river Paper Mills corporation's new plant at Vancouver, Washington, is being fabricated in mills in the East at the present time.

The contractors erecting the structure have signed an agreement to have the building completed 90 days after the steel is on the grounds. The building, 80 feet by 380 feet, will be constructed mostly of steel, concrete and glass materials. This is a three-unit mill. The sawmill and three acid towers were erected during the summer season. The sawmill when running full time will employ 120 men.

W. B. DuBois, vice-president of the Columbia River Paper Mills corporation, in an address before the Vancouver Chamber of Commerce, said that an acute housing problem was being faced by the city of Vancouver. The new men employed at the construction of the paper mill were finding it exceedingly difficult to get suitable houses in which to live. Plans were discussed for building a large number of moderately priced houses to be sold on an easy payment plan and before the meeting adjourned it was decided to appoint a committee of six to investigate the conditions and the cost of erecting the houses. When the new paper mill is in operation several hundred men will find employment in it, and they should be able to secure homes near their work, so Mr. DuBois thinks.

Crown-Willamette Cooperative Plan

The Crown-Willamette Paper company, the largest and most important paper manufacturer on the Pacific coast, has issued a pamphlet containing a plan whereby the more than 7000 employes of the company may invest in shares of its capital stock.

The pamphlet is divided into two sections. The first section gives the employes' Stock investment and savings plan, and the second section of the pamphlet explains its operation and essential features.

The Crown-Willamette Paper company does not make the purchase of shares in the company obligatory on its employes but it hopes that they will realize the benefits that will accrue to them if they invest their savings in a safe firm.

The company believes that close co-operation between employer and employes is essential both to the efficiency and prosperity of the company and to the happiness and welfare of the employes. This thought was in the mind of the president, Louis Bloch, when he formulated the plan of a business co-operation of the company and its employes. This company has been comparatively free from labor troubles in the past.

Herbert A. Wilder

Herbert A. Wilder, director of the International Paper Company and for years a paper manufacturer in New England, died Oct. 12 at the Phillips house, Boston, which is part of the Massachusetts General hospital. His home was in Newton, Mass.

Mr. Wilder was born June 22, 1837, the son of Charles B. and Mary Ann (Guild) Wilder, in Attleboro, Mass. He had lived in Chelsea, Winchester and Newton, Mass., where Mrs. Wilder died in 1881.

As a boy he started in the paper business with his father. From 1854 until 1897 he was associated with his brother, the late Charles T. Wilder, in the firm of Wilder & Co., of Boston. After the big Boston fire of 1872 the firm increased its work in manufacturing wood pulp and news paper and enlarged its mills at Ashland, N. H. and Yyndon and Barnet, Vt.

In 1883 they secured power rights on the Connecticut river and built the pulp and newsprint mills at Olcott Falls, now Wilder, Vt. Subsequently all of these mills were sold to the International Paper Co. and Mr. Wilder became a director of that corporation.

Mr. Wilder was widely interested in educational institutions. He was a trustee of Atlanta university, Berea college, was a member of the prudential committee of the American Board of Foreign Missions and a trustee of the Newton hospital.

He is survived by three daughters, all of Newton, Mass.

Fire in Oregon Mill

Fire originating from an explosion of dry wood dust in the digester unit of the Hawley Pulp and Paper Mills, at Oregon City, Oregon, Sunday night October 7, destroyed the plant with an estimated loss of $750,000 and also damaged the adjacent plants of the Crown-Willamette Paper company and the Oregon City woolen mills. The total loss may reach $1,000,000, although a later estimate places the Crown-Willamette Paper plant damage at a smaller figure than the first estimate gave it.

One workman was overcome by the smoke and had to be dragged to safety. More than a score of employes were trapped in the building and leaped through doors and windows to save themselves. It is thought that no lives were lost in the conflagration but the ruins are being carefully examined to make certain that no one perished.

Ninety per cent of the Hawley Pulp and Paper Mills' loss is covered by insurance and Willard P. Hawley, president of the company, announced that the mill would be replaced at once by a new and more modern structure. The mill destroyed was built in the early 50's and was then used as a flour mill. When the paper company acquired the building it was remodeled to suit its needs.

Demand Keeps Pace with Increased Production

Canadian newsprint mills during August broke all records for a single month's production, the total touching 114,721 tons, or a daily average of 4,249 tons. This exceeded the previous record by over 2,600 tons.

The high daily average is impressive and illustrates the expansion of this industry, 4,249 tons being 96 ahead of that for the month of May and 4¼ ahead of that for February. For the first eight months of the current year Canadian mills averaged 647 tons daily more than the average for the same period in 1922. During this time the total production was 842,334, as compared with 704,929 for the same period last year. The daily average during these months this year has been 4,069 tons as against 3,422 for the preceding period.

Such a rapid increase in production has resulted in a slight increase in stocks in hand, but not to any very great extent. Canadian mills at the end of August reported such stocks as being 15,631 tons, as compared with 11,813 tons at the end of August, 1922. This increase of 4,000 tons represents, however, less than one day's production and the stocks on hand at the foregoing date amounted to less than four days' production at these mills.

Newsprint Mill at Winnipeg

Erection of the first pulp and paper plant in the prairie provinces at a cost of $3,000,000 has begun near Winnipeg. The plant will have an initial capacity of 120 tons of newsprint a day and will, it is believed, furnish paper to the Middle Western market of the United States.

Location of the plant in the West, it is said, is an indication of the expansion of the Canadian newsprint industry. It was once thought that the pulpwood supplies of the prairie provinces would not be called into requisition for years, but the increasing consumption of the Middle Western States and their proximity to the prairie provinces has brought about the demand.

Alexander Home from Orient

L. M. Alexander, president and general manager of the Nekoosa Edwards Paper company, returned home on Thursday October 11th from a two months vacation.

Mrs. Alexander, who accompanied her husband on the trip, stopped off at St. Helena, California to visit with relatives while Mr. Alexander continued to Spokane, Washington, on a business trip to the Inland Empire Paper company at that place where he is interested, coming direct to Port Edwards from that place.

Natwick Now General Superintendent

Former associates in Wisconsin Rapids have received word of the appointment of A. G. Natwick, formerly with the Nekoosa-Edwards company, to the position of general superintendent of the Lincoln Mills, Ltd., of Merritton, Ont., large manufacturers of paper.

Until recently he was superintendent of the sulphite mill in the Ontario plant. He spent eight years in the laboratory and various departments of the Nekoosa-Edwards mills at Wisconsin Rapids and when he left he was night superintendent.

Wisconsin Men at Chicago Meeting

Among the Neenah and Menasha paper mill men who attended the convention of the American Pulp and Paper association in Chicago were R. C. Brown, Kimberly Stuart, D. K. Brown, George M. Gilbert, D. W. Bergstorm and J. N. Bergstrom.

A number of Kimberly-Clark executives who have been in the east on business also were expected to stop off on their return and attend the sessions. In the party were F. J. Sensenbrenner, J. C. Kimberly and Raymond Kelly.

Improving at Wausau Mills

The work at the Wausau Paper Mills Co., Brokaw, Wisconsin on the new dam is progressing and will be closed in before winter.

The new wood room is in operation and the new Wausau Iron Works drum barker a success, according to Superintendent Boyce.

The digesters are being lined in sulphite mill and some speedy work being done by Superintendent Ware in the way of cooking sulphite of high strength.

Attitude Toward Study of Mill Men

Old Antagonism Between Practical Operatives and the College Trained Men Disappearing as Demand for Increased Production Calls for Intensive Scientific Methods

By T. Linsey Crossley

Institute of Industrial and Domestic Arts, Gardenvale, P. Q.

At a meeting of the Technical Association of the Pulp and Paper Industry held on Thursday, September 20, at the national exposition of chemical industries, Grand Central palace, New York, several papers of interest to pulp and paper plant technical men were presented, among them being this one by Mr. Crossley which detailed some of his experience and observations while endeavoring to introduce a correspondence course in pulp and paper manufacture based on the text books of the committee on Vocational Education.

HELLO! Supe said you were comin' in this shift to sell some school stuff, to learn a feller to make paper out of a book." That's part of what Bill Watermark said when I dropped in on the night shift at the X paper mill. Bill further enlarged on the disagreeable experiences of his soul in the hereafter if he ever had anything to do with learning to make paper out of a book. Bill is a little hard-boiled, though only thirty-one. He has been making paper fifteen years, and all kinds. He said he didn't mind hearing what the idea was, but guessed it wouldn't help much.

"Slack her off a bit, Yes! Slack" he yelled to his back tender "having trouble with her. Got a new felt on and it's runnin' forward on the back side, and there's a bum deckle strap on the front. That's a special order:—told Supe when I went off this morning, not to run it till I came on again. Ain't anyone in this mill can run that stuff over that machine but me, and the machine tender on that shift knows as much about tag as I do about airplanes. When I came in tonight they'd made about three hundred pounds, and I made the fourth hand stay overtime to clear up the floor. Well, you were going to tell me about these courses?"

It came out that Bill was expecting shortly through an old friend to become assistant superintendent of a small mill with a chequered financial history and later succeed his friend who was leaving. We discussed this project and it became apparent that Bill was nervous as to his general education. We talked about an hour with interruption, such as that stated above. Eventually he decided to take the full course —"soup to nuts" he said. He found that our courses would not only complete for him the fundamentals of a general education in mathematics and science, but also furnish very helpful information and instruction on the principles and practice of his own work.

Evidences of Interest

In a big northern news mill I came across the wet room foreman. He'd been out to a dance in the evening and had been in just long enough to be a little grouchy and chilled. He was reading a bulletin sent out by the company describing and giving approval to the courses. I asked him what he thought about it. "I don't think a hell of a lot of it," said he. When asked if he wouldn't like to know more of it before he threw it down so hard, he said. "Gee! do you want to argue about it? That's fine; come on down to the motor room, there's a bench there and it's warmer." So we argued, and he decided he would need to know more. In fact it was evident that he had been interested before we had our argument.

These two incidents which are as nearly accurate as memory can make them, show very clearly the attitude of a large number of men in the industry. They know the industry is getting away from the conditions of their earlier experience and they are thinking. First, there is resentment roused by a sense of injustice. This is not improved when they see men who have had little or no practical experience getting good salaries in "white collar" jobs, having authority over seasoned practical men. Second, there is realization that practical experience is not the all and end all of pulp and paper making today.

There are several agencies making use of the courses provided in the text books being published by the joint executive committee, but the pulp and paper faculty of the Institute of Industrial and Domestic Arts, Gardenvale, Quebec, is the only one using the individual canvass method. It is, therefore, likely that we have had more opportunity of getting frank views on this question from the men in the mill.

It might be pointed out incidentally that an outsider, if careful, can get a freer expression of such views.

There are almost as many attitudes as there are individuals. The limit on one extreme is that the whole thing is a scheme to make the practical man divulge his hard won knowledge for the benefit of the callow university men with "pull," who will get all the gilt-edged jobs.

A cognate case is that of the man who decides to take a course but doesn't want anybody to know it, either to forestall being pumped or to prevent having fun poked at him.

In one mill the superintendent was such a reactionary that two men who wanted to enter the course didn't want to take any chance of his hearing about it because they might lose their jobs.

Attitude Favorable in Most Cases

In the great majority of cases the attitude is favorable, various reasons for not entering being given by those who would like to study the courses but are obliged to refrain. Domestic expenses, sickness or property involvements are chief. Many men think they are too old at thirty to thirty-five. Of course, many are really too old. Lack of confidence keeps many men from entering.

At the other extreme is the man who said he had been waiting six years for just this opportunity and lost no time in signing up for a full course when he had looked over the list of subjects covered.

It is surprising what a lot of men in the paper mills are carrying on other businesses, farms, garages, poultry or groceries. Farming seems to be a sort of papermaker's Beulah-Land. He wants to spend a little time there before he goes to heaven.

Now for a few words as to the attitude of the employer. Similar views are found here depending in large measure on the personal history of the man in question, because of course, many executives are graduates from the ranks.

Pointing a Moral

A workman was dying, life was ebbing fast, his faithful wife asked if anything could be done for him. "Yes," he said, with a brightening eye, "bring me a piece of pine with a wood-screw driven half into it, and a screwdriver." This was done.

The dying man with sudden access of strength raised himself in bed and drove the screw home, then fell back exhausted but with a triumphant smile. "For seven years—I've started screws in wood—I've always wanted to finish the job—now I've done it."

Three girls working in the finishing room, were pasting, wrapping and packing little bundles of a specialty. Each girl was doing all three operations. The plant engineer advised having the work arranged so that each girl would do only one of the three operations. The president said, "They are girls, I want them to stay girls, not be degraded into machines. We can make dividends other ways."

A few years ago the idea was that in industrial work a man should be paid only on the basis of what he did. Along this line is a legend of a gentleman appointed to arbitrate in a question of wages in pulp mills. The grinder man's job was under discussion. "And what does he do?" said the arbitrator. "Oh!" said one of the committee, "all he does is to raise the lever, open the pocket, put in a block or two of wood off this pile, and shut it up again." "Then of course he is only unskilled labor," said the arbitrator.

At that valuation most of us are unskilled labor. We pick up a pen or pencil and make more or less intelligible signs on paper, or we press a button under our desk, which brings a young woman who makes signs for us, while we mess up some English by certain operations with our tongue and vocal chords, complicated by chewing a cigar. She lines them up, operates a machine that spreads them on paper, and we sign them. Why isn't the young lady paid more than the man whose strange sounds she has made effective?

Leaving aside certain building trades operations and the very important, though undervalued matter of loyalty, what is the difference between the $1,500 man and the $5,000 man if we are to be paid for what we do?

From another viewpoint: Here's a man who has worked ten years on a job calling for dexterity of hand or foot. He prides himself on his dexterity and nimbleness. He has a good job, well paid. Why should he worry about life? Some stroke of fate makes hand or foot useless. His earning power is gone and he must start all over again—a long, hard road—he probably has no educational basis.

Cultivation of Thinking Capacity

Time-motion studies, ability to handle machinery; the purely physical operations of industry have had their day; they will continue to be large factors in mill work, but they are of secondary importance to the ability to think.

This is especially the case in industries where democracy prevails.

One of these is the paper and pulp industry. Thirteen years ago the manager of a large corporation was seen by the writer about educational development in the pulp and paper industry. "Who would you educate? I want my workmen to do what they are told to do, and not argue about it." It is said the German army failed largely because the soldiers were trained not to think but merely to obey orders.

The pulp and paper industry has come to the conclusion generally, along with most others, that man's head is the most valuable asset both to himself and his employer. He can worry along without arms, legs, eyes, ears and even stomach, so long as his head is well stocked. If his head's gone there's nothing to worry about.

Hence industrial education has developed from the vocational or cook-book form up to the more scientific form wherein the basic principles are elucidated, to produce action by the coupling of cause and effect.

In the pulp and paper industry of America, in other countries also, but we are concerned just now about America—there have been very interesting developments in the application of science owing to the demand for enormously increased production. Up to twenty-five years ago the industry had been developed slowly, handicapped by traditional ideas, a limited literature and a conservative personnel.

With the introduction of scientific methods the need of cooperation between the scientist and the operative became apparent. A certain resentment, unexpressed in many cases, but picturesquely expressed at times, served to delay or render abortive the introduction of scientific methods. Indeed the chance of putting over a "bum steer" on the technical man has been only too tempting at times. For instance, losses well known to men in the mill are not reported. "Let them find it out for themselves. That's their job."

University Men Taking the Course

Diplomacy and tact might become subjects of a special course for some of our less experienced technical men, or, better still, a year or two in overalls on shift work. It is gratifying to note a tendency in that direction on the part of university men.

About 20 percent of the men enrolled in these courses are university men. One of these when he started the course was boss finisher. Shortly afterward, wanting to see him, I had to go to the time office, and I found him rated as unskilled labor helping on the beaters. Others are working as truckmen, broke hustlers or grinder men.

Of the nearly four hundred men now enrolled for these courses under the Institute of Industrial and Domestic Arts 21 percent are university graduates, 35 percent have studied in high school, night school or correspondence courses, and 44 percent went no further than public or grammar school.

The occupations represent about seventy different jobs, some of which are:—Four general managers, 8 superintendents, 5 assistant superintendents, 7 boss machine tenders, 50 machine tenders, 21 back tenders, 52 other members of machine crews, 9 foremen finishers, 14 other finishing department workers, 9 beater engineers and helpers, 5 grinder room foremen, 7 grinder men, 8 cooks and cooks' helpers, 5 acid makers, 5 wetroom foremen, 6 wetroom tenders, 7 chief engineers and assistants, 38 chemists and laboratory workers, 5 research efficiency and cost workers, 25 office workers, 19 machine shop and repair crew workers.

Besides these there are many positions only represented by one or two each. Among the miscellaneous jobs are one photographer, one forester and two blacksmiths.

Ages are from 17 to 60, though there is only one over 50. He says he has been a beater engineer for 40 years and wants to know more about it before he dies.

It will be noted that 50 percent are between 21 and 30, and that 80 percent are under 36.

Co-operation of Employers

The only successful method of approach has been by individual interviews in the mills. In a few cases these have led to appointments to see men at their homes, but unless the man can be seen first it may take two or three visits to his house before he can be seen. In most cases we are given a list of likely men by the management and allowed to see them in the mills. In some cases the mills issue notices or bulletins to employes.

Any form of active support by the companies is a great help; in fact, we have had practically no results in some important mills where executive cooperation was lacking. Sometimes fear is expressed that men may be oversold on this idea. This would be as undesirable to us as to anyone. We do not hesitate to tell men that this work requires backbone and perseverance and entails some sacrifice of time and pleasure. But the habit of study soon brings pleasure in reading and satisfaction in mental accomplishment.

Paper Standardization

Advantages of Standard Methods and Standard Specifications in Buying and Selling Paper

By Hubb Bell

United States Testing Company, Inc., New York

In a paper contributed to the meeting arranged by the Technical Association of the Pulp and Paper industry in connection with the National Exposition of chemical industries at Grand Central palace, New York, on September 20, Hubb Bell, of the United States Testing Company, Inc., New York, reviewed in a capable and careful manner the methods of controlling the quality of paper and also discussed the use of tests by consumers.

IT is a well-known fact that there has been a lack of attention to standardization and simplified practice by the paper industry.

Statistics show that there are 800 terms used in the buying and merchandizing of paper; there are 150 to 200 distinct kinds of paper and the number of uses of each is unknown; of 177 books 101 showed different page sizes; 230 sales house organs had 85 different sizes, 496 trade magazines had 95 different sizes and 57 national magazines had 27 different sizes.

Standardization is a very complex subject. In general, it means to single out specific products and materials, to settle upon their properties and dimensions, and to concentrate upon them in production and in use—all to the end of bringing about the greatest overall industrial efficiency possible. This involves nomenclature, purchase specifications, methods of test, uniformity in dimensions, and concentration upon the optimum number of types, sizes and grades of manufactured products.

Most of these factors have an intimate bearing on specifications. A definition of a project or of a process or application often is merely a specification in itself. Conversely, a specification in the larger sense is nothing but an elaborate definition. The specifications for a commodity are really the writing down specifically of what the buyer or purchaser wants, so that the buyer can write or wire, "send me 100 pounds of bond paper," and it seems something perfectly definite and specific to both of them.

It is perfectly feasible to make definite recommendations as to specifications of quality for commercial use. Test methods are sufficiently standardized and there are a sufficient number of mills under technical control to warrant this step.

The Standardization of Paper by Tests

In preparing standard methods and standard specifications, the fullest co-operation must be obtained from manufacturers and consumers, and the standardization thereby effected will enable the buyer and the seller to speak the same language. In overcoming the prejudice against standardization, the manufacturer has learned that it is possible for him to produce a far better quality of product, and at the same time greatly reduce his expenses through mass production. This lower cost makes it possible not only to offer to the public better materials at lower unit prices, but also to maintain at the same time higher wages for labor.

American standards of quality, having forced recognition throughout the world, have stabilized production and employment through the broadening effect of increased markets, and have made it safe for manufacturers to accumulate stocks during dull periods, when, without such standards, such a policy would have been extremely hazardous not only to the manufacturer but also to the general public.

Although standardization restricts the varieties for selection, it permits concentration of thought and skill upon design, so that the products may be more economically and efficiently handled. It also reduces the maintenance cost of the finished structure by simplifying the stock necessary for their maintenance. Well established standards have developed that factor of safety which is essential for the producer in making the finished product. Moreover, the care which is exercised in the preparation of standards gives full assurance to the public that the materials purchased and tested in accordance with standard specifications and standard methods will result in furnishing the best that can be produced, at the lowest possible cost, and at the same time will afford all safety necessary to the public welfare.

The American Society for Testing Materials, whose membership consists of technical men, has for its purpose "the promotion of knowledge of the materials of engineering and the standardization of specifications and the methods of testing." Their standards have been adopted in the following field of materials: Ferrous metals, including practically all iron and steel products; non-ferrous metals, including products of copper, zinc, lead, aluminum and alloys; cement, lime, gypsum and clay products; preservative coatings, including oils, pigments and paints; petroleum products and lubricants; road materials, coal and coke, timber, waterproofing, insulating, shipping containers, rubber products, textiles.

Representative Samples Necessary

Paper can easily be placed on a similar basis since the technique of testing of paper in this country is clearly standardized, and is just being recognized as of much importance.

The paper industry now has available official standard methods. The paper testing methods of the Technical Association of the Pulp and Paper Industry are defined and standardized so that comparable results can be obtained by different laboratories.

A very important aspect of the technical study of paper, which is covered in the above-mentioned methods, is the proper, intelligent and systematic method of procuring portions of a lot of paper which may be duly considered to be a representative sample of that lot. Unless this is done, the value of any test is somewhat depreciated by not knowing whether the sample represents the lot of paper in question. It is believed that proper sampling is important both in the mill during manufacture and also at the point of delivery or shipment to determine the quality of the paper received. Owing to the method of manufacture of paper, the lack of uniformity on paper, and the errors introduced during the testing of paper, definite systematic tolerances are given.

The combinations and proportions in which pulps are mixed in the manufacture of papers are innumerable, and as a consequence it is difficult to know, without scientific testing, what the papers may be that one is using, or to buy a paper by name alone for a specific purpose, and know for a certainty that it will stand up in service.

An old papermaker can, with a great deal of certainly, tell from an examination of a sheet of paper much of its history, and among a number of different papers pick out the one most suitable for the purpose for which it is to be used. But appearances and names are not the best guides.

Service quality tests are always made in both directions of a paper for uniformity; however, the weakest direction must be considered first, as in all materials nothing is stronger than its weakest point. Perfect uniformity is not practicable, because of the method of manufacture, the many different proportions of the pulps, and the use of waste and scrap materials.

The color of a paper does not indicate what kind of a paper it is, for colors are used to disguise the makeup or to make it more attractive. Often a fancy felt or a special roll is used to imprint a design into the paper, and practices of the industry have become so mixed that it is difficult to tell, from the name applied, just what the paper is made of; but the characteristics of any sheet will always be substantially the summation of the characteristics of the raw materials employed in its manufacture, and a fair estimation can be made as to the comparative qualities of a paper if the raw materials which were used are known. It follows, then, that to intelligently select a paper for a specific purpose, the conditions under which it is to be used, and the severity of the service which it must render, must first be considered; and, knowing them, the kind of paper, the weight and the finish which will best meet the requirements and be best suited for the purpose can be efficiently selected.

It is clear to anyone that it makes no difference what classification a paper is sold under, unless the mill-brand or watermark establishes beyond a doubt that the designation insures that the paper sold under this class has certain important properties and characteristics which are essential to the successful and satisfactory usage of that paper.

Value of Paper Testing

Paper testing for the purpose of determining relative values for these important characteristics has been in use by competent and experienced manufacturers for many years as a means of insuring against defective papers and undue costs. From these tests manufacturers have learned to recognize certain limits for each property outside of which they do not care to go. The limits may vary for different kinds of paper, depending on what conditions they must withstand in use.

One expects, therefore, to find these limits reflected in classification in a quite definite way, but on inquiry discovers that no one can define a class in definite terms with numerical coefficients.

Paper testing is, of course, primarily of value to the consumer, who is to be found in practically every line of business. Often large sums of money are spent on the item of paper alone, but as a rule the consumer has no way of judging the character or quality of the paper or its suitability to his particular needs, except through observation or the word of the salesman who is selling it to him, and who is, of course, chiefly concerned in making a sale. That observation counts for a great deal in determining the suitability of a paper and in the estimation of widely different types cannot be gain-said, but can observation tell, which of two writing papers is the better? They may look and feel much alike and yet be widely different in quality and have many different properties.

The consumer can make the seller submit samples and estimates of the particular kind of paper he wishes. He will then have a chance to compare the kinds and qualities of paper on the market and the prices of the different firms. He gets a greater variety to choose from, and also, by letting it be known that the samples are submitted on specification, gets the best price possible for the given quality of goods. Paper testing here performs the duty of determining which sample represents the best value for the money.

In controlling shipments paper testing is also of value as it shows whether the paper is up to specification and whether the consumer is getting what he contracted for. The United States Government is controlling the quality of all the paper used in the different departments by buying on specification and by testing shipments, and in many cases actually getting a better paper at a cheaper price.

In view of the foregoing it may be stated that paper testing in general is of use:

(1.) In determining the best values obtained from money paid.

(2.) In buying on specification determining which paper submitted is most suitable and economical.

(3.) In insuring uniform deliveries and maintenance of quality.

What is needed to bring about the desired definiteness in the standardization of papers is that the accumulated experience in terms of tests be brought together and analysed with respects to the bearing of these properties individually to conform to the tests and limits found desirable in practice, independently of the classification as it now exists, and with respect to the limits to be set for in each property. It is only necessary for the consumers to agree on the specification and to be able and willing to have tests made to insure that they are getting what they specify.

The subject of the standardization of paper by tests is one which should interest a large number of people connected with industries which demand the use of paper and allied products. On the one hand is the papermaker producing the finished article, and on the other hand there are the printers, publishers, book binders, paper agents and stationers, who supply the general public.

Of recent years there has been a good deal of agitation as to the inferior quulities of the paper used at the present day, and it is evident that much of the paper brought into the market will not last any length of time. It is quite true of the paper trade as of many other industries that the demand for cheapness has superseded the desire for an article of high quality, yet the papermaker of the present day can produce a paper quite equal to any that has ever been made, for it is really a question of prices.

Standard Tests Necessary

The purchase of paper is too often based on the qualities of appearance and price. Until we have standards of quality in terms of tests rather than those of purely commercial consideration, there will always be many cases wherein the price paid is highest for paper made from the least valuable material. But so long as there is an absence of standards of quality by tests this unsatisfactory state of things will continue. It may be traced partly to a want of interest in the subject, and partly to the lack of cooperation among those concerned. The keen competition among manufacturers which has resulted in the creation of the false and arbitrary standards connected with the mere appearance of the paper, as well as mill-brands, is also another reason, while an indifference to the scientific aspect of the question has generally been the prime factor.

Methods of controlling the quality of paper should be as scientific as is consistent with their practical value. Systematic testing will enable competition to be met on the basis of actual quality and value. Every paper does not require a full test to enable one to judge quality, uniformity and utility. For example, a bond, ledger and writing paper for best quality should have a high resistance to wear and tear and to friction and folding caused by repeated crumpling or creasing.

Variations in the relative humidity of the atmosphere have a decided effect on the physical properties of paper. The results of all physical tests on papers are affected to a greater or less degree by the ordinary variations of the relative hu-

(Continued on page 25)

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

Forestry Program at Washington

Vigorous Effort for National Legislation that Will Promote Cooperation with Private Owners

Definite forestry legislation of a national character is to be actively pushed at Washington beginning in December. Probably three bills will be introduced in the senate and house early in the session, but there will not be a serious difference in character in any of the three bills.

This was disclosed at a recent meeting in New York of the National Forestry Program committee, of which R. S. Kellogg, secretary of the Newsprint Service bureau is chairman, and Warren B. Bullock, of the American Paper & Pulp association, secretary.

The committee met to discuss the developments of the past year along forestry legislation lines and to determine its future activities. It was the unanimous sentiment that the work of the committee, which centralized the movement for a national forestry policy law, should be continued with increasing activity.

The committee will devote its future efforts to the actual securing of legislation to carry into effect its proposals based on the need for active cooperation between Federal and state governments and the private timberland owners. That the future forest of the nation will be divided in the proportion of about 40 per cent public, and 60 per cent private, was the general sentiment, and the need for public cooperation with the private owner, rather than control of private property by the state and national governments, was considered to be most important.

In general, the committee will continue its efforts to see such cooperative legislation enacted. It now seems certain that Bertrand H. Snell, author of the original Snell bill introduced in the Senate with few vital changes by Senator C. H. McCormick, will again be introduced by the New York congressman, himself formerly interested in the paper industry. Congressman Clarke will introduce again his bill which provides for immediate appropriation for fire prevention and similar emergency requirements.

The most important new bill, however, will be that of the United States Senate Committee on Reforestation, which will in the next few weeks complete its national series of hearings on the whole forestry question. The committee's report, it is expected, will be accompanied by a committee bill to put into effect such policies as the investigations have found to be necessary. The result of the committee's investigations will be watched with great interest by all those interested in forestry developments.

This committee has two more hearings partially scheduled in the field before the final hearings to round up the whole investigation. The last hearing will be held in Washington. Chairman Kellogg of the National Forestry Program committee has been asked to appear there.

The latest hearings of the Senate committee have involved largely the New England situation and its relationship to the paper industry. At Albany, G. W. Sisson, Jr., former president of the American Paper & Pulp association, was one of those appearing for the New York paper manufacturers. At Boston various New England men appeared, while at Bangor, Maine, the paper industry was again represented by Dr. Hugh P. Baker, secretary of the American Paper & Pulp association.

With these three bills in progress there seems reason to anticipate that definite action may result. The congressional activity will certainly not be affected adversely by the National Chamber of Commerce referendum, the result of which will be made known Nov. 17th, two weeks before Congress meets.

The Jack Pine and Popple

Among the men whose names appear often in connection with the national forestry is Dr. Raphael Zon, forest economist in the research branch of the U. S. Forest Service, and now also chief of the new lake states federal forest experiments station. Dr. Zon's statements and the results of his many investigations are always interesting and instructive.

Speaking recently before the Woodlands section of the American Paper and Pulp association at Chicago he said, "The despised jack pine and popple will come into their own within a few years as the salvation of the forestry problem in America."

He adds the information, however, that a saw-fly of a different species but of the same genus that worked havoc among the larch, has made its appearance among the jack pines.

Dr. Zon says that the jack pine and popple are proving so satisfactory for sulphite pulp that their rapid growth will be a most important factor in future pulpwood operations. He also forecasts the eventful conversion of timber into fabricated building material, and predicts that our present methods of cutting logs into board and will in time be considered primitive.'

If this is the trend of our times it is reasonable to conclude that the predicted changes will come about through application of the principles of paper making to the manufacture of fabricated board.

Forestry Work by Lumber Company

The paper industry has properly boasted of its preeminence in the introduction of forestry into its woods operation. The lumber industry is rapidly developing a lively interest also, as seen in the recent undertaking by the Long-Bell company, one of the greatest of the southern lumber companies.

John B. Woods, a forest engineer, has been engaged to make a survey of 750,000 acres of land in four southern states, comprising two blocks of land in eastern Texas, four in western and southern Louisana, and one each in eastern Mississippi and Northern Arkansas

The objective of the survey is to determine the character of the land and other conditions requisite to the reforestation or timber management of all the areas. The survey contemplates the permanency of forest operations in the south by this company, or at least the prospect of half a century more of operation.

Hauling Logs Through Snow

How to faciliate logging transportation in winter is a problem which will be attacked in a new way this winter. This is a development of the convention plans of the Woodlands section of the American Paper & Pulp association for the Chicago paper week conference.

Through the cooperation of the section a plan is now being formulated for a field demonstration of a new motor-driven machine during the coming season. Paper company foresters of the entire eastern region will be given an opportunity to attend the demonstration when dates and plans are perfected.

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Wanted—A National Forestry Policy

A COLUMBUS DAY editorial in one of our leading newspapers brings to mind that inherent quality in the American people which enables them, decade after decade, to meet their obligations and work out their destiny. By that quality we have come to be known as a nation that does things according to a certain method all its own. Often it is a slow method, but it is usually a sure one. Sometimes it is spoken of as "the good old American way".

A recent adverse criticism by an English newspaper on the subject of our struggle with the prohibition question ends with the rather complimentary remark that "hands off is the best advice, for if America be given a chance to work out the problem she has so courageously tackled, she will eventually solve it."

We have set our hands to the plow in the matter of forestry legislation, with a view to the adoption of some definite forest policy. The events of the last few weeks indicate the general trend which early congressional action will take and the preliminary work, carried on by congressional committees and business groups, is now practically complete.

In our last issue reference was made to the referendum contemplated by the national Chamber of Commerce. The thoughtfulness with which the forest problem is being faced is also shown by the very comprehensive group of interests that appeared before the U. S. Senate Committee on Reforestation at its Albany meeting of Sept. 21st. Subsequent meetings developed the same general interest. There appeared before the Albany conference at least two representatives from the paper industry, two from the lumber industry, four from the conservation department of the State, two from the colleges of forestry, and a corresponding number from business at large and from such private organizations as the State Forestry association. The committee itself is made up of Senators from five states, and includes the chief forester of the United States.

There is manifest, everywhere, a spirit of sincerity and helpfulness; a desire to conciliate, and a determination to get down to business on a policy which all will agree to give an honest test. What we need is a policy that can be whole-heartedly installed in place of the old one of cutting the timber faster than it can be grown. The American people will eventually adopt such a policy. The interesting question is—"Will they do it this winter?"

Glassine and Cellophane

Glassine paper differs from cellophane in being a true paper which has acquired its transparency and sheen from long beating of the pulp in the engine and subsequent calendering.

Cellophane, on the other hand, is formed from a chemical solution of cellulose and special after treatment.

Each may be beautifully embossed with lacelike tracings by passing the material under an embossing roll.

Annual Red Cross Roll Call

The paper trade in New York City is co-operating actively with the Red Cross in its annual roll call, which opens Armistice day, November 11, and continues until Thanksgiving, for the enlistment of new memberships to maintain the organization's manifold peace-time program of relief and public health work.

Three special committees composed of representative leaders in the various branches of the paper trade have been formed in accordance with the campaign plan of organizing the entire city into various industrial, mercantile and professional groups to facilitate the Roll Call effort.

Each committee is headed by its own chairman. Joseph McCormick, of the American Paper Mills company, 261 Eighth avenue, is acting as chairman of the Paper Manufacturers and Paper Dealers group; A. D. Morstadt, of the Union Paper company, 844 Washington street, is chairman of a similarly organized committee to cover the Paper Boxes group, and a Stationers group is functioning under the chairmanship of William E. Ward, of John Ward and Sons, 115 Cedar street.

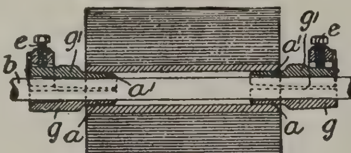
These special roll call committees are functioning actively to secure the maximum response to the roll call throughout their particular field, and plans are already under way to reach every person in the paper trade directly with the Red Cross appeal.

Help for the ex-service man and his family, including legal assistance, loans of money, advice on domestic matters and medical care constitutes a major part of the work in New York for whose maintenance the annual roll call is conducted. The Red Cross activities in New York City also include disaster relief and a public health program among whose features are the supplying of surgical dressings to 22 local hospitals, nursing service, first aid, and work in home hygiene and care of the sick.

New Developments in Paper Making

Fastening Paper Rolls

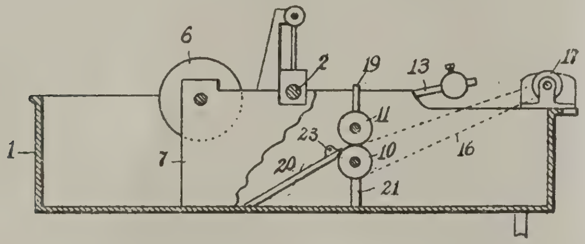
The following diagram shows a method of fastening paper rolls which is patented in Great Britain. A pair of devices is used each of which consists of two members g and g', having



conical surfaces adapted to bear upon the shaft b and to rock thereon, so that the inner ends a, a' of the mengers g, g' may expand and grip the bore of the roll. This expansion is effected by a screw which passes through a looped part of the member g and bears against the other part g'.

Beater With Washing Arrangement

The accompanying figure shows a beater with a washing attachment which is patented in British patent No. 181,220. (close to the beater roll and the opposite side of the mid-



feather 7 of the beater trough there is arranged a washing attachment which consists of a wash drum 6 and a pair of rolls 10, 11, of which the lower roll runs in fixed bearings. This roll 10 is driven by an electric motor 17 by means of a belt 16. The upper roll 11 rotates in movable bearings and the pressure of this on the lower roll 10 is regulated by means of the weighted lever 13. The two rolls 10 and 11 are provided with scrapers 19 and 21. A board 20 is arranged at the point of contact between the two rolls.

After the mass of stock has passed through the beater proper it is pushed up the inclined board 20 and enters between the rolls 10 and 11. The stock is subjected to a rather strong squeezing action thereby which removes the dirty water. This is allowed to run off through suitable openings and the stock travels around the mid-feather 7, comes in contact with fresh water and passes through the beater again.

* * *

Treating Cellulose Pulp Liquors

When vegetable matters are boiled with alkali to produce cellulose pulp a "black liquor" is obtained and the object is to recover the organic acids and alkali metal compounds that are found in it. The liquor is treated with oxalic or acetic acid or a salt of these acids to flocculate the coarser particles of impurities which are present in the black liquor and which are hence removed in this manner. The separated material is treated with oxalic acid to liberate the fatty substances which are dissolved out and recovered by means of alcohol, carbon tetrachloride or trichlorethylene.

The original liquor is then treated with lime or magnesia or powdered animal black to absorb most of the remaining impurities. The absorbed matter may be removed by a solvent. The original liquor is then distilled fractionally to recover volatile substances, and may then be calcined with carbon in a furnace in order to recover the soda. This process is patented in British patent No. 200,482 and is assigned to L'Alfa, Societe Anonyme pour la Fabrication des Pates de Cellulose.

* * *

Fourdrinier Paper Machine

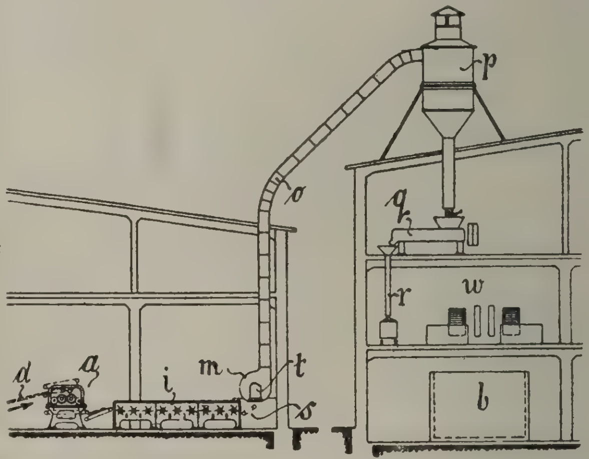
Austrian patent No. 89,164 is concerned with an improvement in the construction of the wire in Fourdrinier papermaking machines. The shaking action of the wire is carried out without oscillation of the lateral frames. This means that the weight of machine parts that are oscillated is reduced and hence the shaking action can be carried out at greater speed than in the ordinary type of Fourdrinier wire papermaking machine. This results in an increase in the production of paper from the machine and at the same time the quality of the paper is materially improved.

* * *

Reworking Old Paper

German patent No. 364,789 is concerned with a process for reworking old paper and similar waste material recovered for manufacture into paper stock. The arrangement of the apparatus is seen from the accompanying diagram.

The old paper is removed from the bins, etc., and placed on a traveling conveyor d which carries it directly to the cutting machine a. Foreign substances of large mass are removed while the waste is on the traveling conveyor. From the cutter the material passes on to another traveling conveyor, which carries it directly to a purifying machine i. This machine consists of a number of rolls, arranged one after the other and provided with flays which beat up the stock and remove all the dust from it. The object of this machine is to cleanse the stock as much as possible.



From this machine the stock is carried by a traveling belt s to a point where it is sucked up into the fan t which blows it up the tube o. The material enters at the opening t, which is closed with a screen. This can be regulated at will and similarly the distance between the traveling belt s and the suction tube t. By regulating the suction effect the heavier impurities, such as sand, bits of metal, glass, etc., that are mixed with the paper stock, are removed by simply not being carried along with the current of paper stock passing up the tube o. The stock passes into the device p which serves to remove the air and then drops directly into the machine q where it is separated into fibers. The stock can now be carried to the next lower floor of the building by means of the tube r and can be beaten in hollanders or edge runner mills, shown at w. It finally drops into the storage box b.

Construction News

Fresno, Cal.—The Independent Paper Stock Co., 3035 Butler street, has awarded a general contract to the K. E. Parker Co., Clunie building, San Francisco, for the erection of a new one-story plant on Butler avenue, to cost about $45,000. Work will be commenced at once.

Eau Claire, Wis.—The Dells Paper & Pulp Co., has commenced work on its proposed local pulp and paper mill, and plans to have the initial unit ready for service in the near future. A list of equipment has been arranged and it is expected to place orders to have the machinery available when the plant is completed sufficiently for the installation. The new mill is estimated to cost in excess of $350,000, with equipment. L. A. DeGuere, Wisconsin Rapids, Wis., is consulting engineer.

Fort William, Ont.—The Great Lakes Pulp & Paper Co., has preliminary plans in progress for the construction of a new pulp and paper mill on site selected. It will consist of a number of buildings, with power house, machine shop and other mechanical structures, and is estimated to cost more than $2,000,000, with equipment.

St. Joseph, Mich.—The Mid-West Box Co., 111 West Washington street, Chicago, Ill., manufacturer of fiber board products, has acquired the local mill of the Mullen Brothers Paper Co., taking over the interest of Francis Huges, who acquired the property at a receiver's sale a number of months ago. The new owner will occupy the mill at once, and plans to develop an extensive capacity. Necessary improvements will be made in equipment. W. H. Fairchild is president of the purchasing company.

Rockingham, N. C.—In connection with the proposed new local mill of the Rockingham Paper Co., lately formed with a capital of $75,000, the company has perfected arrangements with the Economy Cone & Tube Co., a local industry, to take about 60 per cent of the initial plant output, which is expected to average from 8 to 10 tons per day. Plans are being perfected for the mill and it is expected to commence work at an early date. H. C. Wall is president.

Brampton, Ont.—The Gummed Paper Co., has preliminary plans under way for the construction of a new addition to its plant on Henderson street, estimated to cost close to $22,000. Additional equipment will be installed.

Franklin, N. H.—The International Paper Co., New York, has tentative plans under advisement for the construction of an addition to its local mill.

Nashville, Tenn.—The Nashville Paper Stock Co., 101 Church street, is perfecting plans for the erection of a new four-story building at Church and First streets, estimated to cost $45,000, and will commence work at an early date.

Fort William, Ont.—The Fort William Paper Co., has preliminary plans under advisement for the erection of a number of new mill units to practically double the present output, approximating about 200 tons of newsprint per day. The expansion is estimated to cost in excess of $2,000,000, with machinery. Additional power equipment and operating machinery will be installed.

Boston, Mass.—The M. F. Driscoll Paper Co., has tentative plans for the rebuilding of the portion of its warehouse at 205 Central street, recently destroyed by fire with loss approximating $17,000.

Chicago, Ill.—Fire, Oct. 6, damaged a portion of the works of the South Side Paper Stock Co., occupying space in the building at 5833-35 Throop street. The estimated loss has not been announced.

Midland, Ont.—The International Fibre Board Co., Canada Cement building, Montreal, Que., has tentative plans under consideration for the construction of a new plant in the vicinity of midland, where a site will be secured, it is said, at an early date, and plans placed in preparation.

Pittsfield, Mass.—The Eaton, Crane & Pike Co., has acquired the local plant of the Pittsfield Machine Tool Co., comprising a main factory building and a number of smaller structures, on a 5-acre tract of land. The plant was constructed a number of years ago and used initially for the manufacture of automobiles. The new owner purposes to use the property for extensions in its local paper mills.

Merritton, Ont.—The Garden City Paper Co., has plans in progress for the construction of an addition to its mill at St. Catharines, Ont., estimated to cost in excess of $300,000, with machinery, a list of which will be arranged at an early date.

Financial Notes

F. A. Sabbaton, Grand Mere, and F. Perry, Montreal, Que., have been appointed receivers for the Dryden Paper Co., Ltd., Toronto, Ont. The receivership, it is stated, is a friendly one and was made with the co-operation of the board of directors. It is expected that under such direction that the company can be brought soon to a profitable basis of operation, and eventually discharged from the receivership.

New Companies

Rockford, Ill.—The Flexible Fiber Products Co., 657 Race street, has been incorporated with a nominal capital of $4,000, to manufacture paper and fiber products. The incorporators are A. N. Valentine, C. A. Peterson and J. E. Broadie.

Independence, Mo.—The Independent Loose Leaf Mfg. Co., has been incorporated with a capital of $50,000, to manufacture paper specialties. The incorporators are William H. Murphy and Edmund G. Harrington, both of Independence.

New York, N. Y.—The Indian Paper Co., has been incorporated with a capital of $10,000 to manufacture and deal in paper products. The incorporators M. and D. Levy, and M. E. Stein. The company is represented by Henry Uttal, 32 Broadway, New York.

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Doings in Canadian Paper Field

Anti-Embargo Sentiment Growing

Testimony Before Pulpwood Commission Shows Strong Opposition to Further Restriction

The testimony heard by the Canadian Pulpwood commission at its hearings in Nova Scotia and New Brunswick continues to be overwhelmingly against the imposition of an embargo against exports of pulp wood. Those testifying have voiced the opinions generally of settlers.

On the other hand, some of the leading pulp and paper manufacturers are just as strongly for the embargo. For example, Sir William Price, one of the most important figures in the Canadian pulp and paper industry, is out for it. He says:

"Last year to produce 1,088,205 tons of pulp, 1,405,440 cords, or 702,722,000 feet board measure, of pulp wood were consumed by 46 mills. In addition 553,836 cords, or 276,918,000 feet, board measure, were exported to the United States and about 925,360,000 feet, board measure, were used for other forest products; the whole accounting for a total wood cut of approximately 1,905,000,000 feet board measure. To this consumption must be added in the future 500,000 cords of pulp wood—an amount that practically equals the present export—to provide for new mills or paper machines now under construction.

"It is only with the most intensive protection and the strictest conservation that it will be possible to maintain this vast supply of raw material to provincial forest industries. In some districts a timber shortage is already in sight and it will be necessary for the mills operating there to purchase all the available pulpwood that is produced in the province.

"There is therefore no surplus supply for export and mills in Quebec are going to be short exactly the quantity of wood that is sold mills in the United States, unless our forest reserves are depleted in defiance of conservation. This means that they will be unable to operate at capacity and will give less employment to labor."

A number of lumbermen who have been on the stand have not been backward in declaring that they are opposed to the measure; in fact some were quite emphatic in their expressions of disapproval.

A. McColl, general-manager, maintenance division of the Nova Scotia Steel & Coal Co., recently said that an embargo would work a hardship on the small operators, particularly farmers who had timber lands. He thought the government should establish experiment forest farms on the same plan as the experimental farms.

At Halifax, F. H. Colby, representative of the S. W. Warren Paper Co., Cumberland Mills, Maine, and former commissioner of the Maine forestry department, gave an interesting outline of the conservation programme of that state. He declared his belief that Nova Scotia had the finest timber stands he had seen and with proper protection they would become a marvelous asset.

Percy W. Jost, of the Jost Co., Montreal, who are large pulpwood exporters, expressed his lack of faith in the embargo as a worth-while measure. The American paper mills were finding it to their advantage to import pulp and consequently the United States market was rather poor. The situation was such that there was now very little inducement to cut pulpwood and, with the open market cut off, conditions would become worse. Mr. Jost suggested that if conservation became absolutely necessary, the prolific use of paper could be curtailed to half the present consumption without any one suffering. The tendency of the embargo, he declared, would be to give the Canadian manufacturer a lot of cheap wood which would work to the disadvantage of the farmer and small producer.

Ruling May Increase Exports

The new ruling of the United States Treasury defining Standard newsprint has not yet affected Canadian mills appreciably, but as it is very elastic it is thought by some that it may stimulate exports of news to the Republic.

According to the ruling newsprint paper to be admitted free into the United States "is hereby defined as consisting of mechanically ground wood pulp and chemical wood pulp or sulphite containing in excess of 30% of sulphite and varying in weight not more than 10% from 32 lbs. to each 500 sheets of 24 x 26 inches."

A certain amount of halftone newsprint paper had been shipped across the line prior to this ruling and most of it weighed about 35 lbs. to the 500 sheets of the size specified, which means that it still enters the States duty free. Mills turning out paper of a heavier weight will merely reduce the weight so as to come within the scope of the ruling.

The opportunity of the Canadian mills lies in the elasticity of the ruling. It is possible to make a kind of book paper out of bleached ground wood and the small proportion of sulphite that is allowed, and it is expected that when Canadian mills begin to realize this fact a type of book paper will be produced that can enter the United States under this ruling free of duty.

Another International Pulp Mill

Elsas, Ont., will in the near future have a large kraft pulp mill which will be erected at a cost of $1,500,000 by the Continental Wood Products Co.

This organization was a few weeks ago awarded the right to cut pulpwood and timber on the area situated in the watershed of the Trout and Chapleau rivers in the district of Sudbury, comprising a territory of 1,049 square miles. The construction must be started within the next few months on the new mill and before June, 1924, $500,000 must be expended. The capacity of the mill must be 75 tons a day and 100 persons must be employed.

The company, which is a subsidiary to the International Paper Co., is a concern which is doing things and may be relied upon to carry out faithfully and efficiently its agreement with the Department of Lands and Forests of Ontario in the erection of the kraft pulp mill. It has built 20 cottages at Elsas while others are in course of erection, together with a school and clubhouse. The cottages are finished with beaver board and hardwood flooring consisting of two bedrooms, sitting-room, dining room, kitchen, pantry and toilet with a large covered verandah in front.

Fire broke out recently in the plant of the Lennox Paper Mills, Camden East, Ont. The blaze, which started in the stock room, was noticed by girls during the noon hour and the fire call was given. The workmen formed a brigade and were successful in stopping the spread of the flames. The stock room, two office buildings and a large boarding house were destroyed. The plant was recently taken over by a new company and had started operations. It is understood that production will in no way be interfered with.

Employes' Benefit Association

At the recent annual meeting of the Employes Benefit association of the Consolidated mill, Wisconsin Rapids, Wis., the first meeting of the newly elected trustees was held, preceded by a banquet to which the old and new trustees and various mill officials sat down.

George W. Mead spoke on the benefits of the association as seen in the mill and told of the progress made since its organization in 1916.

H. A. Babcock of the Interlake company of Appleton also spoke on the progress of the local organization and that of a similar benefit association at Appleton.

At a business session of the new trustees F. W. Powers of Stevens Point was elected chairman and F. W. Drumb of Wisconsin Rapids was named superintendent of the association.

No Shortage of Labor

The Continental Wood Products Co., of Elsas, Ont., reports there is no unusual activity as regards price and demand for pulpwood in that vicinity nor has the proposed embargo made any change that is in any way apparent.

The company has three large camps working in the vicinity of Elsas getting out pulpwood and during the past month had some trouble in securing men but toward the latter end of September the labor situation improved greatly. The company has now bought all the help that it requires.

The firm considers that the shortage of labor in September was due to the majority of men in those parts going out to the harvest.

Pulpwood Prices Rising

J. B. Moncion, of Cochrane, Ont., speaking of the pulpwood situation in that district, said that sap-peeled wood is about 10 percent higher than last year and the price for rough wood will also be higher this fall from 10 to 15 percent. The threatened embargo does not seem to have made any change in the general situation around Cochrane and no American buyers have covered this ground, so far as he knows, buying up any larger quantities than usual.

Mr. Moncion says that the cut will not be as large this coming winter around Cochrane as last year owing to construction work like the extension of the T. & N. O. to Tin Can Portage and the waterpower development at Mileage 42 north. Wages will be higher than last year and labor is scarce.

Promotions at Crane Mills

The Crane mills at Dalton, Mass., have appointed three superintendents at the Pioneer mill, one being in charge of each of the eight-hour shifts. They are T. O. Johnson, who has been acting superintendent for several months; Henry Stowell, beater engineer of the mill, and John Anthony, formerly foreman of the linen department at the Government mill.

Mr. Stowell is succeeded as beater engineer by Walter Grew, who has been a beater engineer and who in turn is succeeded by Timothy Morrison of the Government mill. Mr. Morrison is succeeded by Roy Belcher.

The market for ground wood pulp at the present time is quite active and nearly all mills in Canada who can take advantage of present prices are doing so. As high as $45 per ton is being obtained, f. o. b. mill. The recent rise in prices was caused by low water conditions on the other side of the line resulting in a number of grinders being shut down.

The Lyons Paper Co. at 1459 Tremont street, Boston, has been purchased by Charles A. Coombs, who will continue the business under the same name.

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Doings in Canadian Paper Field

Operations of Porcupine Company

The Porcupine Pulp & Lumber Co., Limited, has been operating at Hoyle, Ont. for the past six years. The head office of the company is at Niagara Falls, N. Y., and the president is E. E. Mansfield, of Niagara Falls.

The Porcupine organization takes out an average of 8,000 cords a year and this season let contracts for about 11,000 cords of 4 feet wide. The wood is cut by contractors from lands either owned by the company or upon which it has cutting rights. The company has rights upon some 8,000 acres. M. E. Crouch, who is an Ontario land surveyor and formerly resided in Port Arthur and Nipigon, Ont., has been appointed manager of the company.

Hoyle is on the T. & N. O. railway, 16 miles south of Timmins. The Porcupine Company owns 39 acres at Hoyle upon which are mill buildings, etc. A subsidiary concern, the Porcupine River Improvement Co., Limited, operates a dam on the Porcupine river at the mill and has certain driving rights on the stream under the Provincial act governing such companies. The wood is either hauled direct to the mill or driven down the Porcupine river to the rossing plant.

The company does not operate any camps but gives contracts to outsiders for all wood. The mill of the company rosses on an average of about 125 cords in ten hours. For the past two months men have been at work placing concrete piers under the mill, erecting a new conveyor and making other changes and improvements.

Straw Pulp Mill in Manitoba

A straw pulp mill will be erected in Western Canada and the initial unit will turn out 50 tons of pulp daily. Sir Frederick Becker, of London, England, when in Canada recently, looked into the possibilities of establishing such a plant in the prairie provinces. His investigations proved satisfying.

M. Dolfus, managing-director of Devains Process, Limited, of England and France, is at present in Canada arranging to go ahead with the mill. As already stated, it will have an initial capacity of 50 tons of pulp per day, which will require 150 tons of straw; a capacity which will be enlarged, before 1925, it is likely, to 100 tons a day, and more if the first mill proves satisfactory. It will cost between $1,000,000 and $1,250,000 to put up the first unit of the mill. This includes machinery and plant only. Numerous offers have been received from Western interests of free land sites. The cost of raising the capital will also have to be added. This will bring the total cost to about 35 percent less, it is stated, than the cost of constructing a wood pulp mill.

Pejepscot Company Activities

The Pejepscot company, which maintains mills in Maine, has extensive pulpwood areas in the Salmon river district of New Brunswick, which is just east of the Mispec river.

The Pejepscot company has been cutting more pulpwood during the summer and fall of this year than ever before for what is termed a summer season. Most of the wood is shipped in barges under tow to the Maine mills from the company's piers at Salmon river on the Bay of Fundy.

Preparations are now being made for enlarged operations during the winter cutting season. Indications at the otuset of last winter were that the largest cut ever made would be taken out of the Salmon river limits but the frequent and heavy snows and bitter cold militated against the success of the woods operations. In fact, the work was suspended in January, it being absolutely impossible to continue cutting. The heavy and frequent storms also marred what started out to be a record breaking winter in exportation, insofar as the company is concerned.

Protection for Dryden Creditors

The Dryden Paper Co., Limited, Dryden, Ont., which recently went into liquidation, found it necessary to do so in order to carry on woods operations during the coming winter. The finances of the company were such that the interest on first lien notes and bonds and sinking fund payment of $50,000, which were due at the first of the month, could not be met and in order to avoid foreclosure and conserve for the shareholders and creditors the large equity in the plant and property, it was decided that a receivership was the best course to pursue.

During the past three years the company has lost over $700,000, which has eliminated working capital. Until there is a change in the kraft market, it will not be possible to do any financing. Surplus assets over liabilities are $5,066,780, or slightly over $50. per share.

British Columbia Exports Increasing

The reduction in sales to Australia by British Columbia newsprint mills following the granting of a preference to British mills, in which the Canadian have had no chance to participate, has not hit the B. C. mill as hard as had been expected.

Confronted by a loss of exports totalling about 50,000 tons a year, the outlook did look rather blue, but this has been very largely made up through increased exports to the United States. There has, however, been some loss through different sized cuttings.

Exports to the Orient are also increasing, so that while for the time expansion in the coast mills has been halted, still there is little prospect of operations being curtailed. There is also a possibility that Australia may yet grant something in the way of a preference to Canadian newsprint.

Would Make Companies Responsible

George Chahoon, president of the Laurentide Company, pulp and paper manufacturers, is of the opinion that a law should be passed forcing pulp and paper and lumbering companies whose employes create forest fires to be financially responsible for the damage caused. He points out that the forest fires of the current year have been as costly as those for ten years. In one fire the Laurentide company suffered loss to the extent of about three million dollars. Of this vast loss about eighty per cent will probably be salvaged, according to the statement of the president of the concern.

Mr. Chahoon says those responsible for the origin of the fires must be compelled to realize the losses are their own as well as of the pulp and paper companies.

Paper Converters, Limited, have been granted a provincial charter with a capital stock of $50,000 and headquarters in Montreal, to carry on the business of merchants, manufacturers and dealers in paper made from any material, cardboard, etc., and to manufacture boxes, bags, paper cups, packages, etc. Among the incorporators are George Franklin Caven and John Henry Wright.

Paper Standardization

(Continued from page 17)

midity in the testing room of the laboratories, and certain tests are valueless unless conducted under uniform temperature and humidity conditions. Especially is this true with the determination of the folding endurance, probably the most important test on bonds, ledgers and writings; a most important test for indicating the flexibility and probable durability of paper. Though it is generally understood that the physical qualities of paper are affected by changes in humidity conditions, there is but little appreciation of the rapidity with which these changes affect it. Paper is so exceedingly sensitive to changes in atmospheric humidity that, in order to obtain concordant results which may be duplicated at other times and by other laboratories, it is necessary to make all physical tests upon it in a room where both uniform temperature and relative humidity are maintained.

List of Tests and Determinations

The following is a list of tests and determinations to be made with corresponding characteristics which each test helps to determine:

1. Microscopical examination to determine fiber composition and show the presence of injurious fibers.
2. Tearing resistance, folding endurance, tensile strength, bursting strength, to determine quality of material used and care in handling during process of manufacture.
3. Weight per ream, to determine compliance with contract specification.
4. Thickness, to determine bulk.
5. Expansion and absorption, to determine resistance to changes due to moisture.
6. Percent of ash, to determine kind and amount of leading material.
7. Percent of sizing, to determine kind and amount of sizing materials used.
8. Fastness to sunlight, to determine permanency of color.

The United States Testing Company was recently appointed official chemist to the United Typothetae of America in regard to paper. Besides the testing of samples of paper for the members, this laboratory is now at work for the Typothetae, establishing a set of standards for tests which shall mark the "zone" limitations in paper qualities. It is their purpose to be able to define in terms of tests exactly what is the first grade, second grade, etc., in each of the different kinds of paper and to furnish their membership with the grading of the mill brand paper according to these standards. This laboratory wil do for them the technical work connected with the establishing of the grades, the defining of the grades before technical committees and associations, and the grading of paper to rate them within the grades. It is their object to have one set of standards by which they will judge paper, so that the manufacturer might know exactly what tests his paper is going to meet, and the members of the Typothetae shall know what they are talking about in discussing paper qualities.

Combine Forestry and Agriculture

The teaching of forestry in a separate department at Penn State college will be dropped under the new policy by which Governor Pinchot has caused the concentration of all forestry teaching at Mont Alto.

Teaching of forestry at Penn State will hereafter be continued as an agricultural course, as farm forestry. The course will be handled by John B. Ferguson, formerly in charge of the department.

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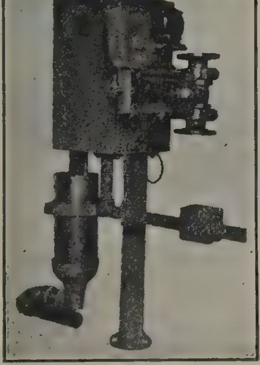

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CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE			
Bond	8.00	@	40.00
NEWS			
Contract Basis	3.75	@	
BOOK			
S. & S. C.	6.75	@	7.50
M. F.	6.50	@	7.25
Coated and Enameled	8.00	@	12.00
TISSUE			
White	.85	@	.90
Manila No. 1	.80	@	.90
WRAPPING			
No. 1 Domestic Kraft	6.50	@	7.25
No. 1 Jute	8.25	@	8.75
No. 1 Wood	4.75	@	5.00
Butchers	4.00	@	4.25
BOARD			
News	60.00	@	65.00
Chip	60.00	@	65.00

Paper and Board

New York, October 23—Most branches of the paper industry are characterized by considerable activity though in some quarters there is much room for improvement. Demand on the whole is good. Consumers are placing orders in consistent fashion but are noticeably averse to absorbing other than supplies directly and actually required, stocks being kept at an unusually low level, with the result mills are called on to produce merely enough paper to cover current consuming requirements. The price tone is steady, only in exceptional cases is there any sign of easiness in quotations, and in a majority of instances the tendency is in a higher direction.

With the close of the year not so far off, many in the trade are commencing to speculate on the probabilities of a revision in newsprint prices for 1924. Present indications are that no change will be made in print paper quotations for the first half of next year since the smaller manfacturing companies have begun to let contracts at $75 a ton, or 3.75 cents a pound, the price that has held all through this year, as against $70 in 1922 and the peak price of $130 reached two years ago. The International Paper Company, which generally sets the price in the domestic market, has taken no formal action as yet, but it is reported that Canadian manufacturers are planning to keep the present rate in force, and American companies are not expected to do otherwise.

An official of the International Paper Company is quoted as saying regarding prices: "The International Paper Company has contracts for practically all the paper it can make next year. In view of higher wages, freight and raw material costs, newsprint prices should be fractionally higher next year. Whether they will be or not is another matter." It will be recollected that before the I. P. announced no change in price for the last half of this year expectations were general that the price would be raised.

There has been no indication from Canada that any upward revision is contemplated. Opinion in the trade is that American companies would be unable to maintain a higher price for their product than their Canadian competitors, especially in view of the rapidly growing production in the Dominion.

Consumption of newsprint continues heavy. New York newspapers are printing issues of record size and are omitting many columns of advertisements, showing that they are unable to carry all the advertising offered them and that they could profitably publish larger issues if they had the necessary facilities and paper. The same appears to hold true for all the large cities thoughout the country.

There is a gradual expansion of demand for book paper. Mills are slowly but surely increasing their production and this branch of the industry is exhibiting more and more life and a firmer price situation. Some mills are shading prices but such is the exception, and as orders increase there is less tendency to grant price concessions.

Fine papers are fairly active. Mills in Holyoke are getting back in running order since the strike of stationary firemen was settled by arbitration, and demand for bonds and ledgers is showing improvement. Prices are firm and the strong position of raw material is a factor lending strength to the market.

Manufacturers of box boards promptly advanced prices when the strike of paper box factory workers in New York City was

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Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

settled early last week. Quotations on plain chip and news board were moved back to $60 a ton delivered New York from a level of $55 to which they sunk during the strike. A flurry of buying of boards accompanied the termination of the strike, and board mills in the East are busier than they have been in some weeks. The situation in board in the Middle West is healthy and active, manufacturers there encountering a relatively better demand than those in the East and operating their machines on a larger scale. Offerings of chip and news board on the Paper Industries Exchange in New York have been freely made at $60 delivered New York, while strawboard has been offered at $50 f. o. b. Middle Western mills.

Coarse papers are moving in a routine way at steady quotations.

Quotations follow:

Bond	.08	@	.40
Ledger	.09	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superior	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.75	@	
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft f. o. b. N. Y.—			
No. 1 Domestic	7.00	@	7.50
No. 2 Domestic	6.25	@	7.00
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.25	@	7.75
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50

Book—f. o. b. N. Y.—			
S. & S. C.	6.75	@	7.50
M. F.	6.50	@	7.25
Lithograph	9.00	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	3.75	@	4.00
Boards, per ton, f. o. b. N. Y.—			
News	60.00	@	65.00
Straw, in sheets	55.00	@	60.00
Binder Board	85.00	@	90.00
Chip	60.00	@	65.00
Manila Lined Chip	75.00	@	80.00
Woodpulp	80.00	@	85.00

Mechanical Pulp

A steady demand continues for mechanical pulp and the market for this commodity is of broad enough proportions to easily absorb all of the supply offered by producers and dealers. In fact, there is an excess of demand, if anything, since a good many grinders who ordinarily have a part of their output to direct to the open market are still on the lookout for pulp against their own requirements. Prices are firm, with Canadian producers securing up to $50 per ton at pulp mills for spruce ground wood, and domestic producers $40 and higher, the difference in prices being largely a matter of moisture in the pulp concerned and the consequent higher freight rates on domestic ground wood. Water conditions are bad in most grinding districts though some slight improvement is reported in certain sections.

Foreign and Domestic Chemical Pulp

Demand for chemical wood pulp fails to show much expansion. Papermakers are buying in a most reserved manner, few evince any interest in other than supplies they have direct need of, and yet it is stated that the aggregate movement toward consumers is very nearly up to normal dimensions, if not fully normal. There is a sagging trend to prices of most pulps, however. Foreign kraft has been offered down to 2.90 cents a pound ex dock New York, and bleached soda pulp was offered on the Paper Industries Exchange in New York at 3.75 cents a pound delivered Middle West paper mill points. Sulphite is in fair movement with consumers purchasing unbleached in relatively better tonnage than bleached. Importers quote strong

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Household Specialty Rolls
Bond and Ledger Papers

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The extent of our production of High Grade BLEACHED Sulphite Fibre insures uniform quality, prompt shipments and market prices

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110 So. Dearborn St.

CURRENT MARKETS—Continued

foreign unbleached at around 3.25 cents per pound on the dock at New York, and other grades down to 3 cents. Quotations ex dock New York and f. o. b. pulp mills are:

Sulphite, foreign—			
Bleached No. 1.	4.00	@	4.50
Unbleached No. 1.	3.10	@	3.35
Unbleached No. 2 .	3.00	@	3.15
Easy Bleaching	3.40	@	3.60
Sulphite, domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No. 1.	3.00	@	3.25
Unbleached news grade	3.00	@	3.25
Easy Bleaching	3.25	@	3.50
Mitcsherlich, unbleached	3.25	@	3.50
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.90	@	3.15
Kraft, domestic	3.00	@	3.25
Sulphite screenings, refined	1.75	@	2.00

Domestic Rags

The higher qualities of papermaking rags rule firm and are meeting with what is regarded as fair demand, but the poorer grades have sagged in price to some extent owing to a slackening of demand from consuming quarters. Roofing stock has eased off between $1 and $2 a ton, and is now quoted at 1.45 to 1.50 cents per pound for No. 1 and 1.25 cents for No. 2 packing f. o. b. New York. New cuttings are wanted in a consistent way by mills though in rather small lots. Dealers are reported asking 13 cents and higher per pound for No. 1 white shirt cuttings, 5.25 cents for washables and 11.50 cents for unbleached muslin cuttings, but these rags can probably be secured at slightly under these prices. Old whites are in a firm quotable position and are fetching the figures sellers quote. Thirds and blues also are firm. F. o. b. New York quotations are:

New Shirt Cuttings,			
No. 1	12.50	@	13.00
No. 2	6.25	@	6.75
Fancy Shirt Cuttings	6.00	@	6.25
Overall Cuttings, Blue	8.00	@	8.25
Washables	5.00	@	5.25
New Black Mixed .	4.75	@	5.00
Soiled Whites, house	2.90	@	3.15
No. 1 Whites repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.75
White Lawns	11.00	@	11.25
New Muslin, unbleached	11.25	@	11.50
Light Silesias	8.00	@	8.25
Black Silesias	5.00	@	5.25
Soiled Whites, street	2.65	@	-2.90
Thirds and Blues, repacked	2.90	@	3.10
3rds & Blues, misc.	3.40	@	3.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags No. 1	1.45	@	1.50
Roofing Rags No. 2	1.25	@	1.30

Imported Rags

Importers say that most grades of foreign papermaking rags are enjoying a moderately good demand but consumers are asserted to be bidding prices which do not always meet with the approval of sellers. Dark colored cottons are bringing 1.50 cents a pound on the dock New York and probably a shade higher in some instances. Blues are steady in price and marked by fair demand. Linens, old linens especially, are inquired for. Quotations on ex dock New York basis follow:

Lins., White, No. 1	12.00	@	13.00
Ger. Blue Cottons..	2.50	@	2.75
French Light Blues.	2.75	@	3.00
New Light Prints .	5.50	@	5.75
New Unbleached ...	9.50	@	9.75
German Linen, blue.	4.00	@	4.50
German Linen, grey.	6.00	@	6.50
German S. P. F.'s.	6.00	@	9.00
German Light Prints	2.50	@	2.75
Dk. Colored Cottons	1.50	@	1.60

Bagging, Rope, Etc.

A decided strengthening of prices on old rope has occurred and quotations are on a higher level than has prevailed in some time. Dealers in New York quoted 5.75 cents or more f. o. b. this city for domestic No. 1 manila rope, and imported manila rope has been sold at 5.50 cents ex dock at this port. It is declared that available stocks of old rope are abnormally small,

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CURRENT MARKETS—Continued

and dealers are making use of this as an argument for higher prices, especially since paper mills evince more buying interest. Old bagging is quiet and prices are nominal, buyers being able to get supplies at almost their own rates. Quotations f. o. b. New York are:

Gunny, No. 1	1.25	@	1.35
Foreign	1.20	@	1.30
Wool Tares, heavy	1.50	@	1.75
Scrap Bagg. No. 1	1.15	@	1.25
Roofing Bagging	.90	@	1.00
Wool Tares, light	1.25	@	1.50
For. Manila Rope	5.50	@	5.75
Domestic Rope	5.75	@	6.00
Mixed Strings	1.25	@	1.50

Old Paper

The price tendency in waste paper is downward and nearly all grades are on slightly lower quotable levels than a week ago. Whether the operation of the Paper Industries Exchange in New York had anything to do with the softening of values or not is problamatical, but it is quite apparent that the opening of the Exchange unsettled the tone of the market locally. Folded newspapers have sold on the Exchange at 1.05 cents a pound f. o. b. New York, which is about the current market price on this grade of stock, while No. 1 mixed paper has sold at 80 to 85 cents a hundred pounds f. o. b. New York. Much higher prices than these prevail in the Middle West on these grades, according to transactions on the Exchange here and in Chicago. Shavings are slightly off in price to 4 cents a pound for No. 1 hard white and 3.15 cents for No. 1 soft white f. o. b. New York, and flat magazines are down to 1.85 at 1.95 cents f. o. b. this city. Old kraft paper is steady at around 2.25 cents per pound New York, and so is ledger stock at 2.10 cents. Quotations f. o. b. New York follow:

No. 1 Hard White Shavings	4.00	@	4.15
No. 2 Hard White Shavings	3.25	@	3.50
No. 1 Soft White Shavings	3.15	@	3.25
Box Board Chips	.90	@	.95
No. 1 Colored Shavings	1.90	@	2.10
Magazine flat stock	1.85	@	1.95
No. 1 Crumpled	1.40	@	1.50
Solid Ledger Books	2.25	@	2.35
Ledger Stock	2.05	@	2.15
White Blank News	2.15	@	2.25
Common Paper	.50	@	.55
Kraft No. 1	2.25	@	2.35
New Manila Cuttings	2.40	@	2.60
New Manila Env. Cuttings	3.00	@	3.25
Bogus and Mill Wrappers	1.00	@	1.10
News, strictly overissue	1.30	@	1.40
Folded News	1.05	@	1.10
No. 1 Mixed Papers	.80	@	.85

Twines

Some slight improvement in demand is reported for certain descriptions of cordage but business generally is nothing more than routine and prices show little change. Raw materials are strengthening and this may eventually lead to higher quotations on finished cordage. Quotations are:

Sisal Hay, pure	13.25	@	14.25
Manila Hay, pure	16.25	@	17.25
Sisal Lath Yarn	12.25	@	13.25
Manila Rope, pure, ¾ inch diameter	15.25	@	16.25
Hardware rope	12.25	@	13.25
Jute rope, ¼ diam. and over, coils	12.00	@	14.00
Sail twine, A grade	19.00	@	
Jute Wrapping Twine, A grade	19.00	@	
Papermakers Twine	10.50	@	
B. C. Hemp, 18	.39	@	.40
B. C. Hemp, 24	.38	@	.39
B. C. Hemp, 36	.36	@	.37
No. 6	19.50	@	
American Light India—No. 7	18.50	@	

Chemicals

Demand for casein continues fair and prices quoted on this article range from 14.50 cents a pound upward. Bleaching powder is firm at 1.50 to 1.60 cents per pound, while soda ash is quotably maintained at between 1.45 and 1.50 cents a pound. Papermaking chemicals in general are in moderate call.

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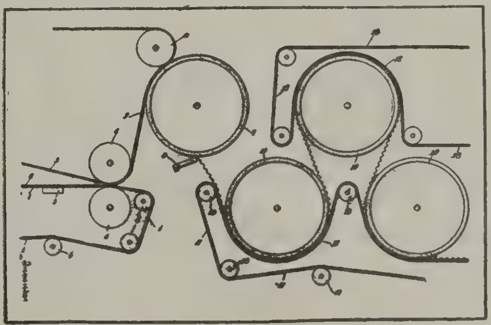

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CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of October 15-20

Paper

Str. Berengaria, Southampton—Globe Shipping Company, 8 cs.

Str. Lapland, Antwerp—P. J. Schweitzer, 78 cs. cigarette; C. W. Williams & Co., 25 cs.; P. Puttman, 14 cs printing; Gevaert Company of America, 44 cs. photo; A. C. Dodman Jr. & Co., 9 bls. hanging; Order, 3 cs. hanging.

Str. President Roosevelt, Bremen—C. Steiner, 12 cs. writing; H. Reeve Angel & Co., 72 rolls newsprint; Chatham & Phenix National Bank, 14 rolls wrapping; J. P. Heffernan Paper Company, 232 bls. wrapping; Parsons & Whittemore, 966 rolls newsprint; Order, 12 rolls wrapping.

Str. Reliance, Hamburg—Keuffel & Esser Company, 28 rolls and 49 cs. drawing; Order, 2,184 rolls and 25 bls. wrapping.

Str. Vennonia, Hamburg—C. Steiner, 21 bls. printing; Order, 296 bls. wrapping.

Str. Ohio, Hamburg—Chemical National Bank, 678 rolls newsprint; Equitable Trust Company, 412 rolls wrapping; Ladenburg, Thalman & Co., 688 rolls wrapping; Seaman Paper Company, 22 rolls printing; W. Hartmann & Co., 135 rolls and 426 bls. wrapping; First National Bank, 71 rolls newsprint; Fourth & First National Bank, 228 rolls newsprint; C. G. Keferstein, 433 rolls hanging; International Acceptance Bank, 31 bls. wrapping; Order, 611 bls. wrapping.

Str. Nieuw Amsterdam, Rotterdam—Wilkinson Bros. & Co., 80 rolls wrapping; Birn & Wachenheim, 51 bls. wrapping; Order, 3,433 rolls wrapping and 205 rolls newsprint.

Str. Caronia, Liverpool—A. C. Dodman Jr. & Co., 23 bls. hanging; F. C. Strype, 6 cs. tissue; B. F. Drakenfeld & Co., 21 cs. printing; J. J. Gavin & Co., 1 cse. photo.

Str. La Savoie, Havre—Japan Paper Company, 4 cs.; City of Paris Dry Goods Company, 4 cs.; Rose & Frank Company, 24 cs. cigarette; Whiting-Patterson Company, 2 cs.; Maillard, 8 cs. pasteboard.

Str. President Fillmore, Bremen—Parsons & Whittemore, 126 rolls newsprint; Gerhard & Hey, 3 cs.; A. Frankan & Co., 3 cs.

Str. Bergensfjord, Christiania—American Exchange National Bank, 104 rolls newsprint; F. L. Collins, 45 bls. printing.

Str. Helig Olav, Copenhagen—Order, 336 rolls newsprint.

Str. Mongolia, Hamburg—Buschmann Bros., 81 rolls strawboard; F. G. Prager & Co., 479 rolls hanging; W. Hartmann & Co., 48 rolls wrapping.

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Str. Sarcoxie, Bordeaux—American Tobacco Company, 900 cs. cigarette; from St. Nazaire—R. J. Reynolds Tobacco Company, 390 cs. cigarette; DeManduit Paper Corporation, 182 cs. cigarette.

Str. Thuringia, Hamburg—American Express Company, 36 cs.; P. C. Zurlke, 20 cs. photo; C. H. Young, 47 rolls; P. H. Petry & Co., 6 cs.; Coenca-Morrison Company, 3 cs.; Irving Bank-Columbia Trust Company, 38 bls. wrapping; F. B. Vandegrift & Co., 46 cs. printing; Order, 3,242 rolls wrapping and 429 rolls newsprint.

Str. Olympic, Southampton—H. Reeve Angel & Co., 2 cs. writing; M. Spiegel & Sons, 2 cs. cigarette.

Str. Panama, Panama—Brittish-American Tobacco Company, 6 cs. cigarette.

Str. Stockholm, Gothenburg—Japan Paper Company, 8 cs.; H. Reeve Angel & Co., 5 cs.; Peoples Trust Company, 2,349 rolls and 105 bls. wrapping; Corn Exchange Bank, 1,918 rolls and 225 bls. wrapping; National City Bank, 136 rolls and 9 bls. wrapping; Bernard, Judae & Co., 4 cs. filter; Whiting-Patterson Company, 1 ble.; Order, 93 rolls and 82 bls. wrapping.

Str. Bremen-Bremen—Friedman & Co., 4 cs. cardboard; Zellerbach paper Company, 8 cs. wrapping.

Str. Maryland, London—Favor, Ruhl & Co., 4 cs. bristol board; W. H. S. Lloyd & Co., 8 bls hanging; F. L. Kraemer & Co., 2 cs.; Order, 1 cse. tissue and 8 bls. printing.

Str. President Harding, Bremen—Order, 2,202 rolls and 154 bls. wrapping.

Str. Tarantia, Glasgow—Perry, Ryer & Co., 25 cs. printing; Blauvelt-Wiley Paper Company, 102 bls. wrapping.

Wood Pulp

Str. Melville Dollar, Port Alice—Robert Dollar Company, 11,730 bls. sulphite.

Str. President Roosevelt, Bremen—Bulkley, Dunton & Co., 1,375 bls. sulphite; Pagel, Horton & Co., 1,200 bls. sulphite.

Str. Nieuw Amsterdam, Rotterdam—Castle & Overton, 756 bls.

Str. Bergensfjord, Christiania—Kidder Peabody Acceptance Corporation, 2,250 bls.; J. Andersen & Co., 1,200 bls.

Str. Mongolia, Hamburg—E. Naumberg & Co., 1,687 bls.

Str. Stockholm, Gothenburg—Scandinavian Pulp Agency, 508 bls. sulphite; National City Bank, 700 bls. sulphite; Johaneson, Wales & Sparre, 500 bls. sulphite.

Str. Barfond, Botwood, N. F.—Tidewater Paper Mills Company, 9,900 bls. ground wood.

Str. Bremen, Bremen—E. Naumberg & Co., 501 bls.; America Woodpulp Corporation, 448 bls.; Lagerloef Trading Company, 3,066 bls. sulphite.

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Paper	200,000 lbs.

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Old Rope

Str. Exeter City, Bristol—Brown Bros. & Co., 76 coils; Salomon Bros. & Co., 72 bls.

Str. Marengo, Hull—Brown Bros. & Co., 138 coils and 16 bls.; Ellerman-Wilson Line, 93 coils and 20 bls.

Str. Aquitania, Southampton—Ellerman-Wilson Line, 134 coils.

Str. Bremen, Bremen—Brown Bros. & Co., 40 coils.

Str. Maryland, London—Brown Bros. & Co., 173 coils and 34 bls.; Order, 46 coils.

Str. Tarantia, Glasgow—National Bank of Philadelphia, 63 coils.

Old Bagging

Str. West Cherow, Antwerp—E. J. Keller Company, 148 bls.; E. Butterworth & Co., 120 bls. Daniel M. Hicks, Inc., 51 bls.

Rags

Str. Exeter City, Bristol—American Express Company, 257 bls.; Guaranty Trust Company, 226 bls.

Str. Vennonia, Hamburg—Shupp & Co., 145 bls.

Str. Nieuw Amsterdam, Rotterdam—Paul Berlowitz, 170 bls.

Str. President Fillmore, Bremen—S. Silberman Company, 200 bls.

Str. West Cherow, Antwerp—Daniel M. Hicks, Inc., 5 bls.; Order, 568 bls.

Str. Tarantia, Glasgow—American Express Company, 91 bls.

Paper Stock

Str. Lapland, Antwerp—Equitable Trust Company, 298 bls.

Str. Sarcoxie, St. Nazaire—E. J. Keller Company, 99 bls.; Goldman, Sacks & Co., 53 bls.

Str. Tarantia, Glasgow—Brown Bros. & Co., 36 bls.; Guaranty Trust Company, 138 bls.

Casein

Str. Van Dyck, Bremen—International Acceptance Bank, 835 bags.

Str. Songvand, Buenos Aires—Brown Bros. & Co., 1,417 bags; Order, 417 bags.

Str. Hesperides, Buenos Aires—Order, 1,368 bags.

Str. American Legion, Buenos Aires—Kalbfleisch Corporation, 750 bags.

Str. Sarcoxie, St. Nazaire—E. B. Muns, 220 bags.

Talc

Str. Giovanna Florida, Genoa—L. A. Salomon & Bros., 500 bags; Italian Discount & Trust Company, 1,800 bags; C. Mathieu, 300 bags.

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Str. Exeter City, Bristol—Moore & Munger, 623 tons; Lunham & Moore, 200 tons.

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AIR COMPRESSORS

Nash Engineering Co., South Norwalk, Conn.

ANILINE COLORS

Heller & Merz Co., New York.
National Aniline & Chemical Co., New York.

ARCHITECTS AND ENGINEERS

Carey, James L., Chicago, Ill.
Ferguson, Hardy S., New York.
Hardy, George F., New York.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

BEARINGS

Link-Belt Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BEATING ENGINES

Black-Clawson Co., Hamilton, O.
Dayton Beater & Hoist Co., Dayton, O.

BELT CONVEYORS

Link-Belt Co., Chicago, Ill.

BLEACH

Penn. Salt Mfg. Co., Philadelphia, Pa.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOX BOARDS

Standard Paper Co., Kalamazoo, Mich

BOARD MACHINES

Black-Clawson Co., Hamilton, O.

BOND PAPER

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

BRASS WIRE CLOTH

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, O.

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CONVEYORS AND ELEVATORS

Link-Belt Co., Chicago, Ill.

COUPLINGS (SHAFT)

Link-Belt Co., Chicago, Ill.
Hudson-Sharp Machine Co., Green Bay, Wis.

CREPE PAPER MACHINES

Hudson-Sharp Machine Co., Green Bay, Wis.
Tompkins-Hawley Fuller Co., Valatie, N. Y.

CUTTERS

Appleton Wire Works, Appleton, Wis
Black-Clawson Co., Hamilton, O.
Cameron Machine Co., Brooklyn, N. Y.

CYLINDER COVERS

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International Wire Works, Menasha, Wis.

CYLINDER MOLDS

Black-Clawson Co., Hamilton, O.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

CYLINDER WIRES

Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

DANDY ROLLS

Cheney Bigelow Wire Works, Springfield, Mass.

DE-INKING PROCESS

Castle & Overton, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

DIGESTERS

Manitowoc Eng. Works, Manitowoc, Wis.

DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

DISC EVAPORATORS

Manitowoc Eng. Works, Manitowoc, Wis.

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Pickles, W. F., Buckland, Conn.

DYESTUFFS

Heller & Merz Co., New York.
Kuttroff, Pickhardt & Co., New York.

ELECTRIC HOISTS

Link-Belt Co., Chicago, Ill.

Svensk Papperstidning
(Swedish Paper-Journal)

Established in 1898. Official publication of the Swedish Paper Mills' Association and of the Swedish Paper and Cellulose Engineers' Association. Only Journal of the Swedish pulp and paper trade, issued on the 15th and ultimo of each month.
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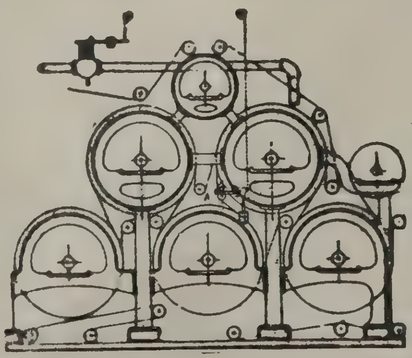

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THE MARKET PLACE—Continued

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Ferguson, Hardy S., New York.
Hardy, Geo. F., New York.
Stebbins Engineering Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

FELTS AND JACKETS

Appleton Woolen Mills, Appleton, Wis.
Castle & Overton, New York.
Huyck & Sons, F. C., Albany, N. Y.
Lockport Felt Co., Lockport, N. Y.
Orr Felt & Blanket Co., Piqua, O.
Shuler & Benninghofen, Hamilton, O.
Waterbury Felt Co., Skaneateles Falls N. Y.

FOURDRINIER WIRES

Appleton Wire Works, Appleton, Wis.
Cabble, Wm. Ex. Wire Mfg. Co., New York.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
International Wire Works, Menasha, Wis.
Lindsay Wire Weaving Co., Cleveland, O.
Wisconsin Wire Works, Appleton, Wis.

GEARS

Link-Belt Co., Chicago, Ill.

FRICTION CLUTCHES

Link-Belt Co., Chicago, Ill.

GRINDERS

Appleton Machine Co., Appleton, Wis.

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Andersen & Co., J., New York.

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Manitowoc Eng. Works, Manitowoc, Wis.

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Vol. XXXIII NOVEMBER 1, 1923 No. 2

Grinding Temperature of Woodpulp

Determination of the Strength of Mechanical Pulp—Testing by Making Into Paper—Results Show that Elevated Grinding Temperature Improves Quality of Pulp

(Concluded from last week.)

WHILE it is generally possible to determine the strength of a textile fiber by direct examination, this cannot usually be done with pulp for the reason that the pulp fiber is too short and too irregular. Hence, in order to determine the strength of any particular grade of half stuff or pulp, it is first necessary to make a paper sheet from the fiber and test the same. It is, of course, understandable that the strength determined in this fashion is not exactly indicative of the actual resistance of the fiber, for the paper sheet may be variably resistant to mechanical stress dependent on the ease with which the fibers felt together to form a firm sheet of paper and on other conditions as well which vary with the method by which the paper is made.

The microscopic examination of the pulp fibers showed that the structure of the mechanical wood pulp fiber may vary considerably. It therefore stands to reason that a direct determination of the strength of these fibers is impossible and would only lead to incorrect conclusions.

A crude method of establishing the mechanical resistance of the fibers has often been applied to the sheet of paper board that is formed on the dehydrating machine. The feel of this board and the behavior of the same when being torn were used as indicators of the strength possessed by the pulp fiber. But these tests are dependent to a large extent on the personal equation of the tester. Furthermore, the sheets of board formed in this manner vary considerably with the method used in making them. Thus one essential condition would be that all the boards being tested be made on the same dehydrating machine under conditions which are maintained as invariable as possible. When this is done it is possible to arrive at some conception of the strength of the board and of the pulp from which it is manufactured and it becomes possible to compare different boards with one another or with a standard board according to the composition of the same. But even under these conditions it is risky matter to form a definite conclusion regarding the relative value of one kind of pulp in contrast with another from the result obtained by this method of testing.

The best way in which to determine the strength of half stuff is to make it into paper and test the sheet. The raw materials that are to be compared must be made into paper on a machine under exactly similar conditions if an equitable comparison is to be possible. The result obtained in this manner can be directly applied to the original raw materials. There is, of course, one drawback to this method of testing and that is that it is generally inconvenient for many reasons to make the paper on a machine. This requires a quantity of pulp and is costly and, furthermore, a machine is not always available for the purpose.

The only other alternative is to scoop the stock out of the pulp chest and make it into paper by hand. There has been considerable investigation of this method of testing half stuff and of the way in which conditions can be regulated so that a paper sample can be prepared from each lot of raw materials that can be equitably compared with the next one.

The test was made in the following manner: A form 10 by 18 centimeters was employed in making the paper sample. This form was covered with a piece of regular paper machine wire. It is advisable to use a fine wire for the reason that when a large wire is employed irregularities are produced in the sheet of paper. The frame of this form was provided a close fitting cover. The stock chest was a large vessel, with a capacity of approximately 15 liters. This vessel contained 12 liters of the stock mixture at a dilution of one to 500. The paper web was removed from the wire to a sheet of dry cellulose board and then pressed in a regular copying press. As no drying cylinders were available, the paper samples were hung in chambers to dry in air.

Although this method of drying the web afforded the advantage of the possibility of testing paper which had not been subjected to special calendering or heating and hence in which certain factors which had some bearing on the results were excluded, nevertheless it had the great disadvantage that it prevented the fibers of the paper from becoming united into a smooth sheet but an undulating or wavy sheet was obtained. This made it impossible to arrive at an exact determination of the degree of stretching to which the paper sheet was subjected when under a certain tension. For this reason it was found advisable to dry the paper sheet on a flat iron which was heated electrically. The sheet of paper was accordingly dried in this way between sheets of blotting paper.

Before a sample of pulp was taken from the stock chest the material in the vessel was stirred up very thoroughly but at the same time care was taken to see that no waves were formed which could influence the deposition of the pulp on the experimental wire frame. In this manner a characteristic sample of pulp was obtained on the wire. Great care must be taken in taking the sample. (Exact details of the procedure which must be closely followed in order to obtain samples of paper under like conditions in all the testing are given in the original article but are omitted from this translation for want of space.—Translator.)

The finished sheets of paper were 10 by 18 centimeters. Strips 18 centimeters in length might be cut from the testing purposes, but these would not be long enough for testing in the regular form of tester. The Schopper rapid tester was used, in whnch the distance between testing points was 50 millimeters, and strips ten millimeters wide were cut from the sheet of paper for testing with that instrument. It is claimed that in this manner a more characteristic sample may be obtained for irregularities may occur in larger samples.

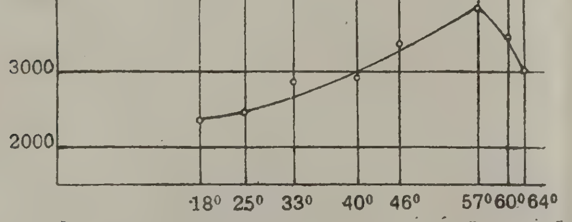
In making samples for testing, the sheet was cut both lengthwise and in transverse direction, so that the testing could be carried out with and across the grain. When the paper was made on the machine quite different results were obtained when testing samples in both directions, but when the paper was made by hand in the manner described above, there did not seem to be any appreciable difference between the results. From seven to ten samples of each grade of paper were tested. The strength determinations were made in air possessing a relative humidity of 61 percent.

Results of the Experiments

The following tabulation shows the results of experiments made to determine what effect the temperature at which the wood was converted into mechanical pulp had on the strength of paper manufactured from the pulp.

Grinding Temperature degrees C	Tearing length meters	Stretch Percent
18	2395	2.3
25	2478	2.4
33	2887	2.3
40	2928	2.3
46	3372	2.5
57	3856	2.8
60	3483	2.9
64	3002	2.6

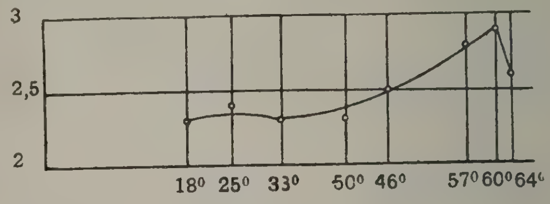
The values given in the tabulation above are plotted in the form of curves which are given below.



Influence of grinding temperature on tearing length

When these curves are studied a little intensively, it is seen that the tearing length increases with the grinding temperature. However at a temperature of 57 degrees C, the curve seems to reach a maximum value and as the grinding temperature is further increased, the tearing length decreases.

As has been learned from the micro-photographs which were described in a former article, at this temperature the individual fibers start to become isolated in the mass of pulp and at still higher grinding temperatures, which is brought about by reducing the quantnty of spray water, a quantity of hydrated slimy stuff is formed which cannot be completely washed off the stone by the spray water. Hence, at higher temperatures the stock appears to be "dead ground." From this it may be concluded that a temperature of 57 degrees C is most favorable for the production of mechanical wood pulp.



Influence of grinding temperature on stretch

The same conclusion may be reached with respect to the percentage of stretch that is induced in the sample of paper. This increases as the grinding temperature increases until a maximum is attained at a grinding temperature of 60 degrees C. Then as the grinding temperature is further increased, the percentage of elongation or stretch decreases.

These tests permit the investigator to see for himself how advantageous it is to grind the wood at elevated temperatures. A much higher grade product is obtained without increasing the consumption of power.

Rosin and Fat Content of the Pulp

The presence of rosin in the pulp causes strong foaming of the stock and hence considerable trouble at the doctors on the paper machine. It also has the effect of causing the formation of spots on the paper web and tends to stop up the wire. Furthermore, the paper is caused to stick to the presses and cylinders and rosin spots are generally found in the finished paper under these conditions.

The question as to the exact cause of these difficulties, whether they are brought about by the rosin or the fat content in the pulp, has received considerable attention. Tests have been made in which rosin and fatty substances were added directly to the paper stock. From these experiments it has been concluded that when the rosin is free from fatty substances no spots are formed on the paper, but the color of the paper is darker. On the other hand, the presence of fat alone in the stock caused spots in the finished paper which were hardly recognizable owing to their light color. When both rosin and fatty substances were present in the paper, then the spots were very apparent. The theory is that the fat causes the precipitation of the dark colored rosin with the result that the spots, which are barely visible when just fats are found in the stock, become very distinct.

The importance of this matter was apparent and it was hence of interest to determine how the rosin and fat content of the mechanical wood pulp was affected by varying the temperature at which the grinding was carried out. The quantity of rosin present in the wood was determined by extraction in a Soxhlet apparatus with organic solvents. After the solvent was evaporated the residual matter was weighed and calculated in percentage on the weight of the original sample.

In making the analysis air dried wood was used. This necessitated the drying of the sample of moist wood pulp taken from the grinders. In drying the temperature was not allowed to rise beyond 30 to 35 degrees C, as it was found that quite different values for the rosin content of the pulp were found when the samples were dried at comparatively high temperatures than when the method was carried out at low temperatures. The extraction lasted six hours and the residue was dried to constant weight at a temperature of 90 degrees C. The following tabulation gives the average results that were obtained with various grades of mechanical wood pulp when analyzed as above:

Grinding temperature	Ether Extract Percent	Alcohol Extract Percent	Total weight of extracts percent
18	0.66	0.32	0.98
25	0.58	0.34	0.92
33	0.78	0.36	1.14
40	0.53	0.28	0.81
46	0.62	0.19	0.81
57	0.73	0.31	1.04
60	0.53	0.34	0.87
64	0.61	0.23	0.84

Discussion of Results

It is clear upon examination of these figures that the grinding temperature has no effect on the percentage of rosin and fat in the pulp. It may be expected that the wood ground at the higher temperature will contain more fats and rosin than that ground at lower temperatures, for the reason that the higher temperatures cause the separation of the fatty substances out of the woody fiber in such form as to fix the particles of rosin. The comparatively small amount of spray water used is not sufficient to wash this material away. However, there does not appear to be any well established law or rule according to which this process takes place and there is really no reason to believe that the temperature of grinding has any effect one way or the other on the amount of rosin and fatty substance found in the mechanical wood pulp.

The following general conclusions may be drawn from this series of experiments.

The grinding of wood at elevated temperatures improves the quality of the mechanical pulp without involving an increased consumption of power. It appears that a temperature of 57 degrees C is the maximum temperature that should be used with a stock concentration of 1:20.8. The photo-micrographs show that the action of the temperature is to promote the formation of isolated fibers and of hydrated substance in the pulp. Furthermore, the mechanical resistance of the fibers is increased by the rise in grinding temperature.

The tearing length of a hand-made paper increases from 2359 meters, when the mechanical pulp is ground at 18 degrees C, to 3856 meters for mechanical pulp ground at 57 degrees C, but decreases again to 3002 meters for pulp ground at 64 degrees C.

This points clearly to the final conclusion, which can be reached from these investigations, namely, that the best temperature at which to conduct the grinding process is 57 degrees C.

Profit from Sulphite Waste Liquor

Sulphur Dioxide Removed by Aerating or Passing Through Steam, Liquor Evaporated and Fermented and then Distilled for Alcohol

By **Ralph H. McKee, Ph. D.***

Professor of Chemical Engineering, Columbia University, New York

IN the making of sulphite pulp about 50 per cent. of the wood is dissolved by the cooking liquor and discarded as waste into the river. The pulp mills in the United States are annually discharging into the watercourses of the country about 6,000,000,000 gallons of such water, each gallon carrying nearly a pound of organic material obtained from the wood. This represents an enormous volume. If 6,000,000,000 gallons had to be carried in tank cars it would require each day 600 trains, each of 35 tank cars.

The mills of Canada similarly inflict on the watercourses of that country about half as many gallons annually of the same kind of waste liquor.

It is obvious that the ideal utilization would be either one where the material was used at the pulp mill or one where its values are concentrated to a small volume before shipment and which at the same time left no injurious material to be dumped into rivers or streams. The proposal which follows ships only 1 per cent. of the volume and uses the remainder at the pulp mill.

The sulphite waste liquor has been shown to be beyond question decidedly injurious to the fish and plant life of rivers and streams as well as to the use of the water for civic supplies. In some cases States or cities have compelled the closing down of sulphite pulp mills because of the objectionable character of this waste liquor. Indeed a number of State legislatures have passed laws, which, if enforced, would stop the emptying of this sewerage of the sulphite pulp mills in water courses. Congress also has taken steps in the same direction.

From this it is evident that there is a real need for a method which will utilize these large quantities of sulphite waste liquor. There are several mills with sulphite waste liquor utilization plants but these altogether use only about 1 percent of the sulphite waste liquor of the country. These plants make alcohol, tanning extract, adhesives (road binders and core binders), and other materials in still smaller amounts. Moreover the alcohol plant discharges its residual slop into the river, so in this case the nuisance is only decreased, not eliminated.

I wish to present for your consideration a two-phase process which can be used to obviate the running of waste sulphite liquor into the watercourses and which in addition permits considerable profit to be earned on the investment. In the development of the first step of the complete process, I had an active hand. The second phase has been in use in a few European mills for several years.†

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* *Read before the American section of Societe de Chemie Industrielle, October 12, 1923.*

The first phase is to ferment and distill off the alcohol. The second is to evaporate the residue to 50 percent solids and use it as fuel for steam making.

About a fourth of the 10 percent of solid material present in the sulphite waste liquor is a fermentable sugar. In times past mills have neutralized this sulphite waste liquor with lime, and fermented it after filtering and the addition of yeast foods. The alcohol obtained on distillation is of ordinary commercial quality. There are some twenty-seven European and one American mills which have alcohol plants of this type. The yields of alcohol by this old process are generally considerably lower than would correspond to the sugar content of the sulphite waste liquor used. The explanation of the low yield commonly given is that it is due to the effect, in the neutralization step, of a local excess of lime on the sugar, it being well known that fermentable sugars are readily destroyed by alkalies.

New Alcohol Process

The new fermentation process which has been developed in the chemical engineering laboratories of Columbia university is based on the discovery that, contrary to common belief, sulphur dioxide and sulphites are not poisonous to the yeast organism. That these do prevent the growth of the yeast organism in many liquids is true; but we have evidence that this is due to the fact that they are reducing agents and use up the dissolved oxygen in the liquor rather than that they have any direct action on the yeast organism. If we are right in this conclusion then by keeping oxygen dissolved in the liquor by bubbling oxygen or air through the sulphite liquor we should be able to carry on fermentation. This was found to be true experimentally.

An outline of the method of operation follows. The hot waste sulphite liquor draining off from the woodpulp in the digester blowpit is run into a desulphurizing column about 16 feet high, where it meets a counter current of steam and has the larger part of its sulphur dioxide removed. The sulphur dioxide recovered in this way is taken to the absorption towers to be used in the manufacture of fresh cooking acid.

The hot desulphurized liquor is next evaporated to approximately half its value, preferably in a thermocompressor type of evaporator. The choice of this type of evaporator is determined by the fact that the sulphite waste liquor shows a colloid character and accordingly boils, even when partially concentrated, at approximately 100°C. This makes evaporation of such a material cheap and requires but a small installation expense. The liquor as it comes from the desulphurizing tower may be fermented without evaporation, but this is not wise from a financial point of view, for to do so means doubling the capacity of the fermentation tanks and the building containing them.

The hot liquor is next cooled counter-currently with water. The warm water thus produced has decided advantages over cold water in the pulp mill for the washing of pulp. The sulphite waste liquor at about 29°C. is run into fermentation tanks and hydrolyzed yeast, ammonium sulphate and calcium acid phosphate added as yeast foods along with the yeast. The slight air current serves the double purpose of furnishing the required oxygen needed by the yeast, and of keeping the yeast mixed with all portions of the fermenting liquor.

After fermentation the alcohol is distilled best in a continuous still, to give a crude alcohol, and this crude alcohol is then re-distilled in a discontinuous or batch still. On to one of the upper plates of the distillation column there is run a dilute alkali to neutralize the free sulphur dioxide which accompanies the alcohol during distillation.

I have carried out fermentations using samples of sulphite liquor from some fifteen mills. The yields of 95 percent alcohol vary between 0.55 percent and 1.35 per cent, with an average of nearly 1 percent, calculated from the volume of sulphite waste liquor.

Cost of Producing Alcohol

Using the data obtained at the plant of the Hammermill Paper company, Erie, Pa., in fermentation and distillation of charges of 13,000 gallons of sulphite waste liquor, I give herewith the costs of producing alcohol for a 100-ton sulphite pulp mill. The percentage of alcohol used is 1 percent, though the percentage obtained in the experimental work, using the 13,000 gallon charges mentioned, was 1.07 percent.

A—PLANT

Buildings	$120,000
Wood fermenting & storage tanks 11-23' diam. x 20' high	25,000
Stills, evaporators, desulphurizers, yeast-growing equipment, alcohol storage	157,000
Piping	20,000
Motors and pumps	8,000
	$330,000

B—POWER:

Evaporation desulphurization 350 BHP at $100	$ 35,000
Distillation 85 BHP at $100	8,500
Pumping 22 BHP at 70	1,500
Air Compressor 20 BHP at $70	1,400
	$ 45,400

C—LABOR: (8 hr. shifts)

Superintendent, at $300	$ 3,000
3 Stillmen, 65c per hour	4,680
3 Desulphurizing men, 65c per hour	4,680
3 Fermenting room men, 65c per hour	4,680
3 Laborers, 57¼c per hour	4,140
Yearly cost of labor	$ 21,180

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† *Rogius, Paper Trade Journal, Dec. 29, 1921, pages 45-47. Warth Papierfabrikant, 20, 65-71 (1922) of Journal Society Chemical Industry, 41, 171A (1922).*

D—COST OF MANUFACTURING:

Power	$ 45,400
Labor	21,180
Yeast food	15,000
Soda ash	5,000
	$ 86,820

E—CHARGES:

Interest on Investment, 8%	$ 26,400
Depreciation, building, 5%; and Machinery 10%	27,000
Repairs	11,500
	$ 64,900

F—RESULT:

Percent. of 95% alcohol on original liquor	1%
Gallons 95% alcohol per year	579.00
Cost per gal. (Item D)	14.96c
Cost per gallon (Item E)	11.21c
Total cost per gallon	26.17c

Utilization of Residue as Fuel

By making use of the advances made in evaporator design in the last few years in this country, and of the experience of Swedish and German mills in burning concentrated sulphite liquor, it appears that utilization for fuel of the residual sulphite liquor after fermentation offers an excellent means of disposing of this nuisance material and at the same time making a real profit on the investment.

When this residual sulphite liquor after fermentation is evaporated we have the residue showing an average heat value, on a dry basis, of 7,950 B. T. U. per pound with an ash of 13.9 percent. For each ton of pulp there is obtained about 9,900 pounds liquor after fermentation, containing 14 percent solids, *i. e.* 1,386 pounds solids. To concentrate to 50 percent solids will require the removal of 7,128 pounds water, with formation of a mobile pitch of 50 percent solids weighing 2,772 pounds.

B.T.U. developed by burning 1,386 lb. of fuel of 7,950 B.T.U.	11,018,100
B.T.U. required to drive off 1,386 lb. of water: 127,512 and 1,344,420 B.T.U. (raising temperature and vaporizing)	1,471,932
Theoretically available B.T.U.	9,546,168

This is equivalent to 682 pounds coal, 14,000 B.T.U. per ton of pulp made, or 34.1 short tons coal per day for a 100 ton pulp mill.

If this sulphite pitch is burned under a boiler to give steam of 150 lb. gauge pressure, there will be obtained a boiler efficiency varying between 60 and 80 percent, according to the design of the boiler and its firebox.

We may use the steam generated for the development of power in non-condensing steam engines and the exhaust steam of such engines can be used to evaporate the liquor in multiple effect evaporators. On the basis of this system we have the following: A simple non-condensing Corliss engine, using steam of 150 lb. pressure, has a steam consumption of about 35 lb. per indicated horse power. The steam exhaust from this type of engine is at a pressure of 3 to 5 lb. per square inch, and is about 88 percent dry. Assume that owing to pipe condensation and other heat losses it delivers but 75 percent of the theory to the evaporators.

I shall not weary you by going through the calculations but it can be easily shown that such an engine will, in addition to giving power for plant use give more than enough exhaust steam to supply the triple effect evaporator needed to concentrate the residual slop from the still to a mobile fuel of 50 percent solids.

If the boiler shows a fuel efficiency of 60 percent then for

(*Continued on page 21*)

Swedish Pulp and Paper Exports

THE production and export of Swedish paper and pulp during the first six months of 1923, in spite of the prolonged labor difficulties, reached quantities exceeding by a considerable margin those for the corresponding period of last year, and comparing well even with so-called normal pre-war years, reports Acting Commercial Attache' H. Sorensen of Copenhagen to the Department of Commerce under the date of September 7. The present position of the industry is, on the whole quite favorable, especially when compared with the position of other Sweedish industries.

The cellulose market, while still quiet, is showing signs of improvement under the stimulus of a considerable number of inquiries and the prospect for an increased demand from Great Britain during the fall months. There is, according to experts, a general feeling that the sulphite market has now passed its dead season and that steady improvement in demand may be expected. Reliable estimates place that part of the Swedish sulphite which was unsold at the beginning of September at only 20 per cent of the year's total production.

The demand for mechanical wood pulp according to latest advices, is moderately lively, and sticks in continental and English markets are said to be rather low, one estimate placing them at only two-thirds of normal. Latest quotations for wet wood pulp for this year's delivery are £5 10s. per ton, c. i. f.; and for dry wood pulp 170 crowns per ton, f. o. b. Goteborg.

Present cellulose prices, per ton, c. i. f. British ports or Amsterdam, are as follows: Bleached sulphite, £20 21s.; easy bleaching, £16 16s. 15 d.; and strong, £15 15s. 15d. In general the tendency in prices seems to be firm or slightly rising.

The Swedish paper production and export have also (since the settlement of the labor conflict) reached a level comparing favorably with last years', and are much above the 1923 level.

Swedish exports of wood pulp, paper, and cardboard during the first six months of the current year are given in the following statistical table. To permit the formation of an opinion regarding the entire northern European exports, there are also included statistical data showing exports of paper and pulp during the same period, from Norway and Finland. All the figures are based upon official statistical data made available by the Swedish Board of Trade.

	Sweden		Norway		Finland	
Items	1922	1923	1922	1923	1922	1923
Woodpulp:	Tons.	Tons.	Tons.	Tons.	Tons.	Tons
Mechanical ...	75,900	77,200	178,600	262,100	19,900	23,000
Chemical	210,100	221,500	95,800	122,600	83,500	103,100
Paper	99,700	127,400	97,200	110,800	94,300	88,000
Cardboard	8,100	13,400	2,100	5,100	10,500	12,300

Swedish exports of paper and pulp during July of the current year totaled 28,900 tons of mechanical wood pulp, 79,000 tons of chemical wood pulp, 2,119 tons of cardboard, 12,408 tons 2of newsprint, and 11,650 tons of miscellaneous classes of paper, against 23,800 tons of mechanical wood pulp, 76,265 tons of chemical wood pulp, 1,719 tons of cardboard, 10,752 tons of newsprint, and 10,438 tons of other classes of paper during July, 1922. As will be noted, the figures for July of this year show a substantial increase in exports of all classes of pulp and paper over July, 1922.

Australian Woods for Papermaking

THE desirability of establishing a pulp and paper industry in Australia has led to a further and more comprehensive study of many Australian woods hitherto regarded as unsuitable for papermaking. The soda process was used throughout, and encouraging laboratory experiments were repeated on a semi-commercial scale. An abstract of a report by L. R. Benjamin in Bulletin 25 of the Australian Institute of Science and Industry covering the experiments is given in *Jour. Soc. Chem. Inst.*, Sept. 28, 1923, p. 923 A.)

By using comparatively weak liquors, *e. g.*, 30% of caustic soda (on the dry weight of chips) at a concentration of approximately 44 grams per liter, and moderate cooking pressures, *e.g.*, 100 ℔. per sq. in., for about six hours, many varieties of immature eucalypts are capable of yielding 41 to 48% (bone-dry pulp on bone-dry wood) of screened pulp requiring 10 to 16% of bleach.

The digester used in the commercial trials was fitted with an external liquor-heater and a circulating pump to avoid excessive dilution of the cooking liquor, which would result from the use of live steam for maintaining the cooking pressure.

The Victorian eucalypts, "mountain ash" (*E. regnans*), "woollybutt" (*E. delegatensis*) and "silvertop" (*E. sieberiana*), and the Tasmanian varieties, "swamp gum" (*E. regnans*), "gum-top" (*E. delegatensis*), and "stringy bark" (*E. obliqua*) are the easiest woods to prepare and give a high yield (47 to 48%) of easy-bleaching pulp. "Karri" (*E. diversicolor*), "marri" (*E. calophylla*), and "blackbutt" (*E. pilularis*) give rather lower yields (46.9%, 43.5%, and 43.2% respectively) of pulp with a higher bleach consumption (14 to 16%), but, being denser woods, show higher yields when ℔. of pulp per cord of wood is taken as the basis.

All these woods give over 30% more pulp per cord than does poplar or spruce, and can be cut and transported all the year round.

Papermaking tests, using a 750-℔. beater, show that the bleached pulp, though short-fibred, hydrates well, and if beaten carefully for about four and a half hours, avoiding excessive cutting, and relying on a moderate brushing action, using dull knives, can be used in admixture with sulphite pulp in the production of high-grade printings, etc.

Papers containing 60 to 65% of eucalypt pulp possess good opacity, should be capable of taking a high finish, and are as strong as or stronger than similar papers containing 90% of sulphite pulp. There is less shrinkage during the drying of papers containing much eucalypt pulp than is experienced with sulphite stock beaten to the same degree of wetness and fineness.

The total estimated cost of producing bleached soda pulp from immature "karri" is £12 14s. per ton for a mill having an output of 10 tons per 24 hrs.; with a higher output this figure could be probably reduced to £10 to £11 per ton. In view of this and the enormous quantities of wood available in the form of re-growth resulting from saw-milling operations, notably in Victoria and Tasmania, it should be possible to establish a pulp industry capable not only of supplying home requirements but also of building up an export trade.

The suitability of immature eucalypts as a source of mechanical pulp has not as yet been fully investigated, but, with imported newsprint at £22 per ton, it appears probable that, under favorable conditions, if made on a large scale, newsprint containing chemical pulp alone, including 20 to 30% of imported newsgrade sulphite pulp, could be profitably made for home consumption.

Meeting of Box and Label Men

Affiliation with the United States Chamber of Commerce was unanimously decided upon at the annual convention of the National Label Manufacturers' association, which adjourned October 19 folowing a three-day meeting at Kalamazoo, Mich., held jointly with the Folding Box Manufacturers' association of America.

The label manufacturers paid a compliment to John F. Byrne, president of the folding box association, by adopting as its code of ethics a document similar to that recently adopted by the box manufacturers. Br. Byrne, president of the box manufacturers and of the Standard Paper company of Kalamazoo, also is the author of the code of ethics.

At the convention of the label manufacturers it was stated that the plants of the association now are operating on a 70 to 75 per cent capacity and that the outlook for an increase in business volume next year is excellent.

Executive Secretary Dickie reported to the two conventions that the delegates to the folding box meeting represented plants with a capitalization of $80,000,000 and that the delegates to the label convention represented mills with a capitalization of more than $40,000,000.

Thursday afternoon was given over to entertainment features, beginning with the luncheon at the cafeteria of the Standard Paper company at noon and closing with the dinner at the community house of the Kalamazoo Vegetable Parchment company in the evening. In the afternoon the delegates and their wives were taken on a trip of inspection through the chief mills of the Kalamazoo valley.

Addresses were made at the evening meeting by Charles S. Campbell, of Kalamazoo, on "The Fallacy of Selling Below Cost"; Jacob Kindleberger, of Kalamazoo, on "The Harmony Club"; and Julian Armstrong, of Chicago on "The Paper Industries Exchange". An industrial film on paper making also was shown.

President Biermans of the Belgo-Canadian Co. returned recently from a trip to Europe. While in Belgium he is understood to have cleaned up the final details for the transfer of the company to Canadian interests.

Nepco Installs New Improvements

New Alexander Mill the Best Equipped Yankee Mill in Existence—Is a Wasteless Mill in the True Sense of the Word—Construction and Installation in Record Time

THE starting of the second Yankee machine at the Nekoosa mill of the Nekoosa Edwards Paper company on Friday, October 5, 1923, practically finishes one of the most extensive construction programs since the consolidation of the John Edwards Manufacturing company, then owning what is now known as the John Edwards paper mill operating two paper machines; the Port Edwards Fibre Co., owning what is now known as the Port Edwards sulphite mill with three 14 foot by 42 foot digesters; and the Nekoosa Paper company, owning what is known as the Nekoosa paper mill then operating four paper machines, all of which by consolidation in June, 1908, became the property of the present Nekoosa Edwards Paper company with main offices at Port Edwards, Wisconsin, and subsidiary offices at Nekoosa, Wis. and Chicago, Illinois.

The money was appropriated in December, 1922, when the board of directors voted to build a new two machine mill at Port Edwards, Wis., this mill to be what is known as the "Alexander mill." It was decided to build two new Yankee machines, to erect one in the Alexander mill, move one of the Nekoosa machines to Port Edwards and to erect the other Yankee in its place at Nekoosa.

The following program was carried out:

(1) The erection of the new building known as "Alexander mill".
(2) The erection of one of the new Yankee machines in the new mill.
(3) The shutting down of the Worlds Fair Machine at Nekoosa and moving to Port Edwards.
(4) The erection of the second Yankee at Nekoosa.

On December 15, 1922, the contract for the two new Yankees was signed with the Beloit Iron Works of Beloit, Wisconsin, and the contract for the building was signed with the C. R. Meyers Construction Co. of Oshkosh, Wisconsin, on March 10, 1923.

The paper was first put over the new Yankee at Port Edwards on July 24, 1923, just seven months after the order was placed for the machine and four months after the ground was broken for the building and is, as far as we know, a record for this class of work.

This machine is the second 12 foot dryer machine to be built by Beloit Iron Works, the first being the "Dryden machine." This machine is a 132 inch Fourdrinier, with a 12 foot dryer and many other special features; it trims 126 inches.

The Alexander Mill

The Alexander mill is 156 feet wide by 185 feet long and the entire building is of reinforced concrete construction and with the exception of the wood sash it is fire-proof.

The machine and beater room is 70 feet wide by 135 feet long and is 24 feet clear to the trusses. The roof is steel truss with 5 inch gypsum slab on steel purlins over which is Johns Manville standard "A & A" roofing. Lupton skylights and Swarthout ventilators were used. The machines, beaters and Jordons are all in one room. The basement is 13 feet high and is free from all machinery except pumps and stock tanks.

Adjoining the machine room on the dry end is the finishing and storage room, which is 61 feet wide and 135 feet long, containing basement and two stories. Two elevators take care of the handling of paper and pulp. The finishing room is on the main floor and is finished in white enamel and gray wainscot. Floors throughout are painted with Koverfloor paint. Machines are finished in Royal Red enamel and all pipe is painted to standard code. Paints were furnished by Detroit Graphite Co., and A. G. Adams Co.

Adjoining the finishing room is a covered car shed for shipping, all under one roof, capable of handling eight 40 foot cars at one time.

Equipment

The beaters are 2000 pounds capacity Niagara type furnished by the Valley Iron Works of Appleton, Wisconsin, but the filling installed by Nekoosa Edwards Paper company is "Youngchild filling" which is doing such good work in the Nekoosa mill, where it was developed. The granite bed plates were

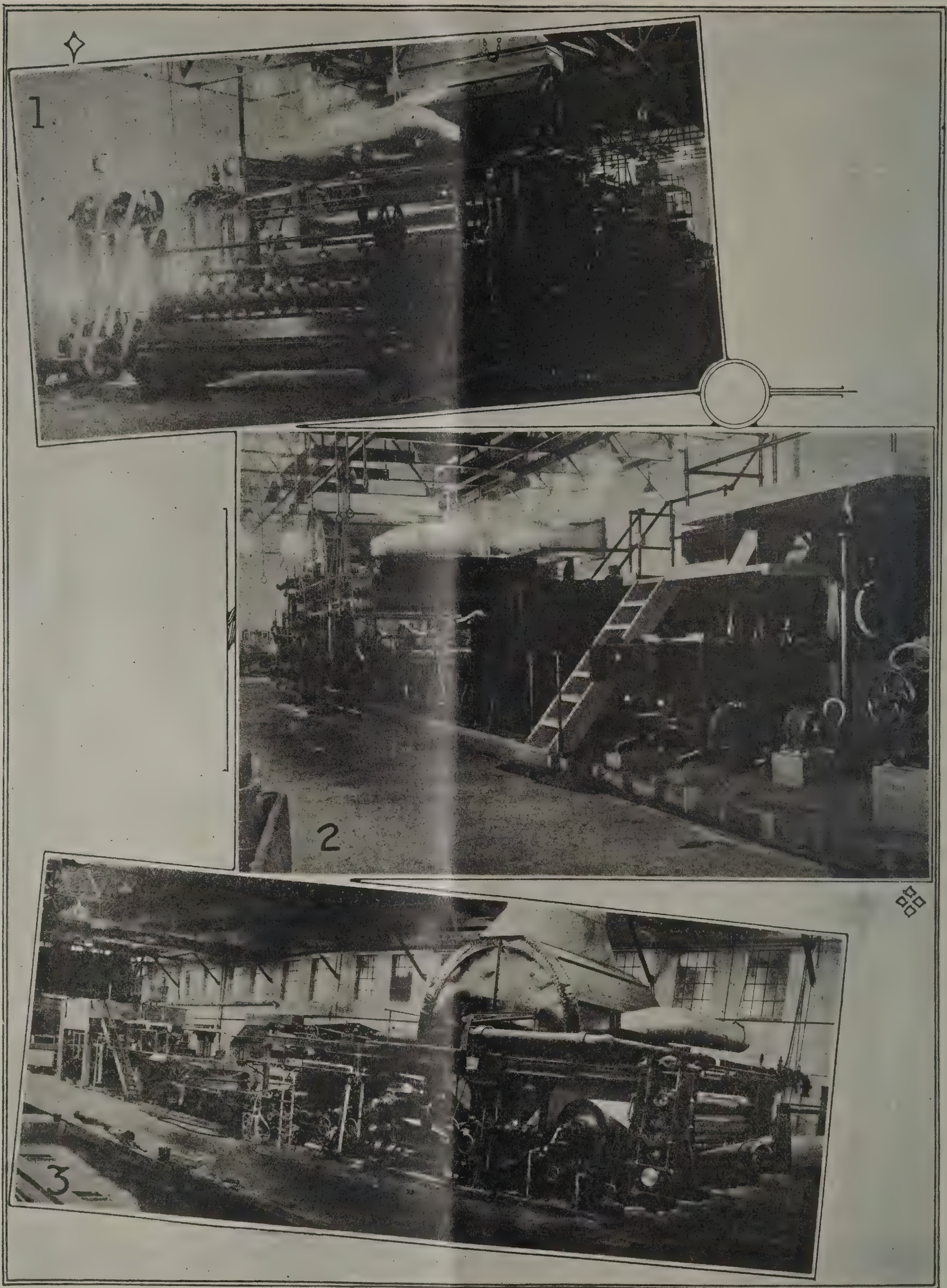
(*Continued on page* 12)

Nekoosa mills of the Nekoosa-Edwards Paper company of Port Edwards, Wis.

Hydro-electric plant and groundwood mill at left. New 1200 H.P. hydro-electric unit and 1500 K. W. extraction type turbine installed in this plant to take care of new machines.

Paper mill in center. New Yankee "wasteless" machine installed in this mill.

Sulphite and sulphate mills on right. Superintendent's residence on extreme right.

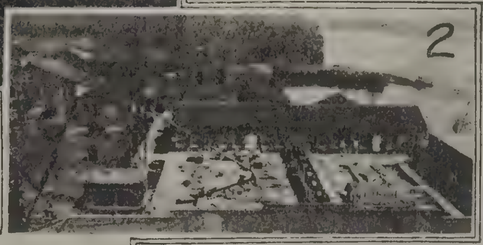


New 132 inch Fourdrinier Yankee parer machine just installed in the Nekoosa mill of the Nekoosa-Edwards Paper company

No. 1—The dry end of machine.

No. 2—The wet end of the machine.

No. 3—Another view at the wet end of the Yankee "wasteless"nachine. The inclined saveall is visible on the right wall.



Mills of Nekoosa-Edwards Paper Company at Port Edwards, Wis.

No. 1—John Edwards mill in background at left. In the center is the new Alexander mill, containing machine and beater room, finishing and paper storage room, shipping room and car loading shed. Loading shed of sulphite mill on right, also garage which houses four trucks.

No. 2—Alexander mill during construction period.

No. 3—Groundwood mill at left with stacker. Paper mill in Center. Alexander mill was erected directly behind standpipe. Office at right.

No. 4—Groundwood mill at left. John Edwards mill is directly back of smoke stack. Alexander mill in center back of standpipe. Sulphite mill at right.

No. 5—In foreground is space in which Alexander mill was erected.

(*Continued from page* 9)

furnished by the Green Bay Foundry and Machine Co. These beaters are driven by 150 HP General Electric motors through Link-Belt silent chains.

The Jordons are the Appleton Machine Co. No. 1 Jordons and are direct connected to General Electric 150 HP, 450 RPM motors.

The stock pumps furnished by Beloit Iron Works are 8 inch by 18 inch duplex and these are gear driven by G. E. motors.

Centrifugal water pumps and stock pumps in this mill were furnished by the Dayton-Dowd Co. of Quincy, Illinois. There are five of these pumps in 3 inch and 6 inch sizes handling water and stock.

The vacuum pumps for both the wire and felt are Nash Engineering Co. pumps furnished by Thos. E. Savery, Jr. A No. 2 pump is used on the felt and a No. 4 pump on the wire suction boxes, both being direct connected to G. E. motors.

The Murray Iron Works of Wausau, Wisconsin, furnished the direct connected motor driven agitators with which the stuff chests are equipped.

The hood over the machine was furnished by Wolff & Bero Co. and the Briner economizer with which it is equipped was furnished by J. E. Ross Engineering Corp., of Chicago.

The screen is a No. 2 Bird furnished by Thos. E. Savery, Jr.

All of the drives for this machine are on the main floor. The Yankee drive is by a 110 HP 900-3600 RPM variable speed Kerr turbine designed for 40 pound back pressure. The machine is direct connected through leather belt without line shaft or core gears. Less than half the shafting and bearings usually required are included in this drive. Pulmax belt tighteners are used.

The cutters supplied by the Hamblet Machine Co. are 124 inch special extra heavy type with 12 roll backstand.

The Maxson Automatic Machinery Co. supplied a 134 inch by 45 inch duplex, six pile, automatic Erie lay boy.

The rewinders were furnished by Cameron Machine Co. and are Universal type 42 inch and 84 inch.

There is a crane running the full length of the machine room, furnished by H. D. Conkey & Co., Mendota, Ill.

This mill is equipped to handle deckered stock, both groundwood and sulphite being pumped in 6% consistency from groundwood and sulphite mills. This stock is pumped into large steel tanks over beaters. The triplex stock pumps were furnished by Hayton Pump and Blower Co. of Appleton, Wisconsin.

The machine is equipped with a 50 foot wire 132 inches wide, two presses, a 12 foot dryer and a 4 foot sweat dryer. There is a 5 roll stack of calenders, duplex reel and two drum winder.

The clothing was furnished by Lindsay Wire Weaving Co., F. C. Huyck & Sons Co. and Orr Felt & Blanket Co.

Wasteless Machine the Outstanding Feature

The outstanding features of the Alexander mill and the new Yankee machine therein is that it is the best equipped Yankee mill in America and is the first wasteless mill in existence, at least known to us, it being so equipped that no waste water can get into the river without first flowing over the machine room floor. There is no connection to the sewer, making this machine the nearest to wasteless yet designed and equipped. There was a time when most paper makers were of the opinion that a paper machine could not be run without a connection to the sewer but this one was so designed and works wonderfully well.

The white water at the wet end of the machine drops into a pit under the wire and into a 1000 G.P.M. pump and this returns the water needed to the mixing box by a 6 inch pipe; the balance not needed goes into a white water tank over beaters for beater supply. The overflow of this tank goes back of the machine over an inclined saveall, the stock saved going by gravity back to the machine chest, and the water going through the wire being returned to a tank in the basement for make up water to the shower pumps. The white water from wire suction boxes also goes into basement for make up water. There is no overflow from the wire pit to the sewer, but the machine tender regulates the level of the supply in the pit by regulating his white water showers.

Any stock going into pit at the couch goes back to the chest and there is no connection with the sewer from this pit. An overflow allows any surplus water to go into the pit under the wire.

If the wire pit overflows, it goes onto the floor in front of the machine and over the machine tender's feet, but if he watches his job there is no overflow and none goes to waste.

When changing colors, the machine is equipped with double chests so the beaters can be running on one color and filling one chest, while the machine is still running another color from the other chest.

The white water tank over beaters has a washout for use at color changing time and a float valve for an automatic supply of fresh water when this change is made.

Product and Speed

The product of this machine will be what is known as "machine glazed," being highly finished on one side and rough on the other.

The machine is built to run 650 feet per minute on light weight papers and has been averaging over 20 tons a day of 20 pound paper.

This machine is known officially as Nepco No. 8 machine.

The second item on the construction program was the shutting down of the Nekoosa No. 2 machine and moving it to Port Edwards.

Shortly after the new Yankee was put into operation "The World's Fair Columbian machine" which was originally exhibited in 1892 at the World's Fair in Chicago, and which has been running/at the Nekoosa mill since that time was shut down. This was done on August 5, 1923, and moved from Nekoosa to Port Edwards to make room for a Yankee duplicating No. 8 at Port Edwards. A crew of Nepco mechanics set to work and on September 5, 1923, just one month from the day it shut down at Nekoosa, it started making paper at Port Edwards. The machine was first thoroughly overhauled.

This machine is driven by a 12x12 Chandler and Taylor variable speed engine belted to an overhead lineshaft. The beaters, jordons, stock pumps, etc., described under the Yankee machine furnish the stock for it.

This is a 112 inch Fourdrinier machine and makes water finished wrappings from 30 pounds to 100 pounds of the various well known Nepco brands, the same as it made while at Nekoosa. It is known as Nepco No. 7.

The installation of these two units makes the total production of Nepco Port Edwards plant 125 tons and, with 100 tons at Nekoosa, a total of 225 tons of paper per day for both plants.

The building for the Alexander mill was designed and erected under the supervision of E. P. Gleason, chief engineer, C. F. Watson and Henry M. Ford, assistant engineers, and John E. Walley construction superintendent.

The designing of machinery as well as the systems in use were planned by B. T. McBain, director of manufacturing and his able assistants, C. A. Wiley and O. L. LeRoux.

Mr. McBain has been called "King on Waste" and this wasteless mill is his idea; 100 pounds of paper will be made from 100 pounds of stock.

The last step in the construction program was the installation of the second Yankee at the Nekoosa mill where the World's Fair machine stood. Immediately after getting the last piece of machinery out of the way work started on the foundations and the sole plates were set about September 15th. The big 12 foot dryer left Beloit on September 22 and arrived in Nekoosa and was put in the mill on September 25th. Clothing and wires were put on the machine on October 4th and the machine started off on October 5th.

This machine is a duplicate of the machine at Port Edwards. It will make specialties in Kraft paper, striped machine glazed particularly for which there has been a demand by Nepco customers for some time. This machine is known as Nekoosa No. 2.

Brings Total to Eight Machines

The addition of these two Yankee machines brings the total to 8, as follows:

Nekoosa	No. 1	Mch.	116 inch	Rice Barton & Fales	
"	No. 2	"	132 inch	Beloit Iron Works, Yankee	
"	No. 3	"	106 nich	Rice Barton & Fales	
"	No. 4	"	126 inch	Pusey & Jones	
Port Edwards	No. 5	"	108 inch	Beloit Iron Works	
" "	No. 6	"	117 inch	" " "	
Alexander	No. 7	"	112 inch	" " "	Water Finish
"	No. 8	"	132 inch	" " "	Yankee

Nepco makes its own groundwood, sulphite, sulphate and bleached pulps which enables them to always make the same quality paper.

It was not necessary to add to the pulp making equipment as pulp and chemical mills are capable of producing plenty of pulp for Nepco's own needs.

The pulp making equipment is as follows: three 14x42 foot sulphite digesters in the Port Edwards sulphite mill with a capacity of 75 tons, and ten 3 pocket grinders, eight of which are direct connected to water wheels and two are motor driven, these being in the John Edwards groundwood mill, together with a bleach plant capable of producing 50 tons bleached sulphite.

At the Nekoosa mill there are two 14x38 foot sulphite digesters with a capacity of 50 tons and two 8x37 foot sulphate digesters with a capacity of 47 tons, also three 3 pocket grinders direct connected to water wheels.

Additional Electrical Equipment

The additional electrical equipment needed by the plants to operate these paper machines include:

Two 1500 KW extraction type steam turbines which were furnished by the Westinghouse Electric and Manufacturing Co.

A third 1200 HP Allis Chalmers hydro electric unit is installed in the Nekoosa hydro plant to supply additional power.

This installation brings the total number of motors to 500, totalling 9,500 HP. The hydroelectric plant capacity is 7,500 HP and the steam electricity is 6,000 HP. This is in addition to 15,000 HP of direct connected water wheels installed in the three plants at Centralia, Port Edwards and Nekoosa.

With the increased production and business the company is installing a new private automatic exchange telephone system for use in the three plants Port Edwards, Nekoosa and Centralia as well as its offices at Port Edwards and Nekoosa.

The officers of the Nekoosa Edwards Paper company are:

L. M. Alexander, president and treasurer
Judson G. Rosebush, vice president
L. E. Nash, vice president and manager of sales
B. T. McBain, director of manufacturing and asst. gen. mgr.
C. A. Jasperson, secretary.

The directors are: L. M. Alexander, Judson G. Rosebush, L. M. Hanks, G. W. Kibby, F. J. Wood, John E. Alexander, L. E. Nash, J. B. Nash and C. A. Jasperson.

With the Tissue Paper Makers

The following appeared in recent issues of the Official Gazette of the United States patent office:

1923

Trade-Marks Published For Opposition

O. G. of September 11, 1923

Serial No. 173,508

(Design consisting of an oblong with the upper line extended and pointed in the middle and at the ends, and with the lower line rounded at the corners and pointed in the middle.)

Levey Printing Company, Indianapolis, Ind.
Published for opposition September 11, 1923
Claims use since January 1915

O. G. of September 11, 1923

Serial No. 181,742

BLUEBILL

Fisher Bros. Paper Co., Fort Wayne, Ind.
Published for opposition September 11, 1923
Claims use since January 15, 1923

Trade Mark Registrations Granted

O. G. of September 19, 1923

Registration No. 173,233 Serial No. 166,864

AUBURN

(A symmetrical scroll design of roses, with the word "Auburn" in the upper part.)

Wortendyke Mfg. Co., Richmond, Va.
Published for opposition June 19, 1923
Claims use since June 5, 1922
Registration granted September 18, 1923

O. G. of September 25, 1923

Registration No. 173,467 Serial No. 179,911

WARREN

(A symmetrical scroll design of roses, with the word "Warren" in the upper part.)

Wortendyke Mfg. Co., Richmond, Va.
Published for opposition June 19, 1923
Claims use since January 1, 1923
Registration granted September 25, 1923

The following brand names have been registered in the Toilet Paper Label Registration, bureau of the Tissue Paper Manufacturers association:

Sussex	Wortendyke Mfg. Co., Richmond, Va.
Unipaco	National Paper Products Co., San Francisco, Cal.
Wakefield	Wortendyke Mfg. Co. Richmond, Va.

Arbitration Finding in Holyoke

A finding that amounts to a compromise has been made in the wage controversy between the Stationery Firemens union and the Holyoke, Mass., paper manufacturers. The controversy was submitted to arbitration and the following award was made by Fred M. Knight of the state board of arbitration and conciliation; time and one-half for Sunday work and double time for six holidays of the year. The demand for an increase of approximately 10 per cent was negated, the wage schedule remaining the same.

By agreement of the parties the award is retroactive as of October 1st. and will continue in force for a period of three months. The following concerns are affected by the award: American Writing Paper Co., Hampshire Paper Co., Carew Paper Co., Taylor-Logan Co., Franklin Paper Co., Valley Paper Co., Parsons Paper Co., and the Newton Paper Co.

Construction in Wisconsin River Valley

Work on the new 330 foot dam of the Wausau Paper Mills company at Brokaw, Wisconsin is progressing. A crew of about 100 men are at work. The work started in April and the way things are going this should be completed early next year.

This new dam is being built below the old dam and one of the features is that the mills are kept in full operation during this construction work.

The dam will replace one that was originally built in 1881 and which was rebulit in 1899 by the Wausau Paper Mills company.

The mammoth dam and power house being built at Grandmother falls on the Wisconsin river for the Tomahawk Kraft Paper company is rapidly progressing. Power will be furnished for the mill of this company at Tomahawk which was recently purchased from the Pride Pulp and Paper company.

Concrete piers are already in place and set ready to receive 4 of the gates. The draft tubes have been set and the forms rapidly being put into place.

What has been an exceedingly quiet place has developed into one of work. A large camp for the accommodation of the workers has been built.

This is one of the most important waterpowers in Northern Wisconsin.

Tempting Offers for New Hawley Mill

Architects and engineers are working on the plans for the new plant which is to take the place of the Hawley Pulp and Paper company's mill that was destroyed by fire at Oregon City, Oregon. The new structure, together with the new unit previously planned, will require an expenditure of approximately $2,000,000.

Other cities are offering the Hawley Pulp and Paper company enticing inducements to get the new paper mill. The Seattle Washington, chamber of commerce offered the company a free site with tide water and rail connections and agreed to take a block of stock in the company. The Long-Bell Lumber company offered President Hawley a free site in the timber belt at Longview, Washington. Many Willamette valley Oregon points have made similar offers.

Mr. Hawley has given out no statement as to what he plans to do in regard to offers received from outside of Oregon City. Residents of the place expect the mill to be rebuilt there.

The Pulpwood Situation

A striking expression of opinion on the proposed Canadian pulpwood embargo is contained in a letter to the New York *Times* of October 18, the writer of which signs himself "Timber." The letter comments on articles that have been published in previous issues of the *Times* and is as follows:

While it has been frequently stated and generally assumed that an embargo on Canadian freehold pulpwood would force many American paper manufacturers to transfer their business activities across the border into Canada, careful inquiry among Eastern manufacturers who are in touch with all of their confreres fails to develop knowledge of any manufacturer contemplating such action.

In the first place, the scrapping of the tremendous investment in a paper mill, with its complicated and expensive equipment, would be economic suicide on the part of any individual or company.

In the second place, should Canada impose an embargo, American paper manufacturers could readily supply the 20 percent. of the total pulp used that is made from the freehold wood imported from Canada, by purchases of both mechanical and chemical pulp from Germany, Scandinavia and Finland, which is offered freely at the seaboard at prices even lower than pulp can be imported from Canada. Besides this, many practical substitutes for wood are now receiving a great deal of attention, and many of them would serve as excellent substitutes for at least chemical pulp made from wood.

Further, it is pointed out by a man who is well acquainted with the situation in Canada that all Crown land limits which are accessible and contiguous to adequate waterpowers are already in the hands of lessees who would not part with them. He says further, to go to the remote forests which might be utilized in the lower Gulf of the St. Lawrence on the north shore, and there to acquire timberland limits, develop the waterpower, build the mills and establish the industrial towns, would involve an extraordinarily high investment which the owners would find difficulty in financing in the face of the many enterprises now on the books.

Water Shortage Closes New Jersey Mills

The water shortage in Bergen county, New Jersey, has seriously interfered with the operations of four paper and board mills in that section, together with about three hundred other industrial plants.

The water supply of these plants was summarily cut off October 18, throwing more than 10,000 employes out of work. Announcement was made that this action was necessary in order to utilize the small supply in the reservoirs for domestic and sanitary purposes.

The paper and board mills affected were the Flintkote Co., Inc., at Little Ferry; the Bogota Paper & Board Co., the Continental Paper Co. and the Federal Paper Board Co., Inc., all of Bogota.

Will Have a Collection Department

The establishment of a collection department was decided upon by the Gummed Paper Manufacturers association at its recent meeting in New York. The success of the credit bureau established a year ago has been such that it was decided to take another step in advance by the instituting of the collection bureau.

The association spent most of its day in discussing the problem of cost accounting. How to proceed to establish a cost committee to work out a uniform method of cost accounting was discussed in detail, but definite action was left for later determination.

Will Abandon Water Power

A shortage of water is seriously hampering production of paper in the mills at Holyoke, Mass. Within the past three months the mills have been forced to suspend operations fifteen times due to the shortage of water.

Business is reported to be good, the books of the various mills of the city showing an unexpected large volume of orders.

Temporary suspension of operations it is hoped will be obviated when all the mills are equiped to be operated electrically.

New Paper Machine

A patent has been issued for a new paper machine that will take a news sheet from the wire to the first dryer automatically at all speeds and from 40 to 60% dry, with but one set of plain press rolls.

The machine is the invention of John D. Tompkins, of Valatie, N. Y., and the patent bears date of October 30, 1923.

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

National Forest Policy

Attitude of Technical Societies Toward this Question Emphasizes Its Importance

The engineering profession is vitally interested in maintaining and increasing our supply of timber and forest products near heavy consuming centers and in the maintainance of forest protection on the watersheds of navigable streams.

The executive board of the American Engineering Council of the Federated American Engineering Societies, at its closing session in Rochester, N. Y. on Oct. 13, urged constructive co-operation between the federal government and the states. The board adopted a resolution prepared by its Reforestation committee, Chas. H. MacDowell of Chicago, embodying the following recommendations:

"That the president, the congress, and the federal budget bureau make every effort to renew yearly appropriation at the rate of $2,000,000 for the purchase of forest lands on the watersheds of navigable rivers under the Weeks law."

"That as fire prevention is so important, present appropriations should be materially increased for co-operation with the states and individuals in fighting and preventing forest fires, and in maintaining fire patrols."

Special resolutions were adopted suggesting the inauguration of new policies by states possessing timber reserves, particularly New York State, which owns large areas of forest in the Adirondack and Catskill mountains. In regard to New York the suggestion is made that the state could at any time safely put its forest problems in the keeping of trained foresters whose reputation depends on so maintaining the forests that they will become an increasingly valuable asset.

Prof. Ralph S. Hosmer of Cornell, president of the Society of American Foresters, recently gave to the U. S. Senate Committee on Reforestation a very able statement in behalf of the society on the attitude of the technical foresters throughout the country toward a national forest policy. The statement is too long to permit of a complete review in these pages, but a few of the major points may be cited. In his main argument Professor Hosmer says:

"From the data that are now before us it is the opinion of a majority of the professional foresters that only from forests within the confines of our own country can we seek for the solution of the problem of creating a permanent timber supply for the United States. What little hope there may have been in looking to the importation of timber from other countries is shattered by the conclusions reached by Messrs. Zon and Sparhawk of the forest service in their recently published book 'The Forest Resources of the World'. That comprehensive and authoritative presentation makes it absolutely clear that our vast needs for wood in its various forms can only be met from forests near at hand. When the softwoods in what remains of our original forests are exhausted, there is no other place to which we can turn, except at prohibitive cost, for more coniferous timber. The prices that would result from competition in the world markets and from transportation makes any other course impractical, if the United States is to continue to be a wood-using nation in the sense that it is today. And who of us wishes to lower the high standard of living that has come about in so large part because we had an ample supply of timber and of wood?"

"Even as regards pulpwood from Canada the situation is but little better. As regards forest resources the United States and Canada are essentially in the same boat. The forests of the Dominion of Canada are no more inexhaustible than were our own. Canadian timber will undoubtedly help us to tide over in part the period of greatest stress but, at best, this aid can be but temporary. Furthermore, the British Empire is even now making plans for the utilization of the major part of the resources of the empire within its own boundaries. But even if this were not so to attempt, by whatever means, to force a repetition in the dominion of the ill considered methods of exploitation of the forest of which we have seen all too much in this country, would be but to rock the boat. The conservation through wise use of the forests of the North American continent must be regarded as a matter of international concern. In the opinion of foresters the forests of North America form a single unit, and must be treated as such."

Professor Hosmer places special stress upon the need for management, this to be applied to all forest lands irrespective of ownership. This move, he argues, can best be made by placing emphasis upon the five things for which all those who have given this subject serious consideration are in practical accord:

1—Prevention of forest fire.

2—Just forest taxation.

3—Addition to the existing areas of publicly-owned forests.

4—Better provision for the assistance of the private forest land owner, both in aid in reforestation and in the proper management of existing woodland.

5—Increased support of forest investigation and research.

Practical Example of Reforestation

Paper is conducting, through this department, an investigation into the amount of land that is being annually reclaimed through reforestation by paper and pulp manufacturers. The data will be available at first by separate states and eventually, in so far as possible, for the entire country.

In this connection the industry will be interested in a study begun by a forester in 1914 and completed this year, on a pine plantation of 12 acres containing 5,430 trees. Fortunately for all concerned this plantation was set out in the year 1875, and was mature at time of cutting. We also have definite information to the effect that the seedlings were native-grown, dug from an old pasture, planted 8 feet by 100 feet apart, and that they received absolutely no care from the time they were planted until they were cut.

The plantation was made in Plymouth county in Massachusetts. In 1914 it was thirty-nine years old and an estimate, based on the measurement of every tree in the plantation, gave approximately 300,000 feet board measure. In 1922 the plantation was harvested. The logs were cut into four foot lengths preparatory to being sawed into box boards and the yield, checked at the mill, was 589 cords—considerably better than the 1914 estimate predicted.

Prior to planting, the land had never borne a successful agricultural crop except beans. The forest crop exclusive of the land sold in 1922 for over $5000, and the company that took it over reports a good profit on its purchase.

The only inefficient feature about the entire undertaking is that the crop was cut in one lump instead of by thinnings from time to time over a period of years. A plantation should, in so far as is practical and according to the principles of forestry, be made a perpetual proposition. But on account of the wide spacing, these trees all matured at about the same time and were never thinned. Growth practically ceased at forty years, the last ten or more annual rings being scarcely thicker than a sheet of writing paper.

This is one of the few cases where a crop of trees has been planted, grown to muturity and harvested in the United States. Our figures on the practibility of forest plantations have been based largely upon European experience. This plantation, grown on poor soil that was idle for many years, cannot fail to serve as an encouragement to American timberland owners who contemplate reforestation to increase future timber supplies and to set their idle lands to work.

Average Yield of Coniferous Plantations

If the plantation referred to above could be accepted as an accurate indication of what it is reasonable to expect from planted forests in this country, the paper and pulp industry would be in a position to draw up future plans with confidence. But one successful plantation is hardly sufficient to prove the case. The question may logically be asked, "Has America any material number of full-grown coniferous plantations on which records have been kept and estimates made?"

The answer is that she has. The same study that was applied to the twelve acre Massachusetts plantation was also applied to a dozen other plantations ranging from 35 to 60 years of age. While the figures are not based upon the actual cut at the mill, (most of the plantations are still standing) they are accurate to the extent that sample plots were carefully selected and measured for diameters and heights, and they are founded on conservative volume tables.

The total results of the investigation in terms of board measure for pine are as follows:

	Yield in board Feet Per Acre
Plantations 30 to 40 yrs. old	22 M
Plantations 40 to 50 yrs. old	33 M
Plantations 50 to 60 yrs. old	41 M

The significant fact is that these figures compare favorably with measurements made of healthy stands of native pine in the same localities. Therefore, if a piece of cutover land on which sufficient seed trees have been left so that it is reproducing itself with good coniferous seedlings is a good investment, a plantation is an equally good investment.

If these figures are taken as a basis for reforestation plans it should be borne in mind that they apply to the eastern portion of the United States and to the area known as the Northern Forest. Quite naturally, reforestation projects commenced in the section of our country first cut over, and our mature plantations are located in the east.

1,000-Acre Forest Gift

The gift of 1,000 acres of Adirondack land to the New York State College of Forestry by Charles Lathrop Pack of Lakewood, N. J. was announced by Dean Franklin Moon October 21. The property will be known as "The Charles Lathrop Pack Demonstration Forest."

Mr. Pack was for many years President of the American Forestry association and is now President of the American Tree association. The area, located on Barber Point, Cranberry Lake, has for nine years been the temporary abiding place for the Syracuse foresters. Its acquisition in perpetuity makes possible the carrying out of many plans for research to combat timber impoverishment.

The State already owns 20,000 acres adjoining Cranberry Lake. A hunting club controls 10,000 acres also adjacent to the Pack Forest, and on the inlet of Cranberry Lake is the experimental area of 1,800 acres for the New York State Ranger School, a department of the College of Forestry. Directly across from the Ranger School is a magnificent virgin stand of hemlock and white pine. Investigations of soil conditions controlling the growth of these species are already in progress in co-operation with the New York Botanical Garden. These forests will be actually combined in one big experimental area on which practically all conditions confronting the owners of forest land in the State of New York exist.

Sustained Forest Yield a Necessity

A statement recently made by Dean Franklin Moon of the New York State College of Forestry at a public hearing on reforestation is to the effect that in the pioneer stage of American development the harvesting of the forest crop was considered a nomadic industry.

Labor was cheap, construction costs far less expensive than to-day, freight rates comparatively moderate; a mill to cut 100,000 board feet per diem could be built for considerably less than $100,000 and be amortized within ten or twelve years.

Increasing cost of all kinds of labor, freight, construction materials, make mill plants far more costly. Competition is far keener, the margin of profit, owing to increased stumpage prices and higher manufacturing costs, much smaller; sawmills, and particularly high priced paper and pulp plants, can not be scrapped after a few years and villages wiped out of existance.

Forest industries must now be operated on a more secure basis and this makes sustained yield from forest areas an absoulte necessity.

Interesting Government Book

Announcement has just been made by the Department of Commerce in Washington of a new book of 368 pages entitled "Trade Association Activities".

It contains a directory of all national and international trade associations, and is the result of a searching inquiry into the workings of these agencies made jointly by the Bureau of Foreign and Domestic Commerce, the Bureau of the Census and the Bureau of Standards. Various phases of the work of trade associations have contributed to our social welfare and industrial progress. The book recounts the history of these associations. Paper manufacturing associations and forestry bodies are among the organizations listed.

Copies of the book may be obtained by application to the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is fifty cents. Stamps should not be sent. The best medium when ordering is money order or coin.

Forestry a Vital Problem

Theodore Roosevelt said in 1903 that the forestry problem was in many ways the most vital internal problem before the American people. B. E. Fernow, who was the first forester this country ever had, who has been called the dean of American foresters, and who died at Toronto about a year ago, said that forests were important to the extent that "we are surrounded from the cradle to the coffin with forest products."

The seaplane is rapidly becoming an important factor for photographing and reconnaissance work done by pulp and paper companies in Canada. The Abitibi Power and Paper Co. has arranged for the use of a seaplane over its limits, work having begun in three districts around Iroquois Falls, Ont. The wood cut is expected to run about 150,000 cords this winter, another 50,000 cords being secured from settlers.

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Bank Surveys Pulp Field

The United States is the largest producer of chemical pulp in the world, but its production is not sufficient to meet its requirements. The production last year was 2,038,000 tons. Practically the whole of this was consumed in the United States, and was supplemented by about 932,000 tons imported from Canada, the Scandinavian countries and Germany.

Canada ranks after the United States and Sweden as a producer of chemical pulp, with an output of 284,000 tons in 1913. Twenty per cent. of this was exported, chiefly to the United States, Japan, the United Kingdom and China. The rest was manufactured into paper by the local mills. By 1922, production of chemical pulp had increased to 690,000 tons, and Canada is regarded as the main source of the world's future supply.

During the war period, says the National Bank of Commerce in a review of the trade, Canadian exports of chemical pulp to the United States were stimulated by the exclusion from the American markets of the larger part of Scandinavian products. Since the war, although imports from Europe have grown, Canada, has retained its position as the leading foreign source of American chemical pulp.

Chemical pulp, because of its strong unbroken fibre, is the chief raw material used in the manufacturing of wrapping paper. "Manufacturers of paper in this country are now producing nearly all of the grades of wrappings made abroad prior to the war," says the review. "There is an increasing demand on the part of merchants for domestic papers on account of less delay in delivery and uniformity of quality."

"An interesting branch of the wrapping industry as well as an important and rapidly growing one is the manufacture of vegetable parchment, grease-proof and glassine papers. Vegetable parchment, a chemical product made chiefly of cotton cellulose combined with a small percentage of bleached sulphite, is a valuable food product wrapper. It is used for wrapping products to retain moisture, flavor and odor. Domestic mills are equipped to supply an immense demand. Glassine paper is composed of sulphite pulp. Its transparency and its grease-proof qualities are effected by special beating and super-calendering, and it makes a hygienic and attractive paper for food products or for packages where both protection and transparency are desired. Before the war there was only one or two manufacturers of glassine in this country. Today there are eight or more with a production of about one hundred tons a day.

"The Anonymous Market"

The market bulletin of the New York State College of Forestry at Syracuse has increased in subscriptions this year fifty per cent and over 300 per cent in the amount of material advertised. This bulletin performs the functions of an advertising medium for wood products, timber land and lumbering equipment that would find no other source of publicity. It is a want ad sheet that brings into contact all those who have lumber, land or equipment for sale with those who want to buy.

The service is free and the material is usually in such small quantities that it would not be placed in any advertising medium where expense was involved. But the totals represented are large. More than 20,000 copies of the bulletins were issued which brought a return of 1307 inquiries from various sections of the United States and Canada, the bulk coming from New York State. The "Want" items advertised included 202,350,000 feet of logs, 10,150,000 feet of lumber; the "For Sale" items included 737,535,000 feet of timber on the stump and logs; 9,200-000 feet of lumber; 57,575 cords of pulp wood; 12,850 cords of fuel wood and large quantities of car sticks, posts, piles, piling, ties, shorts, saw dust, dowels, excelsior and bark.

No names are published in the bulletin, the college acting as a sort of clearing house between parties in that inquiries arising from the circulation of the bulletin are addressed to the college and the college in turn sends them to those who are interested. The growth of this public service to the farmer and lumberman has increased to its present proportions since being established in 1915 when only four bulletins were sent out. The growing popularity of the market bulletin is proof of its usefulness.

Offers Uniform Cost System

A uniform system of cost accounting, for the manufacturers of glazed and fancy paper, has been laid out by a special committee of cost accountants representing members of the Glazed and Fancy Paper Manufacturers association, and has now been made available to all manufacturers of these grades. The cost system, representing the combined experience of the specialists in this branch of the paper industry, is not being forced upon any of the manufacturers but is offered as a model system both for those already maintaining cost departments and for those who have not as yet installed up-to-date cost methods.

It is pointed out in the introduction to the method recommended that the amount of detail involved will differ greatly in meeting the requirements of the differnt plants but a uniform method is urged upon the manufacturers in order to enable them to determine definitely the actual cost to figure properly the results of fluctuations in raw materials and changing labor conditions.

The associations so thoroughly believes in the principle of uniform cost accounting that it has offered the assistance of its committee to manufacturers wishing to install the system recommended.

A Correction

In the issue of PAPER dated October 11, in referring to the committee appointed to select a location for the new Paper Industries Exchange, it was stated that one of the committee was W. J. Alford, jr., "of the Continental Paper and Bag Mills." The name of the company should have been Continental Paper company, of Bogota, N. J. The latter has no connection with the Continental Paper and Bag Mills.

New Developments in Paper Making

Waterproof Paper Board

Waterproof paper board or box board is manufactured in accordance with United States patent No. 1,468,959 by heating finely divided Montan wax into a pulp mass of cellulose fiber. This fiber mass has been previously mixed with finely divided calcium hydroxide.

A precipitating agent is then added to throw down the mass of fillers and waterproofing agents on the pulp fiber and the pulpy mass is worked up into sheet or web.

The board may also be made in composite form, wherein the lower layer is made of felted fiber and the top layer is made of thin highly-waterproof fiber, Montan wax and a voluminous flocculent precipitate.

* * *

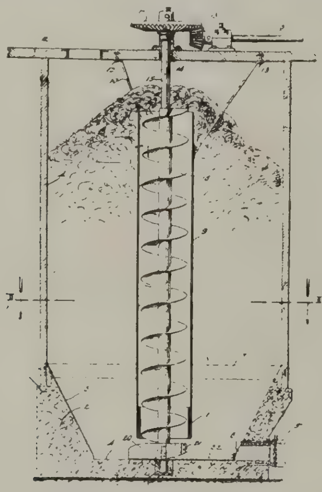
Coating Paper in a Vacuum

British patent No. 200,301 is concerned with a process for coating paper in a vacuum. The patent covers means for coating and otherwise treating paper in vacuum chambers whereby an improved product is manufactured. The main idea is the maintenance of unbroken vacuum conditions.

* * *

Pulp Bleacher

The apparatus which is shown in the accompanying diagram represents an arrangement for bleaching paper pulp according to a method described in United States patent No. 1,466,499. The apparatus consists of a tank in which there is a vertically arranged cylinder. This cylinder is suspended within the tank with its lower end at a certain distance from the floor of the tank. This cylinder is so arranged that it may be rotated and it contains a spiral conveyor or collector which rotates in conjunction with the cylinder. This conveyor collects the material from the floor of the tank and conveys it upward and discharges at the upper end while bleaching is going on.



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Utilizing Old Paper

In order to recover the fibrous part of old paper the paper is suspended in a liquid and is subjected to an extremely fine mechanical action by means of rotating parts which at one and the same time work on the mass of material both in the liquid and in the solid condition. These parts also receive a forward motion so that the paper never assumes the speed of the driving, rotating members.

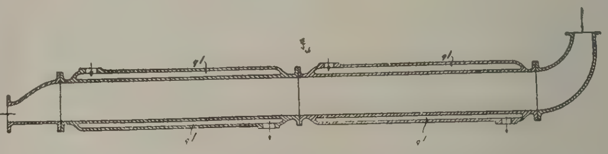
The inertia of the paper stock suspended in the liquid and the high speed of rotation of the drums on the other hand produce two forces which are opposed to each other, with the result that the paper mass is torn up into separate finely divided fibers. This results in the easy separation of the printing ink and the color from the fibrous substance. A chemical is added to the mixture in order to saponify the loosened ink with the result that it is completely removed from the paper fibers. This process is patented in Germany.

* * *

Beating or Refining Pump

It has been proposed to incorporate in the beating or refining apparatus a heat exchanger the temperature of which is controllable so that temperature of the material in the apparatus may be regulated. The heat exchanging device is usually in the form of pipes or plates inserted in the vessel or a jacket through which water can be pumped.

The present invention, which is patented in British patent No. 201,757, consists in the use of a heat exchanging device which is separated from the beating apparatus. The heat exchanger may be fluid jacket fitted to the pump employed to circulate the stock or a fluid jacket arranged partially or wholly around the pump line. The figure shows the heat exchanging device applied to a pipe line.



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Controlling Paper Machines

In a paper making machine it is desirable that the speed of the various sections shall be individually variable and controllable. The purpose of British patent No. 201,235 is to afford such flexibility of control in paper making machines. Furthermore this control is exercised while the machine is in full operation.

A constant speed drive, a single speed alternating current electric motor for example, drives a fluid pressure pump connected to other minor pumps which are directly or indirectly coupled to the various parts of the machine which are to be driven at constant relative speeds. A feature of the improvement is that while each of the minor pumps is individually controllable by hand they are also automatically controlled in such a manner that, assuming the load on one of the units varies, the driving of that unit will not race or slow up.

The improvement is described as applied to a paper making machine constructed for use with oil pumped by the main pump or motor to several smaller pumps or motors, each of which is coupled to a section of the machine.

The automatic control of the several small pumps or units may be effected in various manners wherein a fluid or mechanical governor is applied to each small unit under the joint control of that unit, such as a rotating shaft, common to all the governors, for example. These governors are in balance between the unit and the shaft and will, if that balance is disturbed, alter, by means of a rack and pinion, a valve controlling the fluid pressure from the main pump to the small pump.

As an alternative for the common shaft one pump could be connected to one end of each of the cylinders and adapted to apply equal pressure on the pistons and to be used in balance with the pressure from the separate pumps driven from each unit.

Psychology of Advertising

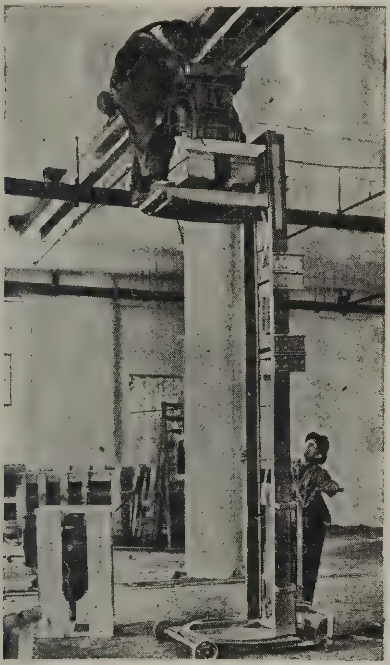
Col. B. A. Franklin, vice-president of the Strathmore Paper Co., speaking before the Publicity club of Springfield, Mass., discussed the psychology of direct mail advertising.

The money spent in advertising should be an investment he declared, and the fundamental fact to remember in preparing this kind of literature is the individual who is to receive it. He outlined three ways in which to catch the attention of the busy business man. These he said were through his love of the beautiful, his curiosity and his sense of the novel.

New Use for Well Known Device

The Revolvator, first introduced as a piece of equipment to elevate and lower bales, barrels, casks, boxes, crates and other heavy packages of merchandise has found a new field of usefulness.

A short time ago a wide-a-wake contractor saw much merit in using a Revolvator in place of scaffolding for setting heavy motors in place on ceilings. The saving in time, labor, and wood made such an impression on this contractor that he has used a Revolvator ever since for such work.



The knowledge of this new idea has spread rapidly so that today erectors, contractors and also industrial concerns are using the Revolvator for similar work. The accompanying illustration shows clearly how the Revolvator is used in this novel manner.

Two New Machinery Catalogs

The W. A. Jones Foundry & Machine company of Chicago, announces two new catalogs which will be sent to interested parties on request.

These catalogs are as follows:

Catalog No. 27—Pulleys. Is full of new and valuable information on cast iron pulleys, such as weights, illustrations, and extra lists for special types, rubber covering list; also describes, illustrates and lists "Lemley" ball bearing loose pulleys, and ring oiling loose pulleys. Steel, wood, and paper pulleys are also listed.

Catalog No. L-28—Friction Clutches. Fifty-six pages of valuable data on Lemley friction clutches, most of which is entirely new. Sleeve clutches, cut-off couplings, clutch pulleys, ball bearing clutch pulleys, gas engine clutch pulleys, are completely covered with price lists, dimensions, illustrations, horsepower ratings, etc.

Use of Glue in Coating Paper

The bureau of standards of the Department of Commerce is carrying out some experiments dealing with the use of glue in coating paper.

During the past month 9 runs have been made on the experimental coating machine, using 2 makes of bone glue for 8 of the runs and a French casein glue for one. The clay used for all runs was Lee Moor, a good grade of English coating clay.

The results indicate that the water resistance of glue-bound coating containing chrome alum compares favorably with that of casein-bound paper containing no formaldehyde. It is believed that the degree of waterproofness will prove sufficient for most of the papers used for halftone printing.

Difficulties have been experienced in obtaining a uniform coating, because of variation of the fluidity of the coating mixture and mechanical defects in the machine, so that additional work will be necessary before paper suitable for printing tests can be produced.

The International Paper Co., New York, is developing a tract of property in the vicinity of its mill at Niagara Falls, N. Y., for residential purposes for employes. Work is now in progress on a large group of houses to be sold to operatives on convenient terms. The total development will comprise about 250 homes. A contract has been awarded to the Westinghouse Electric & Mfg. Co., to equip 50 houses now nearing completion, with electric ranges.

Modern Methods

in our mills constitute one of the reasons for Appleton efficient service and fine quality.

The latest and most improved machinery with skilled workmen and the best wool obtainable, guarantee Appleton superiority.

TRADE MARK

Appleton Woolen Mills
Appleton, Wisconsin

Appleton
Felts and Jackets

CONSTRUCTION NEWS

Baltimore, Md.—The Paper Products Co., has awarded a contract to A. P. Lawrence, Baltimore, for the erection of a new one-story plant at 2409 Franklin street, estimated to cost $20,000. Plans have been filed and work will commence at once.

Anacortes, Wash.—The Consolidated Paper Corporation, Tacoma, Wash., has acquired local property, formerly used as a cement mill, and will convert the structure into a paper mill. Extensions and improvements will be made and the building occupied at an early date. The new works will specialize in the production of roofing papers, wrapping paper, waterproof stocks for paper boxes and kindred products. Machinery will be installed for maximum output and present operating equipment overhauled and utilized where possible. O. H. Fair is president.

Bogalusa, La.—The Union Bag & Paper Corporation, Woolworth building, New York, is reported to be planning for the construction of a new plant in the vicinity of Bogalusa, for the manufacture of its regular line of specialties. It will consist of a number of units, estimated to cost close to $500,000, including machinery.

Chicago, Ill.—The Western Bag & Paper Co., 521 West Sixty-third street, has awarded a general contract to Erickson & Christianson, 7219 Vernon avenue, for the erection of a new two-story building at Sixty-fourth street and Wentworth avenue, to be used for general operating and warehouse service. It will be 60x100 ft., and is estimated to cost approximately $43,000. H. G. Sailor, 318 West Sixty-third street, is architect.

Oregon City, Ore.—The Hawley Pulp & Paper Co., has preliminary plans under consideration for the rebuilding of the portion of its plant destroyed by fire, Oct. 9, with loss estimated in excess of $600,000, including machinery. The fire originated in the heater and machine rooms.

Dayton, Ohio—The Elam Paper Co., Marion, Ind., is having plans prepared for a new two-story plant on local site, totaling about 70,000 sq. ft. of floor space, for its proposed works in this city, recently announced. It is expected to proceed with erection and occupy the structure at the earliest date. The present plant will be removed to the new location.

Philadelphia, Pa.—G. A. Bisler, Jr., 245 North Sixth street, manufacturer of paper boxes and containers, has tentative plans under advisement for the erection of a new plant at 710-20 North Fifth street, for extensive increase in capacity.

Juneau, Alaska—C. A. Millington and K. J. Carney, Denver, Colo., engineers, are interested in a project to construct and operate a new paper mill in this section, with site on Shrimp Bay, Behm canal. The proposed plant will have an initial output of 100 tons per day. It is purposed to build a hydroelectric generating plant on Orchard Lake, with capacity of about 10,000 hp., for service at the mill. It is said that a company will be formed in Los Angeles, Cal., to carry out the project.

Nashville, Tenn.—The Nashville Paper Stock Co., Second and Church streets, has awarded a general contract to Maugaus & Bell, Murfreesboro, Tenn., for the erection of its proposed new local plant, estimated to cost about $45,000. Work will be placed in progress at once and a list of equipment arranged for installation. D. L. Ledbetter is head of the company.

Buffalo, N. Y.—The Buffalo Waste Paper Co., 98 Terrace street, is said to be perfecting plans for the construction of a new plant at 365 Babcock street. Baling machinery and other mechanical equipment will be installed.

Pittsburgh, Pa.—The Keystone Box Co., Twenty-sixth street and Liberty avenue, manufacturer of paper boxes and containers, has acquired the plant of the American Cigar Co., Twenty-eighth and Smallman streets, consisting of a six-story structure, 100x420 ft., secured for a consideration stated to be $120,000. The new owner will remodel and improve the building for a main works and will expend about $50,000 for this purpose. Additional machinery will be installed for complete operation. It is said that the present factory will be removed to the new location. Occupancy is now expected early in the coming year. Mark H. Nolan is president.

South Bend, Ind.—The La Salle Paper Co., 402 East Madison street, has awarded a general contract to Kuehn & Jordan, 725 Welber street, for the erection of its proposed new one and two-story paper mill on the St. Joe river, to consist of a number of units, with power house, estimated to cost approximately $1,000,000, with equipment. Freyermuth & Maurer, Farmers' Trust building, are architects and engineers. Claude E. Nicely is president.

Trenton, N. J.—Fire recently destroyed a portion of the plant of the Agasote Millboard Co., Fernwood, manufacturer of paper stock board, with loss estimated at close to $25,000. It is planned to rebuild.

New York, N. Y.—The Paul Bendix Paper Co., has leased space in the building at 113-19 Fourth avenue, for a local works and headquarters.

Park Falls, Wis.—The Flambeau Paper Co., has revised plans in progress for the construction of its proposed new one-story and basement plant addition, estimated to cost close to $150,000, including equipment. Brust & Phillips, 405 Broadway, Milwaukee, Wis., are architects. C. E. Perry is president.

North Tonawanda, N. Y.—The Daily News Paper Corporation, recently organized as a subsidiary of the Ontario Paper Co., Thorold, Ont., has commenced work on its proposed new local mill, on site on Little Island, lately purchased. A contract for a large dock has been awarded to S. W. Thompson, Tonawanda. The new plant will cost in excess of $500,000, with machinery, and it is expected to have the first unit ready for service during the coming year. Warren Curtis is general manager.

New Companies

Wilmington, Del.—The F. G. Leslie Paper Co., has been incorporated with a capital of $200,000, to manufacture paper products. The company is represented by the Corporation Service Co., Equitable building, Wilmington.

New York, N. Y.—Theodore Steffek, Inc., has been incorporated with a capital of $10,000, to manufacture wall paper and kindred specialties. The incorporators are T. J. Steffek and T. P. Andre. The company is represented by A. J. Wolff, 206 Broadway, New York.

San Francisco, Cal.—The Standard Paper Co. has been incorporated with a capital of $100,000, to manufacture paper products. The incorporators are George A. Connolly, C. M. Treacy and Arthur J. Harsfeld. The company is represented by Jerome Politzer, Mills building, San Francisco.

New York, N. Y.—Josephenson & Jacobson, Inc., has been incorporated with a capital of $10,000, to manufacture and deal in paper mill supplies. The incorporators are E. H. Coller, M. M. Corcoran and M. Fienkelstein. The company is represented by Coller & Coller, 277 Broadway, New York.

Profit from Waste Liquor

(*Continued from page 7*)

a 100-ton pulp mill there will be obtained 860 H.P. day and 76,300 ℔. of 3 to 5 ℔. steam, besides that used in the triple effect evaporators.

If the boiler shows a fuel efficiency of 80 percent, then for a 100-ton pulp mill there will be obtained each day 1150 H.P. and 190,000 ℔. of 3 to 5 ℔. steam besides that used by the evaporators.

The investment required to carry through this fuel economy is:

Triple effect evaporator to evaporate 30,000 lb. water an hour installed	$75,000
Boiler 1,000 H.P. installed	35,000
	$110,000
The operating expenses will be:	
Depreciation and repairs, 15%	$ 16,500
Labor 2 x 24 65c x 300 days	9,360
Yearly cost of operation	$ 25,860
With H.P. year $100 and coal $8 ton the income is as follows:	
If boiler has 60% efficiency	
860 H.P. has a year value of	$ 86,000
76,300 ℔. steam at 3 ℔.,	5,232
	91,232
Cost of operation	25,860
Yearly credit value	$ 65,372
If boiler has 80% efficiency	
1150 H.P. at $100 H.P. year	$115,000
190200 ℔. steam at 3 ℔., coal at $8 ton	13,040
	128,040
Cost of operation	25,860
Yearly credit value	$102,180

Financial Recapitulation

1.	Investment alcohol plant	$330,000
2.	Fuel evaporator & boiler plant	110,000
3.	Cost of alcohol per gallon	.2617
4	Profit at 36c sales price (excluding royalty)	56,915
5.	Value from recovered sulphite SO_2	3,000
6.	Value of hot water for washing pulp	8,000
7.	Value of power and fuel at 60% efficiency (if at 80% efficiency) $102,180)	65,372
8.	Total investment	440,000
9.	Total yearly profits and savings	125,287

The question arises whether the country can absorb without difficulty the alcohol from sulphite waste liquor. The present yearly alcohol consumption of this country varies between 75,000,000 and 100,000,000 gallons. This is excluding the war years when it reached 202,000,000 gallons in one year. An average sulphite mill will give less than 600,000 gallons alcohol if it ferments all its sulphite waste liquor, *i. e.* less than 1 percent of the country's present needs, an amount insignificant in its effect on the market price.

As to fuel—a local supply of fuel should be and would be most welcome at every pulp mill.

In conclusion I would repeat that the method of utilization which it has been a privilege to discuss before you does away with a waste that is injuring streams of the country and changes it, though at considerable capital expenditure, into useful products; one of which the pulp mill itself can use and for the other there is a large and yearly increasing commercial demand.

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WIRE WORKS

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Fourdrinier
Wires

Can't Be Beat

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**BRASS
AND PHOSPHOR
BRONZE**

You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

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WIRE WORKS
GREEN BAY
WISCONSIN

Short Ends from the Paper Field

The Grove Hill Paper Corporation of Rock City Falls, near Saratoga Springs, N. Y., has been charted by the secretary of state to manufacture paper, ink and yarn. The capital stock is $5,000 and the directors are Clarence K. Butler, Charles L. Hoey, and Clarence B. Kilmer of Saragota Springs. Rock City Falls was at one time the leading industrial center of Saratoga county when paper mills were operated by Chauncey Kilmer and George West.

The Zellerbeck Paper Co., of Los Angeles, Cal., is about to begin the erection of a paper mill on a 25-acre tract recently purchased in Cudahy, Cal., bounded by Santa Ana avenue, Independence avenue and Otis street. The cost of the plant is to be about $2,000,000, and the factory will be operated by the National Paper Products Co.

The Western Woodenware Co., of El Paso, Tex., has changed its name to the Western Paper & Woodenware Co., and has decreased its capital from $200,000 to $75,000.

The Paper Products Co., has let the contract for erection of a 40x50 foot addition to its paper mill in Cedartown, Ga.

The Bureau of Foreign Domestic Commerce, Washington, D. C., has received an inquiry from Goteborg, Sweden, for American paper mill machinery, designated as Opportunity No. 7876. Also, from Concepcion, Chile, for machinery for paper bag manufacture, Opportunity No. 7819. Full information available at the office noted.

The Paratz-Marr Manufacturing Co., of New Haven, Conn., has been incorporated to manufacture paper specialties. The incorporators are Edward Baratz, Bert L. Marr and Alexander Tarrantul, all of New Haven.

The Salisbury Company of Pawtucket, R. I., manufacturers of tags and paper specialties, has purchased the mill at Pawtucket formerly owned by the American Hair Cloth company and will remodel it for its paper specialties.

Low water resulted in the closing of the paper mills of Holyoke for the 11th time this fall, for an 18-hour period on October 12. Mills operating with other than water power were not affected. Owing to the low water level due to lack of rain, further curtailment is expected unless heavy rains come soon.

The Burnside tissue mills plant at East Hartford, Conn., has been sold to Thomas F. Garven of Hartford to Charles Boyland of New York City. The purchase price is understood to be approximately $125,000. It is also understood that the new owner will make extensive improvements in the plant and will operate it for the manufacture of tissue paper.

B. Parker Babbidge, 56 years, a member of the Hollingsworth & Whitney company of Boston, who had entered the employ of the company 37 years ago and had later acquired an interest in the company, died at a hospital in Brookline, Mass., September 29. His home was in Salem, Mass. He is survived by a widow.

The paper warehouse of M. F. Driscoll, between Milk and Central streets, Boston, was damaged by fire Friday night, October 5, to the extent of about $15,000, mostly to stock. The blaze started on the second floor of the six story structure and three alarms were sounded but the blaze was soon under control. All six floors were damaged. This is the second fire at the place recently, a fire about two and a half years ago badly damaging it. The building is numbered 210 Milk street and extends through to 205 Central street. The loss is covered by insurance.

One of the suggestions made by those interested in the conservation of pulpwood in Canada is that the pulp and paper companies allow the farmers as much for the pulpwood secured from that source as it would cost the companies to remove the wood from their own areas. And the further suggestion is made that the companies make as large purchases as possible from the farmers and conserve their own wood.

Charles Walmsley & Co. (Canada) held their first annual general meeting recently and it was reported that the reconstruction of the plant of the company at Longueiul, Que., was practically completed and that the manufacture of complete pulp and paper mill equipment on a large scale would be soon commenced. Sir William Price, of Quebec, is at the head of the company and all the old officers were reelected.

Michael Ludwig Jr., superintendent of the Mead Pulp & Paper company, Chillicothe, Ohio, who a few months ago was seriously ill in Mt. Carmel Hospital, at Columbus, Ohio, following his superintending the installation of a 140-inch Pusey & Jones book-paper machine in the plant of the Mead Fibre Co., Kingsport, Tenn., is now well on the road to recovery and has been about his duties at the Chillicothe mill for the past few weeks.

The Dennison Manufacturing company of Framingham, Mass., has prepared plans for the construction of bridges over Clinton street in that town to connect the various parts of its mills. It will be necessary to secure permission from the state before the work can be carried out.

The Crown-Willamette Paper company suffered a loss when a forest fire burned several hundred acres of timber and a large quantity of cordwood near their plant at West Linn, Oregon in September. Although the company had a large crew of men fighting the fire it burned from the river to the top of the ridge. The early fall rains have now lessened the danger from forest fires.

The new floor in the beater room of the Crown-Willamette Paper company mill, at Lebanon, Oregon, is practically completed.

The International Paper Co. has resumed capacity production at its mill at Glens Falls, N. Y., for the first time since last June, the plant recently having been on a three-day week basis. It is proposed to continue on a full-time schedule for an indefinite period. The company has recently placed its new hydroelectric power plant on Sherman Island, about 5 miles from Glens Falls, in operation, and will furnish service for its mills as well as supply power for distribution to the Adirondack Power & Light Corporation, Amsterdam, N. Y. The plant has a rated capacity of 37,500 kw., and is being operated on an output basis of about 25,000 hp. It has been in course of construction for about three years past.

Mill Project Went Wrong

All that remains of one of the pulp mill projects of eastern Canada is a pile of bricks.

Twenty years ago a company was formed to build and operate a pulp mill at the mouth of the Mispec river in New Brunswick. The mill was constructed on a hill overlooking the Bay of Fundy. Power was furnished by the Mispec falls nearby.

However, although the mill was opened, operations were suspended after several years, the men responsible for the organization being inexperienced, and unable to cope with the strange problems that faced them. After operations had been suspended for some time, work was resumed, and then finally discontinued. The mill was torn down, and all that remains of the industry that was predicted would build up Mispec are some wooden outbuildings. The population of Mispec has dwindled to less than a hundred.

Although located near the wood, the mill could not market the product. In the company were St. John N. B. men.

Courses at Technical School

Arrangements have been completed for the courses to be given at the new pulp and paper school which is affiliated with the Technical school in Three Rivers, Que. This result was the outcome of a conference which was held recently by representatives of the industry and the forestry service of the province.

The object in view was to arrange two systems of courses to be given in the new school and the co-operation of the advisors named by the pulp and paper association had been sought in this respect.

The first series of courses will last four years, during which the students will frequent the schools for a period of thirty-six weeks per year, following the courses and working in the pulp and paper mills eight hours per day from September to June. A fifth year will comprise special courses to specialize in pulp and paper fabrication.

To allow the men employed in pulp and paper mills to become experts in their trades, special evening courses will also be conducted.

Paper Products in Oregon

The number of paper and paper products manufacturing plants in 1921 located in the state of Oregon was nine; the number of employes was 1,799 and the payroll, as furnished the Bureau of Labor, was $2,132,560.38. The offices and location of the plants are as follows: The Crown-Willamette Paper company, Pittock Block, Portland, (plants at West Linn and Lebanon); Hawley Pulp & Paper company, Oregon City, (plants at Oregon City and Milwaukee); Oregon Pulp & Paper company, Salem, Steno Carbon Paper company, Portland, and Western Waxed Paper company, Portland. Several of the plants have been enlarged since these statistics were compiled.

Fred Webster has been appointed advertising manager of the American Writing Paper Co., which position he held three years ago. Mr. Webster is well known in paper circles, being the originator of the "Eagle A" trade mark for the American Writing Paper company and the creator of the advertising department.

The Drown Paper Goods Co. is the name of a new concern established at 18 Grafton street, Worcester, Mass., by William L. Drown of 6 Field way, Worcester, who has been connected with several leading New England paper houses for the past few years.

A Paper of Distinction

Silvertone Transparent Manifold Parchment

Assures Satisfaction to Particular People

Manufacturers of "Quality Papers at Quantity Prices"

WOLVERINE PAPER COMPANY
OTSEGO, MICHIGAN

Doings in Canadian Paper Field

Stock Distribution Hinted

Kaministiquia Power Company shareholders have received the following notification: "Kaministiquia Power Company distribution of one share of Kakakbeka securities for each share of Kaministiquia stock of record 31st October".

It is thought that the distribution will probably take the form of allotting 25,000 shares of Kakakbeka Securities company to Kaministiquia shareholders with the securities company remaining separate from the power enterprise and administering the latter's interest in the paper company.

While full details of the plan are not yet known it is understood that the notice merely intimates the intention of the Kaministiquia Power company to distribute among its shareholders its substantial stock interest in the Fort William Paper Co. Limited. The latter makes newsprint, having a daily capacity of 160 tons, it being understood that it is associated closely with the Spanish River Pulp and Paper Mills.

The Kaministiquia Power Co. was organized in 1905 by Canadians, but it is believed that a strong group of English investors subsequently secured control. Sir Herbert Holt is the president.

Heavy Production of Newsprint

According to the best obtainable figures, the Canadian newsprint mills during September produced 48 per cent of all the "news" turned out in Canada and the United States, the total for the two countries being 212,695 tons. These figures are based on returns from 65 companies, 45 of which are in the United States and 20 in Canada. It will thus be seen that the average production of the Canadian mills is much greater than that of the American.

Though the total production of Canadian mills for September was less than in August, or 102,486 tons, as compared with 113,584 in August, this was due to the circumstance that during the former month there were only 24 producing days, as against 27 in the latter. The daily average, however, was 4,270 tons, as against 4,207 in August. Of the total, 99,189 tons were shipped leaving stocks on hand of 18,670 tons at the end of the month. The total production of American mills was 110,209 tons.

More Opposition to Embargo

The outstanding feature of the sessions of the Pulpwood Commission, which is now in eastern Canada investigating the necessity or non-necessity of an embargo on shipments of woodpulp to the United States, is that about eighty percent of the testimony has been against an embargo. Sessions have been held in Halifax, North Sydney, New Glasgow, Bigby, St. John, Fredericton, and with Edmundston, Bathurst, Newcastle, Campbellton, St. Stephen and Woodstock to follow.

S. E. Wardwell of the St. Croix Paper company was quoted as strongly against an embargo. His company controls about 160,000 acres of pulpwood holdings in New Brunswick. He said an embargo would shut them off from Canada and force the company to confine activities to Maine. At present the St. Croix Paper company, he stated, produces fifty four thousand tons of newsprint annually. He added that if an embargo were imposed the St. Croix Paper company would operate the mill at Woodland, Me., exactly on the international border, for about ten years, and then establish a pulp manufacturing plant in Canada. But he contended that there would be no material benefit to Canada in this. The pulp would be piped across the line to the paper mills of the company in Maine.

W. B. Wentworth, of the Penebscot Chemical Fibre company, of Old Town, Me., in testifying stated this company secures about ten thousand cords of pulpwood from New Brunswick farmers yearly. In addition the company controlled stumpage in New Brunswick, in the Pokick section, of fifty thousand dollars for five years. The company bought this stumpage on the assumption there would be no embargo.

Mr. Wentworth asserted the company had no intention of moving the plant to Canada. In the past eight years the company had expended over a million dollars for Canadian pulpwood. In addition the company had spent a half million for freight and about three hundred thousand dollars for wages and supplies for employes.

It was the plan of the company to cut about forty five thousand cords of pulpwood from the crown lands leased in New Brunswick in the five years the lease operates. The cut would be up to about three inches.

The Penobscot Chemical Fibre Company is now paying from five to six dollars per cord at the shipping point, and the wood on their own stumpage costs about five to six dollars per cord. Peeled spruce costs from fourteen to sixteen dollars per cord at the Old Town mill. Mr. Wentworth said if the embargo was imposed, the price of pulpwood in Canada would decrease substantially. And in the United States, the price would be increased owing to the keen competition. He said it would not be practicable for the company to establish a mill in Canada, as it was better to have the mill nearer the market than the wood.

In speaking of forest conservation, Mr. Wentworth stated his company was making vigorous efforts in New Brunswick to prevent forest fires. The same program for fire prevention applies to the New Brunswick holdings as to the Maine pulpwood areas from which the company cuts. In discussing the slash burning question, he said slash was beyond the danger mark after about two years.

Increasing Newsprint Production

During the current year six machines for the production of newsprint have been installed in Canadian mills as follows: St. Lawrence Paper Mills, Three Rivers, two producing 125 tons daily; Belgo-Canadian Co., Shawinigan Falls, one of 85 tons; Fort William Pulp and Paper Co., two of 120 tons; one at Bathurst, N.B., of 50 tons, or a total of 380 tons daily or 114,000 tons a year.

Two machines are planned for installation in January, 1924; one at Donnacona, 100 tons; one at Price Bros., Kenogami, 100 tons and another soon after; one at Backus-Brooks plant, Kenora, 100 tons; one of the same capacity for the Manitoba Pulp and Paper Co. These will total 500 tons, or 150,000 tons for the year.

New Record for Production

The Belgo-Canadian Paper Co. recently set up another record for one day's newsprint production when over 300 tons were turned out. This will be materially increased when the second of the two new machines being installed gets under way towards the end of November. The first of these, though rated to produce only 75 tons a day, has actually been producing up to 96 tons. Two new ground wood machines were also set in operation several weeks ago, increasing the pulp capacity of the mill by about 40 tons a day.

Marathon Paper Mills Company

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WALTER ALEXANDER, Vice-Pres.
B. F. WILSON, Treasurer
C. S. GILBERT, Director
C. J. WINTON, Director
W. H. BISSELL, Director
D. C. EVEREST, Secy. and Gen'l Mgr.
P. M. WILSON, Ass't Secretary
J. R. RUSSELL, Mgr. of Sales

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Specialties in Bleached Sulphite Papers of all Grades. Quality and Appearance Combined in all Grades

SOLID AND BLEACHED LINED BOARDS FOR CARTON MANUFACTURERS
PAPERS FOR REMANUFACTURE

EQUIPMENT	
1 Cylinder Machine, Trim	100″
1 Fourdrinier Machine, Trim	120″
2 M. G. Yankee Fourdriniers, Trim	120″
2 Super Calenders	60″

DAILY CAPACITY	
Unbleached Sulphite Pulp	200,000 lbs.
Bleached Sulphite Pulp	150,000 lbs.
Ground Wood Pulp	60,000 lbs.
Paper	200,000 lbs.

Mills and General Office:
Rothschild, Wisconsin

Sales Office:
1126 Conway Bldg., Chicago, Ill.

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FOURDRINIER WIRES
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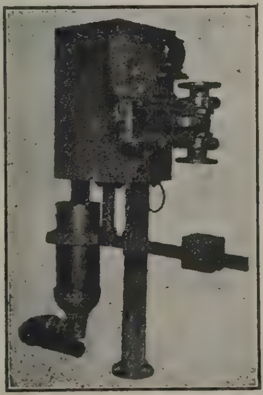

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CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Bsais	3.75 @ 4.00
BOOK	
S. & S. C.	6.50 @ 7.25
M. F.	6.25 @ 7.00
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.75 @ .85
WRAPPING	
No. 1 Domestic Kraft	7.00 @ 7.50
No. 1 Jute	8.25 @ 8.75
No. 1 Wood	4.75 @ 5.00
Butchers	4.00 @ 4.25
BOARD	
News	60.00 @ 65.00
Chip	60.00 @ 65.00

Paper and Board

New York, October 30—Activity of broad scope continues to be manifest in most branches of the paper industry. There are some kinds of paper for which demand has not developed in quite as heavy volume as was expected, and mills making these grades could readily accomodate considerable more business at the present time, but a large majority of paper manufacturers are busily engaged, are operating their plants at close to capacity and are encountering little or no difficulty in finding an outlet among consumers for practically all the papers they are producing.

The heavy rains over a considerable portion of the country last week came as a Godsend to paper and pulp mills. The drouth in some sections had become so severe that mills had been compelled in a great many cases either to close down or materially curtail their operations because of lack of water. For instance, three of the large box board plants in Northern New Jersey were so badly affected by low water they were almost entirely shut down for several days, while newsprint mills in New York State, in Maine and Wisconsin were reported to have been obliged to greatly curtail production. It was stated that curtailment in the production of newsprint at one time amounted to 500 tons a day in New York State alone, while an authority in the trade in close touch with the situation figured that the curtailment in the three States of New York, Maine and Wisconsin amounted to fully 1,000 tons of newsprint daily.

The heavy rains, reaching a total in excess of three inches of rainfall within two days, early in the week greatly relieved this condition, however, and latest reports are that mills have resumed more normal operations. For a time it appeared as if a serious shortage of some kinds of paper, notably newsprint, might arise, but now that mill streams are full again and production has been resumed there is apparently little or no danger of this.

Newsprint continues in a very firm market position. The curtailment of production has accentuated the market strength, and has led to a tight situation as regards immediately available supplies. Coupled with this condition at the mill end is a record-breaking consumption of print paper. Publishers in New York and throughout the country are using newsprint in tremendous tonnage, and doubtless would increase their consumption further if the paper were available. There is still a good deal of discussion in the trade concerning the probability of an advance in newsprint prices the first of the year. There are no concrete signs at the moment that manufacturers intend to raise quotations, yet an advance would not be surprising in the trade.

Demand for box boards has improved perceptibly since the ending of the strike of paper box workers in New York City. Board mills are better fixed with orders than in some time but most of them could still accomodate considerable more business. Prices are fairly well maintained. Manufacturers in the East are quoting $60 a ton delivered New York on both news and chip board though in some cases they are shading this price, reports having been heard of some sales to jobbers at $55 per ton. One of the leading mills is said to be quoting the lower price in certain instances and other manufacturers are obliged to sell at the same basis in order to compete.

Fine papers are in moderate demand. There is a steady though slow expansion of activities in this branch of the industry. Mills in the Holyoke district are gradually in-

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Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

creasing their production as the demand improves, and quotations on bonds and ledgers are firm as well as they might be in view of the generally firm position of rag stock.

Book paper is moving in a steady manner and at maintained prices. Most mills quote 6.50 cents a pound f.o.b. New York or thereabouts on machine finished book, quotations ranging from a low of 6.25 cents up to beyond 7 cents on this kind of paper, depending on quality and tonnage. Coated book is quotably steady at from 8 cents per pound upward f. o. b. New York.

Wrapping papers are in fair demand and steady in price. There is a growing call for tissue and prices show a stiffening tendency. Bag papers are in an almost booming position. Demand is broad and advances in raw material have a tendency to boost prices on the finished product.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	7.00	@	7.50
No. 2 Domestic	6.25	@	7.00
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.15	@	7.75
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.75	@	7.50
M. F.	6.50	@	7.25
Lithograph	9.00	@	14.00
Coated & Enameled	9.25	@	15.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	3.75	@	4.00
Boards, per ton, f. o. b. N. Y.—			
News	60.00	@	65.00
Straw, in sheets	55.00	@	60.00
Binder Boards	85.00	@	90.00
Chip	60.00	@	65.00
Manila Lined Chip	75.00	@	80.00
Woodpulp	80.00	@	85.00

Mechanical Pulp

Improvement in water conditions has aided the statistical position of mechanical pulp, and while production has doubtless increased to some extent since mills have been enabled to speed up operations, so far as is observable there is no larger supply of ground wood in the market. In fact, indications are a shortage still exists in many districts, and consumers in a great many cases are looking to Canada to secure the bulk of their current requirements of ground wood. Most sales are in the neighborhood of $45 a ton f. o. b. pulp mill. In some instances Canadian grinders are reported getting up to $50 a ton for their pulp but the smaller percentage of moisture in Canadian ground wood reduces the delivered cost to consumers about to the same levels prevailing on domestic ground wood.

Foreign and Domestic Chemical Pulp

There is a very unsettled tone in chemical wood pulp. Demand is very unsatisfactory—from the point of view of the producer or importer—as paper manufacturers are buying in an exceedingly cautious way and almost solely against direct requirements. Moreover, there are some sellers of pulp who have stocks on hand which they are anxious to convert into money, and the fact that offerings are made at prices below recognized market levels serves to make for an upset market condition. Under the circumstances it is a difficult matter to determine what pulp values really are. Unbleached sulphite of No. 1 domestic grade is quoted at 3 cents per pound f.o.b. pulp mills but there seems little doubt that some sellers are shading this price. Similarly, bleached sulphite is quoted at

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and the

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Daily Capacity
425 Tons

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Catalog
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Packers Oiled Manila
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Sulphite
Fibre
of the highest grade

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BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

CURRENT MARKETS—Continued

4 to 4.50 cents a pound at pulp plants, depending on quality and tonnage, but it is asserted that producers are selling under these rates in some instances. Kraft is still largely neglected, there being very little demand from board mills, and quoted prices range around 3 cents on both domestic and foreign kraft. Quotations ex dock New York and f.o.b. pulp mills are as follows:

Sulphite, foreign—			
Bleached No. 1.	4.00	@	4.50
Unbleached No. 1.	3.00	@	3.30
Unbleached No. 2	2.90	@	3.40
Easy Bleaching ..	3.35	@	3.50
Sulphite, domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No. 1.	3.00	@	3.25
Unbleached news grade	3.00	@	3.25

Easy Bleaching	3.25	@	3.50
Mitscherlich, unbleached	3.25	@	3.50
Soda, domestic, bleached	3.75	@	4.00
Kraft, foreign	2.90	@	3.15
Kraft, domestic	3.00	@	3.25
Sulphite screenings, refined	1.75	@	2.00

Domestic Rags

Most grades of papermaking rags are steady in price and are favored with a fair demand from consuming sources. It is apparent that mills are buying principally to cover actual needs yet there is a fair movement, and dealers say that stock is coming in from country districts in such small volume as to help to sustain values. Old white rags are particularly firm, and thirds and blues show a tendency to advance. Dealers in New York quote No. 1 repacked whites at an average price of 7.50 cents a pound f.o.b. this city, and No. 2 whites at 4.25 to 4.50 cents at shipping points, while repacked blues are quoted at 3 to 3.25 cents per pound and miscellaneous packing at around 2.50 cents f.o.b. New York. Roofing stock is bringing 1.50 cents a pound and higher for No. 1 packing, and 1.30 cents f.o.b. this city for No. 2 stock. There is not much demand for new rags though prices are quotably maintained. F.o.b. New York quotations are:

New Shirt Cuttings,			
No. 1	12.50	@	13.00
No. 2	6.00	@	6.25
Fancy Shirt Cuttings	6.00	@	6.25
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.50
White Lawns	11.00	@	11.25
New Muslins, unbleached	11.25	@	11.50
Light Silesias	8.00	@	8.25
Black Silesias	4.75	@	5.00

Overall Cuttings, Blue	8.00	@	8.25
Washables	5.00	@	5.25
New Black Mixed .	4.50	@	4.75
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.75	@	2.90
Thirds & Blues, repacked	3.00	@	3.25
Thirds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags, No. 1	1.50	@	1.60
Roofing Rags, No. 2	1.30	@	1.35

Imported Rags

Occasional sales of dark colored cottons to felt paper mills at about 1.45 to 1.50 cents a pound ex dock New York are reported, and other descriptions of foreign rags are wanted by mills in moderate amounts. Blue cottons are selling rather freely, and a steady call prevails for linens. No changes of consequence are reported in quoted prices, which, on an ex dock New York basis, are as follows:

Lins., White No. 1	12.00	@	13.00
Ger. Blue Cottons..	2.75	@	3.00
French Light Blue.	3.00	@	3.25
New Light Prints ..	5.50	@	5.75
New Unbleached ...	9.50	@	9.75

German Linen, blue.	3.75	@	4.00
German Linen, grey	5.75	@	6.00
German S. P. F.'s.	6.00	@	9.00
German Light Prints	2.50	@	2.75
Dk. Colored Cottons	1.45	@	1.50

Bagging, Ropes, Etc.

Old manila rope is characterized by market conditions bordering onto a boom. Demand is active, and dealers contend they are unable to locate all the supply inquired for by mills, with the result prices have scored further advancement. No. 1 domestic manila rope has sold at 6.25 cents per pound f.o.b. New York, and this is about the minimum price dealers will now entertain, with some asking 6.50 cents. Foreign rope has

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CHEMICAL CORP.
Rosin Size — Foam Killer
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Franklin, Ohio
Eastern Sales Office:
110 E. 42nd Street New York City

CURRENT MARKETS—Continued

sold at 6 cents a pound and higher ex dock at this port. Old bagging is quiet and rather nominal in price. Quotations f.o.b. New York are:

Gunny, No. 1	1.30	@	1.40
Foreign	1.20	@	1.30
Wool Tares, light ..	1.30	@	1.40
Scrap Bagg., No. 1.	1.15	@	1.25
Roofing Bagging ..	.90	@	1.00
Wool Tares, heavy .	1.40	@	1.60
For. Manila Rope .	6.00	@	6.25
Domestic Rope	6.25	@	6.50
Mixed Strings	1.00	@	1.25

Old Paper

To say that the old paper market is characterized by a tone of uncertainity is describing the situation somewhat mildly. As a matter of fact, prices are very irregular, and it is problematical what actual market levels really are. The establishment of the Paper Industries Exchange in New York has upset the market to such an extent that dealers are puzzled what to quote, and added to this factor is that of a very poor demand from mills. Old folded newspapers, which are about the firmest grade in the market owing to board manufacturers concentrating their buying on this particular stock, are selling at 1.05 to 1.10 cents per pound f.o.b. New York. No. 1 mixed paper is neglected and can be readily bought at 80 cents a hundred pounds New York, and probably for less. Magazines are in slow movement and are quoted at 1.80 to 1.90 cents per pound New York, while very little activity is noted in shavings, with offerings of No. 1 hard white shavings recorded at 3.90 cents a pound and of No. 1 soft white shavings at 3 cents f.o.b. New York. Ledger stock is steady at about 2.10 cents or a trifle less, and old kraft paper is firm at 2.15 cents per pound New York. Quotations f.o.b. this city are:

No. 1 Hard White Shavings	3.90	@	4.00
No. 2 Hard White Shavings	3.40	@	3.60
No. 1 Soft White Shavings	3.00	@	3.15
Box Board Chips ..	.85	@	.90
No. 1 Colored Shavings	2.00	@	2.25
Magazine flat stock.	1.80	@	1.90
No. 1 Crumpled ...	1.40	@	1.50
Solid Ledger Books	2.25	@	2.35
Ledger Stock	2.00	@	2.15
Kraft No. 1	2.15	@	2.25
New Manila Cuttings	2.25	@	2.50
New Manila Env. Cuttings	3.00	@	3.25
Bogus and Mill Wrappers	.90	@	1.00
News, strictly overissue	1.25	@	1.30
Folded News	1.05	@	1.10
No. 1 Mixed Papers	.75	@	.80
White Blank News.	2.25	@	2.35
Common Paper	.40	@	.45

Twines

Twines are moving in a routine manner and in rather limited amounts. Consumers show little interest in other than supplies immediately required, but prices are quotably maintained and an advancing trend in raw material is likely to be reflected in the finished product shortly. Quotations follow:

Sisal Hay, pure ...	12.25	@	13.25
Manila Hay, pure..	16.25	@	17.25
Sisal Lath Yarn ...	11.25	@	12.25
Manila Rope, pure, ¾ inch diameter.	15.25	@	16.25
Hardware rope	11.25	@	12.25
Jute rope, ¼ diam. and over, coils ..	14.00	@	16.00
Sail twine, A grade.	21.50	@	
Jute Wrapping twine, A grade	21.50	@	
Papermakers Twine.	12.50	@	
B. C. Hemp, 18 ...	.39	@	.40
B. C. Hemp, 24 ...	.38	@	.39
B. C. Hemp, 36 ...	.37	@	.38
American Light India—			
No. 6	14.50	@	
No. 7	13.50	@	

Chemicals

The papermaking chemicals market displays no feature of note. There is a fair movement of most chemicals at maintained prices. Casein is reported showing a little easier tendency owing to increased imports from the Argentine.

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Wisconsin Wires

Wisconsin Wire Works

Appleton Wisconsin

CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of October 22-27

Paper

Str. Davisian, Liverpool—British—American Tobacco Company, 38 bls.

Str. Olen, Havre—Rose & Frank Company, 171 cs. cigarette; DeManduit Paper Corporation, 135 cs. cigarette; Gimbel Bros., 5 cs.; Middleton Company, 1,224 rolls roofing paper.

Str. Pipestone County, Rotterdam—Wilkinson Bros. & Co., 30 bls. and 15 rolls wrapping.

Str. Paris, Havre—E. Dietzgen & Co., 1 cse. drawing; Draeger Shipping Company, 4 cs.; DuPont Cellophane Company, 23 cs.; Raphael, Weill & Co., 5 cs.; G. W. Sheldon & Co., 22 cs.; Whiting-Patterson Company, 5 cs.; H. Maillard, 5 cs. pasteboard; Erstein & Co., 5 cs.

Str. Veendam, Rotterdam—T. D. Downing & Co., 171 rolls and 93 bls. wrapping; J. J. Frank, 24 cs.; Buschmann Bros., 383 rolls strawboard; C. K. MacAlpine & Co., 11 rolls newsprint; Order, 14 cs.

Str. West Inskip, Rotterdam—M. Lange & Co., 2 cs. photo.

Str. Virgilia, Liverpool—F. C. Strype, 10 cs. tissue.

Str. Adriatic, Liverpool—Oxford University Press, 5 cs. printing; A. C. Dodman Jr. & Co., 16 bls. hanging; B. F. Drakenfeld & Co., 10 cs. printing.

Str. Hansa, Hamburg—Eimer & Amend, 10 cs. filter; Quality Art Novelty Company, 20 cs.; J. P. Heffernan Paper Company, 410 bls. wrapping; Keuffel & Esser Company, 83 cs. drawing; Order, 320 rolls newsprint and 135 bls. wrapping.

Str. Orbita, Hamburg—Publicity Paper Corporation, 51 cs.; Peoples Trust Company, 76 bls. wrapping; Corn Exchange Bank, 200 bls. wrapping; Wilkinson Bros. & Co., 100 bls. and 1,478 rolls wrapping; J. P. Heffernan Paper Company, 1,103 bls. wrapping; Chase National Bank, 58 rolls wrapping; Chemical National Bank, 269 rolls newsprint; Seaman Paper Company, 4 rolls printing; W. Hartman & Co., 124 rolls and 56 bls. wrapping; International Acceptance Bank, 663 rolls wrapping; C. G. Keferstein, 870 rolls hanging; H. Reeve Angel & Co., 2,100 rolls wrapping.

Str. Vellavia, London—H. Reeve Angel & Co., 3 cs. drawing and 9 cs. filter; Devoe & Reynolds Company, 1 cse. drawing.

Str. Drottningholm, Gothenburg—C. K. MacAlpine & Co., 25 bls. wrapping; A. E. MacAdam & Co., 142 bls. and 1,415 rolls wrapping; J. P. Heffernan Paper Company, 1,421 bls. wrapping; Newark Ledger, 197 rolls newsprint; Fernstrom Paper Company, 1 ble.; Corn Exchange Bank, 1,717 rolls and 55 bls. wrapping; Bernard, Judae & Co., 3 cs. filter.

Str. La. Bourdonnais, Bordeaux—E. Fougera & Co., 40 cs. filter; Bankers Trust Company, 67 bls. filter; C. G. Euler, 60 bls. filter; H. Reeve Angel & Co., 34 bls. filter.

Str. Laconia, Hamburg—Birn, & Wachenheim, 240 bls.;

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Do you require help?

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C. Steiner, 4 bls.; Bernard, Judae & Co., 45 bls. wrapping; F. B. Vandegrift & Co., 83 cs.

Str. Dorelian, Antwerp—H. Reeve Angel & Co., 2 cs. wrapping; P. C. Zuhlke, 187 cs. photo; C. W. Williams & Co., 29 cs.; Gevaert Company of America, 36 cs. photo; Irving Bank-Columbia Trust Company, 10 cs.

Str. Minnekahda, Hamburg—F. G. Prager & Co., 1,264 bls. hanging and 55 cs. pasteboard; Metropolitan Import & Mfg. Company, 13 cs. pasteboard; Bendix Paper Company, 39 cs. pasteboard; W. Hartman & Co., 72 bls. wrapping; F. L. N. Smythe Company, 166 bls. printing; Order, 166 bls. printing; from Antwerp—P. J. Schweitzer, 52 cs. cigarette; Irving Bank—Columbia Trust Company, 11 cs.; Gevaert Company of America, 37 cs. photo; Order, 9 cs. hanging.

Wood Pulp

Str. Kalsnaren, Gothenburg—Pagel, Horton & Co., 3,350 bls.

Str. Veendam, Rotterdam—Castle & Overton, 618 bls.

Str. Bremerton, Gefle—Pagel, Horton & Co., 8 bls. sulphate.

Str. Sierra Ventana, Bremen—Bulkley, Dunton & Co., 1,625 bls. sulphite; North German Lloyd, 75 bls.; Castle & Overton, 250 bls.

Str. Drottningholm, Gothenburg—Nilsen, Lyon & Co., 600 bls.; E. M. Sergeant & Co., 508 bls.; Order, 625 bls. sulphite.

Str. Grande Gaarde, Hamburg—Guaranty Trust Company, 800 bls.

Str. Minnekahda, Hamburg—E. Naumberg & Co., 198 bls.; Order, 1,000 bls. sulphate; from Antwerp—Order, 1,000 bls. sulphate.

Old Rope

Str. Olen, Havre—Brown Bros. & Co., 303 bls.; E. J. Keller Company, 233 bls.

Str. Veendam, Rotterdam—Brown Bros. & Co., 145 coils.

Str. Virgilia, Liverpool—Order, 6 bls.

Str. President Van Buren, London—Ellerman-Wilson S. S. Line, 188 coils.

Str. Portland Maru, Genoa—International Acceptance Bank, 250 bls.

Str. Orizaba, Havana—N. E. Berzen, 15 bls.

Str. Laconia, Hamburg—Brown Bros. & Co., 57 coils and 12 bls.

Str. Dorelian, Antwerp—Brown Bros. & Co., 29 coils and 61 bls.

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Wire Works

"The Fourdrinier that took the Ire out of Wire"

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MENASHA, WISCONSIN

CURRENT IMPORTS—Continued

Old Bagging

Str. West Inskip, Rotterdam—E. J. Keller Company, 127 bls.

Rags

Str. Davisian, Liverpool—Schulz & Ruckgaber, 14 bls.

Str. Olen, Havre—Stoen Bros. & Victor Galaup Company, 81 bls.; Paul Berlowitz, 329 bls.; from Dunkirk—Maurice O'Meara Company, 128 bls.; Castle & Overton, 45 bls.; Stone Bros. & Victor Galaup Company, 127 bls.; Salomon Bros. & Co., 29 bls.

Str. Paris, Havre—Brown Bros. & Co., 20 bls.; Equitable Trust Company, 1,848 bls.; Order, 11 bls.

Str. Veendam, Rotterdam—E. W. Dutton, Inc., 72 bls.

Str. West Inskip, Rotterdam—S. Birkenstein & Sons, 234 bls.; Marquardt-Hewitt Corporation, 18 bls.; Waste Material Trading Corporation, 38 bls.; Paul Berlowitz, 58 bls.; American Woodpulp Corporation, 83 bls.

Str. Adriatic, Liverpool—A. C. Fetterolf, 114 bls.; Albion Trading Company, 70 bls.

Str. Toloa, Havana—M. Wolfer & Co., 28 bls.

Str. Virgilia, Liverpool—Order, 34 bls.

Str. Vellavia, London—Guaranty Trust Company, 104 bls.

Str. La Bourdonnais, Bordeaux—Goldman, Sachs & Co., 116 bls.

Str. Grande Gaarde, Hamburg—E. J. Keller Company, 47 bls.; Manufacturers Trust Company, 401 bls.; Maurice O'Meara Company, 135 bls.; Fenston Company, 1,385 bls.; Guaranty Trust Company, 75 bls.; Castle & Overton, 42 bls.

Str. Sabotawan, Venice—Guaranty Trust Company, 147 bls.

Str. Laconia, Hamburg—L. H. Abenheimer, 291 bls.

Str. Atalaya, Leghorn—New York Trust Company, 146 bls.

Str. Frederik VIII, Copenhagen—Goldman, Sachs & Co., 228 bls.

Paper Stock

Str. Dorelian, Antwerp—American Exchange National Bank, 44 bls.

Talc

Str. Portland Maru, Genoa—L. A. Salomon & Bros., 300 bags; C. Mathieu, 300 bags.

Str. La Bourdonnais, Bordeaux—L. A. Salomon & Bros., 1,200 bags; Whitaker, Clarke & Daniels, 1,600 bags; E. M. & F. Waldo, 200 bags.

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Str. Wekika, Fowey—Order, 1,052 tons in bulk, 58 cks. and 293 bags.

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Heller & Merz Co., New York.
National Aniline & Chemical Co., New York.

ARCHITECTS AND ENGINEERS

Carey, James L., Chicago, Ill.
Ferguson, Hardy S., New York.
Hardy, George F., New York.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

BEARINGS

Link-Belt Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BEATING ENGINES

Black-Clawson Co., Hamilton, O.
Dayton Beater & Hoist Co., Dayton, O.

BELT CONVEYORS

Link-Belt Co., Chicago, Ill.

BLEACH

Penn. Salt Mfg. Co., Philadelphia, Pa.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOX BOARDS

Standard Paper Co., Kalamazoo, Mich

BOARD MACHINES

Black-Clawson Co., Hamilton, O.

BOND PAPER

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

BRASS WIRE CLOTH

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, O.

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Union Sulphur Co., New York.

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Appleton Wire Works, Appleton, Wis.
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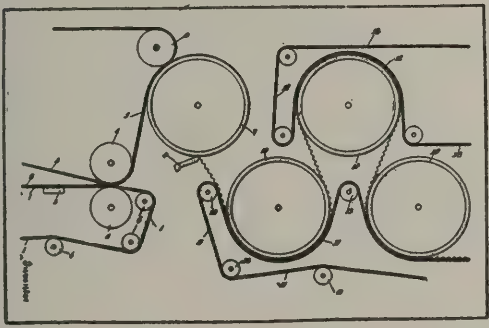

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West Virginia Pulp & Paper Co., New York.

COGS

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Kuttroff, Pickhardt & Co., New York.

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CONVEYORS AND ELEVATORS

Link-Belt Co., Chicago, Ill.

COUPLINGS (SHAFT)

Link-Belt Co., Chicago, Ill.
Hudson-Sharp Machine Co., Green Bay, Wis.

CREPE PAPER MACHINES

Hudson-Sharp Machine Co., Green Bay, Wis.
Tompkins-Hawley Fuller Co., Valatie, N. Y.

CUTTERS

Appleton Wire Works, Appleton, Wis
Black-Clawson Co., Hamilton, O.
Cameron Machine Co., Brooklyn, N. Y.

CYLINDER COVERS

Appleton Wire Works, Appleton, Wis.
International Wire Works, Menasha, Wis.

CYLINDER MOLDS

Black-Clawson Co., Hamilton, O.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

CYLINDER WIRES

Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

DANDY ROLLS

Cheney Bigelow Wire Works, Springfield, Mass.

DE-INKING PROCESS

Castle & Overton, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

DIGESTERS

Manitowoc Eng. Works, Manitowoc, Wis.

DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

DISC EVAPORATORS

Manitowoc Eng. Works, Manitowoc, Wis.

DRYING REGULATORS

Pickles, W. F., Buckland, Conn.

DYESTUFFS

Heller & Merz Co., New York.
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THE MARKET PLACE—Continued

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Carey, James L., Chicago, Ill.
Ferguson, Hardy S., New York.
Hardy, Geo. F., New York.
Stebbins Engineering Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

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Appleton Woolen Mills, Appleton, Wis.
Castle & Overton, New York.
Huyck & Sons, F. C., Albany, N. Y.
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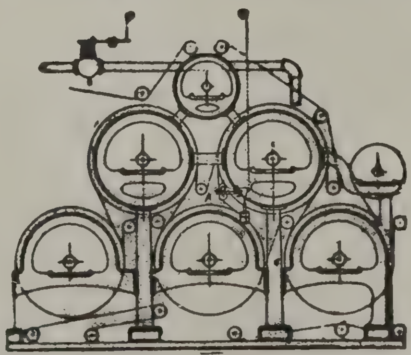

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Dyeing and Tinting of Paper*

Dyestuff Absorption Experiments Described by Noted British Authority on Chemistry of Cellulose Fibers—More Attention to Paper Dyeing Necessary to Establish Standard

By **Julius Huebner, M. Sc.**

A SUPERFICIAL comparison of the methods employed in the dyeing of paper pulp with those employed in the dyeing of cotton or linen textiles does make the former seem simple and crude, because in order to obtain satisfactory results in dyeing textiles a careful purification and preparation of the material has, as a rule, to precede the dyeing, whilst in dyeing ordinary shades on paper pulp many dyestuffs can be readily applied without such special preparation.

This does, however, not apply to the production of shades on paper pulp which have to possess special properties, such as fastness to light, to the atmosphere, to water, etc.

The dyeing of such shades requires a thorough knowledge of the properties of the dyestuffs used, of the behavior of the different fibers towards the dyestuffs and of the effect of mordants, loading materials and sizing.

Table I. (Cotton).

	Time of immersion in hours	Original fibres	1.5 hours' beating	3 hours' beating	4.5 hours' beating	6 hours' beating
Average length of fiber in mm.		20.0	2.5	1.5	1.1	0.7
Percentage of night blue absorbed	1	14.5	52.2	56.9	58.4	62.3
	6	24.5	58.9	59.2	59.2	62.3
	18	27.6	59.2	59.2	60.1	62.3
	72	32.2	60.7	63.5	64.7	65.3

The conditions which affect the results in dyeing paper pulp are much more varied than those met with in dyeing textile materials, because, as a rule, a greater variety of fibers has to be taken into consideration, and frequently more complicated fiber mixtures have to be dealt with.

It is, therefore, impossible to draw a direct comparison between the dyeing of fibers, such as cotton or linen, in the entire or original state, or when spun into yarn or woven into fabrics, with the dyeing of these fibers when converted into paper pulp. In the latter case, the point to which the fibers are disintegrated in the beating operation influences both the amount of dyestuff absorbed and the rapidity with which it is absorbed to a very marked degree.

In order to ascertain this effect, carefully purified cotton yarn, spun from American cotton, was beaten for 1.5, 3, 4.5 and 6 hours respectively.

The weight of fibers used for each of the absorption experiments corresponds to 20 grms. of absolutely dry fiber. In each case the material was immersed in 900 c.c. of water, containing 0.2 grms. of night blue. The amount of dyestuff remaining in the dye bath after immersion was found by titration with naphthol yellow. The percentage of night blue absorbed in the various stages of disintegration after the different periods of immersion is given in Table I.

The unbeaten cotton yarn showed a constantly increasing absorption during the 72 hours of immersion, whilst the most highly disintegrated pulp absorbed dyestuff very rapidly during the first hour of immersion, but a very small further amount of dyestuff was taken up during the remaining 71 hours of immersion. Thus in the case of cotton, the amount of dyestuff absorbed and the rate at which absorption takes place are very considerably influenced by the degree of disintegration of the fibers. When comparing the dyed samples it was found that the most highly disintegrated material was dyed to the same depth of shade as the original cotton yarn, although it had absorbed more than twice the amount of dyestuff.

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* *Read before Technical Conference of Papermakers at Edinburgh, Scotland, September 26, 1923.*

This is no doubt due to the larger amount of fibrous surface exposed by the disintegrated fibers to the dyebath.

In order to ascertain whether this view is correct some fibrous material of simpler physical character was examined. For this purpose artificial silk of two kinds, differing only in that they consisted of fibers of the average diameters 0.0299 mm. and 0.184 mm. respectively, was used. Quantities of these two silks were cut into lengths of about 2 ins., and 10 grms. of each (dry weight) were immersed for 72 hours in 750 c.c. of solution containing 0.15 grm., of night blue. The fine silk absorbed 0.0986 grm., and the course silk 0.0558 grm., of coloring matter. It is thus clear that the finer silk, which exposes the larger surface, absorbs considerably more dye than the coarser material, and a direct indication is obtained that in the absorption of Night Blue by artificial silk the proportion taken up is roughly proportional to the surface exposed by the fibrous material.

Further confirmation of this result was obtained by studying the absorption of night blue by a chemically inert substance, namely, emery powder; two samples of levigated emery, the one very fine and the other much coarser, were used. One hundred grams of each kind were immersed for periods of 1, 6, 18 and 72 hours in 750 c.c. of water containing 0.15 grm., of night blue. The results were as follows:—

Table II.

Time of immersion in hours	1	6	18	72
Coarse emery	0.00081	0.0167	0.0263	0.05
Fine emery	0.05	0.0618	0.09	0.09

The behavior of the fine and coarse emery is clearly very similar in kind to that of the fine and coarse artificial silks, and also to that of the various grades of disintegrated cotton fiber. It is, therefore, concluded that the amount of surface exposed to the action of the dye solution greatly influences the proportion of dye absorbed, not only in the case of a material such as emery, which is certainly chemically inert, but also in that of cotton or artificial silk.

Although wool fibers are but rarely employed in the manufacture of paper, it seemed of interest to study this fiber under similar conditions, but using 10 grms., of absolutely dry fiber instead of 20 grms., as in the former experiments. The percentages of dyestuff absorbed is given in Table III.

It will be noticed that the results differ very materially from those obtained with cotton. The percentage of dyestuff absorbed after 72 hours' immersion was the same whether the fibers were in their original state or in a very highly disintegrated condition. In the case of wool the degree of disintegration influenced the speed at which the dyestuff was absorbed, but did not influence the amount of dyestuff absorbed.

Apart from the effect of the disintegration of the fibers on the absorption of dyestuffs, the degree of purity of the fibers and the amount of dyestuff absorbed by different vegetable fibers is, however, of considerable importance in the dyeing of paper pulp, particularly when a pulp consisting of a mixture of two or more fibers has to be dyed.

Table III. (Wool).

	Time of immersion in hours	Original fibres	1.5 hours' beating	3 hours' beating	4.5 hours' beating	6 hours' beating
Average length of fibre in mm.		29.0	3.12	2.2	0.7	0.4
Percentage of night blue absorbed	1	15.3	17.6	19.1	23.0	24.5
	6	18.3	19.1	20.7	23.1	26.1
	18	20.7	21.4	22.2	23.5	26.1
	72	26.1	26.1	26.1	26.1	26.1

Investigations with Principal Fibers

It was, therefore, considered necessary to extend the investigation to the following celluloses, which comprise the principal papermaking fibers, *i.e.*, bleached cotton waste, specially purified for the manufacture of gun-cotton; cotton half-stuff, made from the above by beating; bleached linen half-stuff; unbleached sulphite wood cellulose; bleached sulphite wood cellulose; bleached and purified sulphite wood cellulose; unbleached soda wood cellulose, made from pine wood; mechanical wood pulp; bleached esparto half-stuff; bleached straw half-stuff and unbleached jute half-stuff.

It having been shown that the length of the fibers may influence the amount of dye-stuff absorbed, it was decided to ascertain, as accurately as possible, not only the mean length but also the mean diameter of each of the fibers used. The method adopted in measuring the dimensions of the fibers was a variation of that usually employed, *i.e.*, by means of an ordinary microscope and a table micrometer; because in this, approximation often plays a more important part than actual measurement, especially when the objects present strongly curved lines. In the present method the apparatus used for photo micrography was employed.

A white screen was substituted for the camera, and a scale was first marked on the white screen from the magnified image of the scale on the table micrometer. The dimensions of the images of the fibers were then actually measured by means of a pair of dividers with reference to the scale on the screen. No knowledge of the degree of magnification is, therefore necessary as both the scale and the object are magnified to the same extent. In order to obtain greater accuracy in the case of very sinuous images an opisometer was used. The diameter of the fibers was ascertained by measuring the breadth of the images at several points and by taking in each case the mean of about 100 readings.

The hygroscopic moisture contents of the air-dry celluloses were also determined by drying at 100 deg. C. They were as follows: Cotton waste, 5.952 per cent.; cotton half-stuff, 6.817 per cent.; linen half-stuff, 5.332 per cent.; unbleached soda, 8.175 per cent.; bleached soda, 7.584 per cent.; unbleached sulphite, 8.229 per cent.; bleached sulphite, 8.484 per cent.; bleached and purified sulphite, 7.237 per cent.; poplar, 5.957 per cent.; mechanical wood, 9.548 per cent.; esparto, 6.805 per cent.; straw, 7.653 per cent.; jute, 8.978 per cent.

Absorption of Iodine

It is well known that the amount of iodine absorbed by different fibers varies. It was, therefore, considered of interest to ascertain the amount of iodine absorbed by the different celluloses used in the experiments.

Table IV.

	Length in Millimetres.			Diameter in Millimetres		
	Max.	Min.	Mean.	Max.	Min.	Mean.
Straw	2.0	0.15	0.535	0.024	0.005	0.021
Beached sulphite cellulose	3.2	0.12	0.908	0.058	0.012	0.029
Jute	2.6	0.14	1.175	0.020	0.005	0.0104
Esparto	1.96	0.15	0.643	0.015	0.005	0.009
Linen	2.39	0.15	0.710	0.026	0.006	0.015
Poplar	1.40	0.20	0.744	0.032	0.007	0.020
Soda Cellulose	3.65	0.32	1.605	0.046	0.015	0.030
Cotton halfstuff	3.10	0.27	0.90	0.023	0.009	0.019

For this purpose weighed amounts of the different celluloses each representing 10 grms., of absolutely dry substance were taken. The celluloses were reduced to pulp with water, and each was made up with water to 700 g. 50 c.c. of N/10 iodine solution was added to each and left for 48 hours, with shaking at intervals. The amount of iodine remaining in the solution was ascertained by titration with sodium thiosulphate solution. The amounts of iodine absorbed by the celluloses were then calculated. The results are given in Table V.

Table V.

	Absorption in per cent. of the total iodine added.
Cotton waste	9.70
Cotton half-stuff	10.46
Linen	13.08
Bleached sulphite	10.50
Bleached and purified sulphite	11.16
Unbleached sulphite	34.66
Bleached soda	10.36
Unbleached soda	35.50
Poplar	24.80
Mechanical wood	76.14
Jute	65.40
Straw	18.10
Esparto	16.14

The results show that the absorption of iodine in the case of all the bleached celluloses, with the exception of poplar, straw and esparto, are of the same order, that is about 10 per cent. of the total iodine used. The two unbleached wood celluloses, *i.e.*, unbleached sulphite and unbleached soda, absorb nearly the same amount (about 35 per cent.). In the case of both jute and mechanical wood (lignified celluloses) the absorption figures are very high indeed (jute 65.4 per cent., mechanical wood 76.14 per cent.).

In order to examine the coloration of the fibers after immersion in the iodine solution, the celluloses were filter-pressed. It was then noticed that the color of the different cakes did not only vary in intensity but also in shade.

Unbleached sulphite was a dark brown; bleached sulphite, much lighter and more yellow than above; bleached and purified sulphite, brown (a little darker than above); poplar, a light brown (about the same color as the bleached sulphite); unbleached soda, dark brown (darker in shade than unbleached sulphite); bleached soda, light yellowish brown (lighter than bleached sulphite); esparto, light brown (more yellowish than above); straw, a cream color with a bluish tinge (paler in shade than the other celluloses); linen, light brown; cotton half-stuff, brown (darker than linen with a bluish tinge); cotton waste, brown (darker than cotton half-stuff with a bluish tinge); jute, dark brown (yellow tinge); mechanical wood, dark brown (intermediate in shade between unbleached sulphite and jute).

In order to ascertain whether the iodine absorbed by the celluloses would show a tendency to go into solution, 250 c.c. of water was added to each of the cakes obtained by filter-pressing and left for 72 hours, shaking at intervals, after which the amount of iodine in solution was ascertained. The amount of iodine in the cakes after filter-pressing was then calculated from the quantity of the solution contained in each.

With the exception of jute, the amount of iodine actually found to be present in the water was a little less than that obtained by calculation. The poplar cellulose had become white, the solution colorless, and a pronounced odor of iodoform was noticeable. In the case of the unbleached sulphite and soda wood, the quantities of iodine found in solution were very minute.

After titration, the celluloses were left in the remaining solutions for some time.

A comparison with the coloration of the celluloses before immersion in water shows that considerable changes had taken place. The following colors were noticed after 96 hours:—

Cellulose	Colour of the Cellulose	Colour of the Solution
Unbleached sulphite	Brown	Almost colourless
Bleached sulphite	Cream colour	Slightly yellowish
Bleached and purified sulphite	Cream (lighter than above)	Slightly yellowish
Poplar	White	Colourless
Bleached soda	Yellow	Yellow
Unbleached soda	Dark brown	Colourless
Esparto	Yellow	Yellow
Straw	Light greenish-blue	Yellow
Linen	Light blue	Yellow
Cotton half-stuff	More bluish than above	Yellow
Cotton waste	More bluish than above	Yellow
Jute	Dark yellowish-brown	Yellow
Mechanical wood	Dark yellowish-brown (slightly lighter than above)	Yellow

In the dyestuff absorption experiments methylene blue and metanil yellow, respectively, were used. Weighed amounts of the different celluloses, representing in each case 10 g. of the dry material, were immersed in 450 c.c. of a solution containing 1 g. of methylene blue for 48 hours. The bottles were shaken at intervals. The amount of dyestuff remaining in the solution was then ascertained by means of a colorimeter. The amounts of dyestuffs absorbed are given in Table VI. in per cent. of the total dyestuff used.

The fibers from the absorption experiments were then made into paper by adding water to make up to 1 liter and by making sheets on a mould. Cotton waste was dyed the lightest, jute the heaviest shade. The depth of the shades increased in the following order: Cotton waste, cotton half-stuff, linen, bleached sulphite, esparto, bleached and purified sulphite, poplar, mechanical wood pulp, bleached soda, unbleached soda, straw, unbleached sulphite, jute. A comparison of the depth of shade to which the celluloses have been dyed with the amount of dyestuff absorbed shows that while there is decided agreement in some cases, there are marked differences in others.

Further absorption tests were carried out under identical conditions with metanil yellow, using, however, 0.25 g. of this dyestuff only.

Table VI.

	Per cent. of total dyestuff used.
Cotton waste	1.6
Cotton half-stuff	6.1
Linen	7.7
Bleached sulphite	14.8
Bleached and purified sulphite	.6.1
Unbleached sulphite	52.3
Bleached soda	20.5
Unbleached soda	29.5
Poplar	18.7
Mechanical wood	37.8
Jute	87.6
Straw	34.8
Esparto	18.7

The depth of the shades of the papers made increases in the following order: Cotton waste, cotton half-stuff, linen, bleached and purified sulphite, bleached soda, straw esparto, poplar, bleached sulphite, unbleached sulphite, unbleached soda, mechanical wood pulp, jute.

Table VII.

	Per cent. of dyestuff absorbed of the total added.
Cotton waste	8.8
Cotton half-stuff	10.1
Linen	9.4
Bleached sulphite	18.9
Bleached and purified sulphite	10.1
Unbleached sulphite	19.5
Bleached soda	7.5
Unbleached soda	17.3
Poplar	17.3
Mechanical wood pulp	57.1
Jute	64.7
Straw	7.5
Esparto	16.6

The absorption figures in the case of metanil yellow show less irregularity than those of methylene blue. The same applies to the order in which the depth of the shades increases.

A comparison of all the tables shows that the lignocelluloses and the unbleached celluloses derived from lignocelluloses give the highest absorption figures. The bleached wood celluloses, bleached straw and bleached esparto, give absorption figures which are lower than those of the unbleached celluloses. Bleached cotton and bleached linen and purified sulphite cellulose give the lowest absorption figures. Mechanical wood pulp absorbs more iodine than does jute, but the latter absorbs more dyestuff than the former.

A comparison of the moisture contents of the celluloses with the iodine and the dyestuff absorption figures shows that in the case of the lignocelluloses (mechanical wood and jute) and the unbleached wood celluloses, there seems to be a distinct relation between the absorption figures and the moisture contents. In the case of the bleached celluloses, the iodine and the dyestuff absorption figures agree fairly well, but they do not agree as satisfactorily with the moisture contents.

That both the quality and the quantity of loading material added play an important part in the dyeing of paper pulp is well known.

It was found that china clay absorbed 67.5 per cent. of the total night blue, 10 per cent. of the total diamine sky blue FF, and 7.4 per cent. of the total iodine used.

A comparison shows that the absorption figures for china clay and for beaten cotton are practically identical.

It is also well known that the addition of resin size and the precipitation of free resin in the pulp and on the fibers is a valuable assistant in the dyeing of paper pulp.

The results of a large number of experiments have, however, shown that the color fixing action of the resin, although very marked, is but little influenced by the nature and the degree of purity of the fibers or by the kind of dyestuff employed.

So far, the investigation has been confined to the simplest methods of dyeing paper pulp. There are, however, other fields which require systematic investigation, the results of which should be of value to the industry.

More Attention to Dyeing Needed

Enormous strides have been made in the dyeing of textiles within the last twenty years particularly in the production of fast shades, while, comparitively speaking, but little progress has been made in the dyeing of paper pulp.

I venture to suggest that the paper dyer, who has not done so hitherto, should pay more attention to the processes of dyeing, which are a little more complicated than those in general use, but which produce shades of superior fastness, and which, in many cases, would result in lowering the cost of production.

Among such processes are the application of the natural vegetable dyestuffs, such as logwood and catechu, either alone or in combination with the coal tar dyestuffs, in order to improve the fastness of the latter; the use of basic dyestuffs in conjunction with acid dyestuffs in dyeing heavy shades with a colorless

(Continued on page 25)

Summary of Paper Industry for September

THE statistical summary of the paper industry is submitted herewith for the month of September, 1923, and previous months.

The following associations cooperate in the collection and compilation of data from their members, namely, Binders Board Manufacturers Association, Converting Paper Mills Association, Cover Paper Manufacturers Association, Newsprint Service Bureau, Tissue Paper Manufacturers Association, Wrapping Paper Manufacturers Service Bureau and Writing Paper Manufacturers Association.

Tonnage Summary

GRADE	Number of Mills	Stocks on hand first of month	Production	Shipments	Stocks on hand end of month
Newsprint:		Net tons	Net tons	Net tons	Net tons
September, 1923	67	24694	110209	110240	24663
August, 1923	67	22243	132604	129173	25674
July, 1923	67	19791	125768	124322	21237
June, 1923	65	18133	133692	132311	19514
Book (M. F., S. S. C. & Coated):					
September, 1923	64	24919	51205	50453	25671
August, 1923	61	22935	59744	58708	23971
July, 1923	56	23053	45156	44995	23214
June, 1923	48	24570	50964	48569	26965
Paperboard —total (Straw, Fibre Leather, Chip, Box, etc.):					
September, 1923	113	29506	96477	96669	29314
August, 1923	114	26396	117932	116551	27777
July, 1923	115	27931	96362	97114	27179
June, 1923	101	23560	105218	104052	24726
Boxboard (included in Paperboard):					
September, 1923	58	11021	60434	60742	10713
August, 1923	63	10376	82062	81325	11113
July, 1923	62	13212	64283	65239	12256
June, 1923	54	9788	65394	64371	10811
Wrapping, (Kraft Manila, Fibre, etc.):					
September, 1923	91	47291	49678	48473	48496
August, 1923	89	43598	50563	47348	46813
July, 1923	87	38647	47796	43038	43405
June, 1923	83	35533	54966	50951	39548
Bag (All Kinds):					
September, 1923	29	6354	6230	6938	5646
August, 1923	28	6400	8720	8306	6814
July, 1923	28	6280	5210	5907	5583
June, 1923	25	5788	9247	8174	6861
Fine (Writing, Bonds, Ledgers, etc.):					
September, 1923	86	37621	23395	22783	38233
August, 1923	86	37417	22859	23097	37179
July, 1923	86	37482	21650	21347	37785
June, 1923	88	35179	27637	26500	36316
Tissue (Toilet, Crepe, Fruit Wrappers, etc.):					
September, 1923	48	8838	9457	9900	8395
August, 1923	47	9813	9192	9917	9088
July, 1923	46	9520	8366	8403	9483
June, 1923	44	8080	10328	9217	9191
Hanging (No. 2 Blank, Oatmeal, Tile, etc.):					
September, 1923	10	4236	5513	5000	4749
August, 1923	10	3266	5284	4314	4236
July, 1923	10	2713	5370	4623	3460
June, 1923	9	926	4158	3617	1467
Felts and Building (Roofing, Sheathing, etc.):					
September, 1923	16	4054	12073	12453	3674
August, 1923	16	2550	11320	11452	2418
July, 1923	16	2255	13361	13168	2448
June, 1923	15	2170	9707	9508	2369
Other Grades (Specialties not otherwise classified):					
September, 1923	65	15896	14469	14743	15622
August, 1923	65	16319	15288	14429	17178
July, 1923	64	13134	14752	12993	14713
June, 1923	60	11351	17439	16794	11996
Total—All Grades:					
September, 1923		203409	378706	377652	204463
August, 1923		190937	433506	423295	201148
July, 1923		180806	383611	375910	188507
June, 1923		165290	423356	409693	178953

Due to an error in compiling the August report, Boxboard was included twice in the totals and thereby made the totals larger by that amount. The totals for the respective groups are correct and remain unchanged from figures given in August, summary.

Comparative Report of Operations of Identical Paper Mills for the Months of September and August, 1923

GRADE	Number of Mills	Stocks on hand first of month	Production	Shipments	Stocks on hand end of month
Newsprint:					
September, 1923	59	24694	110209	110240	24663
August, 1923	59	21759	128276	124972	25063
Book:					
September, 1923	60	23714	50441	49859	24296
August, 1923	60	22722	59289	58275	23736
Paperboard:					
September, 1923	103	24869	87327	88176	24020
August, 1923	103	28869	103411	102313	24967
Boxboard:					
September, 1923	55	10705	58727	59158	10274
August, 1923	55	9968	72207	71471	10704
Wrapping:					
September, 1923	87	46591	48051	46695	47947
August, 1923	87	43351	50267	47004	46614
Bag:					
September, 1923	26	6057	6123	6541	5639
August, 1923	26	5595	7101	6619	6077
Fine:					
September, 1923	86	37621	23395	22783	38233
August, 1923	86	37417	22859	23097	37179
Tissue:					
September, 1923	45	8404	8213	8583	8034
August, 1923	45	9677	8430	9204	8903
Hanging:					
September, 1923	10	4236	5513	5000	4749
August, 1923	10	3266	5284	4314	4236
Felts and Building:					
September, 1923	13	2278	7665	7993	1950
August, 1923	13	2431	8976	9129	2278
Other Grades:					
September, 1923	62	14474	12820	12950	14344
August, 1923	62	13711	14524	13758	14477
Total—All grades:					
September, 1923		192938	359757	358820	193875
August, 1923		183798	408417	398685	193530

Percentage Changes in Production and Shipments of Identical Mills in September, 1923 as Compared with August, 1923

	Production	Shipments
Newsprint	—14%	—11%
Book	—15%	—14%
Paperboard	—15%	—14%
Boxboard	—19%	—17%
Wrapping	— 4%	— 1%
Bag	—14%	— 1%
Fine	+ 3%	— 1%
Tissue	— 3%	— 7%
Hanging	+ 4%	+16%
Felts and Building	—15%	—12%
Other Grades	—12%	— 6%
Total—All Grades	—12%	—10%

P. L. Buttricka, graduate of the Yale School of Forestry has been engaged by the Connecticut Forestry association to serve as a full time secretary and forester. His three chief campaigns, as determined by the association, will be the acquisition of a forest to be called the association forest and managed for recreation and timber production; to assist every town in the state to acquire a woodland park; and to assist private owners in securing adequate fire protection for their timber.

The Independent Paper Stock Co., Fresno, Cal., has let the contract for a factory and warehouse at 3035 Buller avenue, to cost about $40,000 and be two stories high and 60x140 feet. W. H. Bates is manager.

Wood Pulp Review for September, 1923

THE American Paper and Pulp association in cooperation with the U. S. Pulp Producers association submit herewith statistics on pulp production, consumption and stocks for the month of September, 1923 and previous months.

Pulp Production

The statistical table following gives the number of mills reporting stocks as of the first of the month and end of the month, production during month, amounts used by mills producing same with amounts shipped to concerns other than those producing same.

GRADE	Number of Mills	On hand first of month	Production for month	Used during month	Shipped during month	On hand end of month
Ground Wood Pulp:						
September, 1923	103	79633	60777	71893	4677	63840
August, 1923	106	103297	66919	85708	7145	77363
July, 1923	113	116277	80721	87589	4211	105198
June, 1923	102	85810	100760	85103	4759	96708
Sulphite, News Grade:						
September, 1923	39	15800	37573	35226	3336	14811
August, 1923	42	21091	47482	45059	5578	17936
July, 1923	38	15505	37224	36100	2817	13812
June, 1923	39	13780	44098	44684	2216	10978
Sulphite, Bleached:						
September, 1923	20	5529	16845	13891	3743	4740
August, 1923	20	5294	19179	14829	4140	5504
July, 1923	16	1211	11407	8864	2389	1365
June, 1923	13	2573	13497	11372	1674	3024
Sulphite, Easy Bleaching:						
September, 1923	7	853	6532	5572	933	880
August, 1923	9	1183	7057	6501	695	1044
July, 1923	9	1699	5458	5078	501	1578
June, 1923	5	1070	4100	4132	145	893
Sulphite, Mitschlehich:						
September, 1923	6	2494	5030	4376	782	2366
August, 1923	5	1143	4915	3421	863	1774
July, 1923	6	1875	5462	4202	1179	1956
June, 1923	6	1156	5857	4572	840	1601
Sulphate, Pulp:						
September, 1923	12	7055	10739	9039	1915	6840
August, 1923	14	8266	14527	10239	1877	10677
July, 1923	13	4365	13150	9472	3576	4467
June, 1923	14	5925	17662	11126	4203	8258
Soda Pulp:						
September, 1923	12	5816	12309	7789	5643	4693
August, 1923	11	1317	11946	8140	3399	1724
July, 1923	11	5761	8588	3890	4678	5781
June, 1923	9	6567	7291	3998	4110	5750
Other than Wood Pulp:						
September, 1923	3	178	194	–0–	133	239
August, 1923	3	152	270	107	135	180
July, 1923	3	70	236	–0–	156	150
June, 1923	3	183	217	168	162	70
Total—All Grades:						
September, 1923		117358	149999	147786	21162	98409
August, 1923		141743	172295	174004	23832	116202
July, 1923		146763	162246	155195	19507	134307
June, 1923		117064	193482	165155	18109	127282

Waste Paper Specifications

The Paper Industries Exchange has adopted the following specifications for waste paper as drawn up by its paper stock committee:

No. 1 Mixed Papers:—This grade shall consist of dry waste paper which has been sorted and cleaned by screening, dusting or hand sorting, and packed in machine pressed bales weighing not less than 800 pounds or more than 1500 pounds. Not to contain more than one (1%) per cent of foreign materials and objectionable papers. See definitions.

No. 2 Mixed Papers:—Dry, unsorted paper in bales of 100 pounds and over. Not to contain more than five (5%) per cent, either weight or bulk, of foreign material and objectionable papers. This grade to be free from city dump paper. See definitions.

Dump or City Mixed:—To be packed and sold as such.

Box Board Cuttings:—To consist wholly of cuttings and clippings from paper box factories. It shall be dry and free from dirt and refuse matter, and packed in bales weighing 100 pounds and over. This grade to be accepted as good delivery on No. 1 repacked Mixed Paper.

News Over Issue:—This grade shall consist of overruns and unsold newspapers direct from the newspaper offices, folded as they come from the press in securely tied bundles.

No. 1 News:—Strictly dry, clean, sorted and repacked newspapers in machine pressed bales weighing not less than 500 pounds or more than 14500 pounds. Not to contain more than one (1%) per cent of foreign material and objectionable papers. See definitions.

No. 2 News:—This grade shall consist of dry newspaper, which has not been recleaned or sorted, in bales weighing between 500 and 1500 pounds each. Not to contain more than five (5%) per cent of foreign material and objectionable papers. See definitions.

News Blanks:—Shall consist of white news cuttings or sheets, free from all printed matter, and not to contain more than two (2%) per cent tinted blanks. In bales of 400 to 1500 pounds each.

No. 1 Printed Manilas:—Shall consist of dry, sorted and repacked manilas and strong fiber paper, writing paper and good office waste. in bales of 400 to 1500 pounds each. Not to contain over three (3%) per cent of mixed, news, box cuttings or objectionable paper and foreign material. See definitions.

Container Manilas:—Shall consist of sorted or unsorted department store paper, which contains a large per cent of strong fiber stock, in bales of 300 pounds and over. Not to contain more than three (3%) per cent of foreign material and objectionable paper. See definitions.

No. 1 Kraft:—Shall consist of dry, sorted and cleaned Kraft Papers in bales of 300 to 1200 pounds each. This stock must not contain more than one (1%) per cent of foreign material and objectionable papers. See definitions.

Hard White Shavings:—Shall consist of dry, hard, sized, white writing paper, free from all colors and tints, ground wood, foreign materials and objectionable papers. May have some machine ruled paper, but not printed ruled. In bales 400 to 1200 pounds each. See definitions.

Soft White Shavings:—Shall consist of dry, all white book paper cuttings, not to contain more than two (2%) per cent ground wood, colors and tints or more than eight (8%) per cent coated paper. In bales 400 to 1200 pounds each.

Definitions

Foreign Material includes every non-paper substance.

Objectionable papers, including paraffined, greased, glazed, parchment, tar, carbon, wall paper, book covers and strings.

When stock of an inferior grade is shipped and the fact is apparent without opening bales, notice of rejection must be promptly given shipper.

If No. 2 stock is shipped where No. 1 stock has been ordered, buyer can refuse the shipment by giving seller reasonably prompt notice, or he may take same in at a reduction of four ($4.00) dollars per ton.

Joint Convention at Appleton

Technical Association, Cost Association and Northwest Division of Superintendents Association Hold Highly Successfully Meeting—Summary of the Proceedings

THE most successful series of meetings that have ever been held by the Technical association, the Cost association and the Northwest division of the Superintendents association was held at Appleton, Wis., October 25, 26 and 27. Over three hundred and fifty members of the three associations and guests attended the various meetings and it was the unanimous opinion that it was the most successful Fall meeting ever held.

Thursday, October 25th, members of the different organizations began to arrive at the convention headquarters, which was the Conway hotel. Emmet J. Carey, registrar, opened up for business immediately after dinner and over fifty members registered that evening.

Friday morning a meeting of the Kraft association was held at the Conway hotel. Professor White of the University of Michigan read his report.

The business session of TAPPI, was also held on Friday morning.

H. S. Taylor, president of the association, in his address of welcome stated that there were nineteen committees making investigations along lines of interest to both technical men and executives in the pulp and paper industry.

He emphasized very strongly the necessity of cutting down waste and increasing efficiency.

There are now 560 members in the Technical Association.

After Mr. Taylor's address W. D. McNaughton, secretary of the association, stated that there had been 51 new members added and also that he was very glad to report that the $5000 deficit in the Vocational Education Text Book Fund had been cleaned up, all the credit for which was due to the untiring efforts of B. T. McBain. He also referred to the new apprenticeship system which is being worked out.

The revision and re-drafting of the constitution was discussed.

The following committees reported:

Coated and Process Paper by Secretary MacNaughton.

Light, Heat and Power by W. W. Cronkhite.

Mr. Spence reported progress of soda pulp investigation.

Mr. MacNaughton read the report of Sulphite committee.

Mr. Bearce of Drying Committee spoke on Paper Drying methods.

J. D. Rue gave a talk on decayed pulpwood.

O. M. Porter, secretary of the Woodlands section said members were glad to co-operate in the furtherance of the apprenticeship idea in forestry, especially in the woods, and that there was a dire need for trained foresters.

The joint session of the three associations was held Friday afternoon. B. T. McBain, asistant superintendent of the Nekoosa-Edwards Paper company, acted as chairman.

After expressing his appreciation of the honor thus conferred upon him, Mr. McBain continued, "It is an honor further, however, for the reason that this is the first joint convention of members of these three truly great associations of this 7th greatest industry of our own America. The Industry needs more such meetings, where all departments may become better acquainted, rub shoulders together and learn that they are not such bad fellows after all, learning that the industry needs all three types of men that these three associations represent, needing one just as much as the other.

"There was a time when the profit in the pulp and paper industry in America was so great that the bank balance of each company told the story in a manner satisfactory to the board of directors without expensive cost systems; when the amount of wasted everything from log to finished product went by unnoticed and the technical man was not of much face value, nor even thought of; when the superintendent was Lord of all he surveyed and did not need assistance from anyone, or at least thought he did not.

"These conditions have changed; our timber supply is about exhausted; the margin between cost and selling price is many times on the wrong side, while the waste in many if not all plants amounts to more than the old time profit, and the industry now badly needs that complete co-operation that alone can bring results; that complete co-operation from each of the three types here seated, that each of the three legs of a three legged stool lend each other. When that is accomplished, then and then alone will the pulp and paper industry in America be on the right basis.

"The superintendent who thinks he knows it all is going backward; doesn't belong to the Superintendents association and the Superintendents association does not want him as a member.

"The Technical man who flags or waves his education and technical terms in the face of his fellow worker, the superintendent or cost man, is not worthy of the name of a Technical association brother; the cost man in any plant who takes things over the head of the superintendent or his fellow worker, the technical man, without trying to co-operate with the other two, will never get ahead and reach that goal of success we all look forward to.

"We all have positions of responsibility and where responsibility lies, there must authority also rest; but just because

Those attending the Papermakers' convention at Appleton, photographed before the Kimberly club at Kimberly, Wis.

we have certain authority is no reason why we should consider we have it all, nor why we should exercise what we do have. We must give and take in this life and those who are so inclined, make the best executives and get the best results.

"I look forward to the day when the annual convention of these three cooperating associations will be held at one time for three or four days to a week and at least one day thereof given to joint papers and discussion and a general love feast. In fact, I recommend such action at this time to the national officers of the Technical association as well as to the division and national officers of the other two associations, who may be present."

Mayor Reuter of Appleton welcomed the delegates to the city and responses were made by H. S. Taylor, president of the Technical association; F. C. Boyce, for the Superintendents association and C. A. Jasperson, president of the Cost association.

Mr. Boyce, "the father, and grand old man of the association," reviewed the history of the association and predicted that within five years every superintendent "who is a superintendent" would be a member. He also sketched the growth of the papermaking industry in Wisconsin from the establishment of the first paper mill in the state in 1860 at Appleton by G. N. Richmond and brother.

Mr. Jasperson referred briefly to the function of the cost man in the operation of a paper mill and showed the necessity for correct figures on costs necessitated by the keen competition in the industry.

The forestry question was discussed by Secretary Porter of the Woodlands section and R. S. Kellogg of the Newsprint Service bureau.

This ended the joint meeting, the different associations holding separate sessions.

The following papers were presented at the Friday meeting of the superintendents:

Beaters and Beating by C. E. Youngchild of Nekoosa Edwards Paper Co.
Colors by K. T. King of Dupont Co.
Wires by J. D. Buchanan of Appleton Wire Works.
Waste in Sulphite Industry by O. L. Berger of G. D. Jenssen Co.

While the superintendents were discussing their papers and problems the technical men held a meeting. There were reports on Heat Losses and the Method of Handling Materials. Considerable discussion was held on these subjects.

At the Cost association meeting F. C. Shymanski of Whiting Plover Co. was elected president, and P. D. Baron of Marathon Paper Mills Co. was elected secretary and treasurer.

The visiting ladies were not forgotten by the committee. On Friday afternoon they attended the football game between Cornell and Lawrence college and from the reports everyone was delighted with the game. Saturday afternoon a tea and musical was held in their honor at the Appleton Women's club rooms.

Business Meeting of Superintendents

There was only one meeting scheduled for Friday evening, that being the business meeting of the Superintendents association.

The following officers were elected for the coming year:

L. E. Smith of Nekoosa Edwards Paper Co., chairman
V. P. Edwardes, Interlake Pulp and Paper Co., 1st vice chairman.
A. A. Stone, Marinette & Menominee Paper Co., 2nd vice chairman.
Paul Smith, Combined Locks Co., 3rd vice chairman.
Wm. Kraske, Consolidated Water Poper and Paper Co. secretary and treasurer.

The chairman was authorized to appoint a committee to select a time and place for the Spring meeting.

Addresses were given by F. C. Boyce who urged continued cooperation. Jos. H. Slater spoke of the good that the organization was doing and how the enforcement of the 18th amendment in the industry is exceptionally helpful to all. B. T. McBain gave a very interesting report on industrial Education the past year at the Nekoosa Edwards Paper Co. and urged all superintendents to try and get their mills to do as his company had done and is doing.

Saturday morning was spent in visiting the various mills. Practically every member of the three associations visited the Kimberly mill at Kimberly where they were shown through the plant by guides. A fine complimentary lunch was served in the new clubhouse of the Kimberly Clark Co.

At the Saturday afternoon joint meeting of superintendents and technical men the following papers were presented:

Oiling by C. H. Bromley, S. F. Bowser Co.
Heat Losses by E. P. Gleason, Nekoosa Edwards Paper Co.
Felts by A. H. Theurer, Appleton, Woolen Mills.
Groundwood by Lyman Beeman, of Consolidated Water Power & Paper Co.

At its meeting Saturday the cost association decided to hold a meeting every two months, the next being on the 18th of December.

There was considerable discussion on the following: Manufacturing Burden and items coming under that head; administration and general; Depreciation and Obsolesence and the handling of repairs of an extraordinarily large nature.

A joint banquet of all three associations was held in the Eagles hall. After the very eleborate banquet Mr. McBain led the singing.

Gustaf Keller acted as toastmaster and introduced Geo. P. Hambrecht, state director of vocational education of Wisconsin, who gave an exceptionally interesting address on "The Part Time School Movement in Wisconsin." Prof. Alfred H. White, professor of chemical engineering, University of Michigan, also presented a very interesting address.

Each and every member of the three associations went home with a feeling that two days could not be more profitably spent and that the trio the technical man, superintendent and cost man were getting closer together which will result in greater production and decreased cost.

The general committee of the joint convention consisted of B. T. McBain, F. C. Boyce, J. H. Slater, W. A. Kelley and Vance P. Edwardes and to them is due the credit for the fine papers which were represented.

The local committee consisted of Vance P. Edwardes, chairman, Paul Smith, John Hersher, E. A. Peterson, O. P. Schlafer and H. G. Corbett and to this committee and the business houses and Chamber of Commerce of Appleton is due the credit for making this convention the best of its kind that has been held.

Those In Attendance

Cost Association Members

The following is a complete list of those registered at the meeting:

R. D. Baron, Marathon Paper Mills Company.
Harry Deyo, Nekoosa-Edwards Paper Company.
J. A. Harky, Tomahawk Fibre & Paper Company.
John Hemminger, The Falls Mfg. Company.
C. A. Jasperson, Nekoosa-Edwards Paper Company.
Paul Koenigs, Continental Paper Bag Mills.
Herman A. Korth, The Falls Mfg. Company.
L. Larson, Menominee & Marinette Paper Company.
E. A. Lindberg, Northern Paper Mills.
D. J. McIlm, Falls Mfg. Company.
A. M. Plier, Falls Mfg. Company.
Arthur A. Zimmerman, Hummel & Downing Co.

Technical Association Members

John E. Alexander, Nekoosa-Edwards Paper Co.
Amos L. Allen, General Electric Company.
A. E. Armstrong, Armstrong Machine Works.
W. H. Artz, Westinghouse Elec. & Mfg. Co.

Parker K. Baird, U. S. Forest Service, F. P. Lab.
W. E. Byron Baker, The York Haven Paper Co.
Geo. D. Bearce, News Print Service Bureau.
John S. Bersch, Falls Mfg. Co.
O. L. Berger, G. D. Jenssen Co.
L. M. Booth, Booth Chemical Co.
Ralph L. Bosworth, Croker-McElwain Co. and Chemical Paper Mfg. Co.
S. C. Brayton, Consolidated Water Power & Paper Co.
James A. Cameron, Cameron Machine Co.
James L. Carey, James L. Carey Co.
C. J. Christiansen, Fibre Making Proc.
P. W. Codwill, Beaver Products Co.
W. W. Cronkhite, General Electric Co.
Phillip Dennett, Bird Machine Co.
O. S. Egan, Nekoosa-Edwards Paper Co.
T. L. Edmonds, Wausau Paper Mills Co.
Gust, Ferd, Enderlein, Ontonagon Fibre Co.
Ervan Erisyan, Marinette & Menominee Paper Co.
I. Gordon, Lee Paper Company.
H. W. Guettler, Fibre Making Processes.
R. O. Harper, B. D. Rising Paper Co.
H. H. Harrison, Crystal Tissue Company.
John A. Hanson, Menasha Printing & Carton Co.
Chas. L. Henderson, Kimberly-Clark Co.
C. C. Hockley, American Lakes Paper Co.
R. S. Kellogg, News Print Service Bureau.
W. L. Lawrence, Western Paper Makers Chemical Co.
R. E. Lofton, Bureau of Standards.
C. R. Mac Donald, Gardner & Harvey Co.
W. G. Mac Naughton, Secrteary T. A. P. P. I.
Ernst Mahler, Kimberly-Clark Co.
R. N. Miller, U .S. Forest Products Laboratory.
A. E. Montgomery, J. O. Ross Engineering Corp.
R. G. North, G. B. Lox Mch. Wks.
W. A. Pitts, York Haven Paper Co.
Arthur T. Randall, Westinghouse Elec. & Mfg. Co.
L. E. Randecker, Hammermill Paper Co.
Francis C. Rawling, Forest Products Laboratory.
Henry A. Rotschild, Kimberly-Clark Co.
John D. Rue, Forest Products Laboratory.
Thomas H. Savey, Bird Machine Co. and Nash Engineering Co.
B. W. Scribner, Bureau of Standards.
G. K. Spence, New York and Penn. Co.
S. A. Staege, Westinghouse Electric & Mfg. Co.
B. S. Summers, Port Huron Sulphite Co.
Benj. H. Sherman, Northern Paper Mills.
H. S. Taylor, H. S. Taylor Co.
E. C. Tucker, Chemical Pa. Mfg. Co.
Sidney D. Wells, Forest Products Laboratory.
A. Wiberg, Gilbert Paper Co.
A. F. Wilcox, United States Rubber Co.
J. L. Williamson, J. O. Ross Engineering Corp.
John O. Woodsome, John O. Woodsome & Co.
Paul Zilske, Detroit Sulphite Pulp and Paper Co.

Superintendents Association Members

A. G. Adams, A. G. Adams Co.
John Adam, Whiting Plover Paper Co.
R. H. Alexander, Nekoosa-Edwards Paper Co.
E. K. Andrews, Itasca Paper Co.
L. B. Armstrong, Gutta Pevelia Rubber Mfg. Co.
L. H. Breyfogle, Draper Bros. Co.
N. M. Boisboin, Sutherland Paper Co.
C. K. Boyce, Consolidated Water Power & Paper Co.
F. C. Boyce, Wausau Paper Mills Co.
James J. Blaine, Crescent Belt Fastener Co.
Geo. Bumer, Falls Mfg. Co.
Bernard Benson, Williams Gray Co.
F. A. Beisel, Menasha Printing & Carton Co.
S. V. Burrows, Process Engineers, Inc.
W. H. Burns, Valley Iron Works.
G. E. Buchanan, Appleton Wire Works.
Emmet J. Carev, Nekoosa-Edwards Paper Co.
Felix J. Cline, Waldorf Paper Prod. Co.
C. A. Croxen, Vacuum Oil Co.
Frank Cota, The Falls Mfg. Co.
Andrew Christensen, Rhinelander Paper Co.
James S. Clemons, Hummel and Downing Co.
Louis Christensen, Standard Oil Co.
J. H. Carpenter, Electric Bleaching Gas Co.
W. T. Davis, Jr., Dells Paper Co.
H. E. Dennie, Security Rubber and Belting Co.
P. W. Drysdale, Appleton Wire Works.
H. L. Donahue, Thilmany Pulp and Paper Co.
W. J. Dolan, Rhinelander Paper Co.
T. E. Dial, Vacuum Oil Co.
Joseph H. Dow, Eastwood Wire Mfg. Co.
D. B. Davies, Northern Paper Mills.
Vance P. Edwardes, Interlake Pulp and Paper Co.
L. H. Everlien, U. S. Rubber Co.
H. E. Enrich, Mac Sim Bar Paper Co.
Frank B. Eilers, Fred H. Fuller, Kalamazoo V. P. Co.
Jas. Foxgrover, Vera Chemical Co.
M. T. Foster, Nekoosa Water & Machine Co.
G. W. Forrester, M. & O. Paper Co.
L. R. Fox, H. A. Metz & Co., Inc.
W. A. Ferguson, Geo. Whiting Paper Co.
A. Gustus Menominee & Marinette Paper Co.
W. H. Guidotti, Leavens Guidotti Co.
E. P. Gleason, Nekoosa-Edwards Paper Co.
E. H. Gilman, Bryant Paper
John Hercher, John Strange Paper Co.
E. F. Hayden, S. F. Bowser Co.
Alfred A. Hanslack, Marinette & Menominee Paper Co.
C. L. Horter, Rex Paper Co.
R. W. Haddock, Escanaba Paper Co.
Henry Josephs, Daniels Mfg. Co.
M. D. Johnson, Republic Flowmeter Co.
F. A. Johnson, Allied Paper Mills.
C. N. Jacobs, Diamond State Fibre Co.
R. H. Kelly, Marathon Paper Mills Co.
P. J. Kummer, Tomahawk Pulp and Paper Co.
Fred Kranhold, Kimberly-Clark Co.
H. H. Kraske, Consolidated Water Power & Paper Co.
Theo. H. Knuth, Interlake Pulp and Paper Co.
Kenneth T. King, Ed Du Pont de Nemours & Co.
J. F. Kern, Great Western Smelting & Refining Co.
M. A. Leibrich, Great Western Paper Co.
C. W. Lyrede, McCauley Belting Co.
H. P. Leptwich, Sinclair Refining Co.
C. F. Longfellow, Sinclair Refining Co.
Jacob B. Lind, Hammermill Paper Co.
L. C. Locllin, Schuler and Beminghofen.
O. L. Le Rous, Nekoosa-Edwards Paper Co.
Geo. J. Lenz, Hoberg Paper Fibre Co.
John J. Meyer, Menasha Printing & Carton Co.
J. J. Mulchaey, F. Danbeau.
C. J. McMahon, Canadian Robert Dollar Co.
R. A. Merrifield, Imperial Belting Co.
F. S. Murphy, Lockport Felt Co.
H. D. Meinicke, A. N. Meinicke.
A. McLintock, The Union Sulphur Co.
Wm. Mc Keever, The Falls Mfg. Co.
I. R. Mc Call, Detroit Graphite Co.
B. T. Mc Bain, Nekoosa-Edwards Paper Co.
Glen Meidam, Republic Flowmeter Co.
Peter J. Massey, W. F. Hall Ptg. Co.
T. B. Martin, Industrial Controller Co.
A. Mc Phillips, R. J. Dowd Knife Works.
C. H. Noble, Staley Mfg. Co.
Wm. C. Nash and Son, Valley Paper Mills.
Eugene O'Brien, Dells Pulp and Paper Co.
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R. A. Peterson, Valley Iron Works Co.
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E. H. Rust, Westinghouse Elec. Mfg. Co.
O. Rolland, Rolland Paper Co.
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S. E. Tomczak, Flambeau Paper Co.
T. J. Timmerman, Northern Paper Mills.
Wm. H. Theroux, Sandusky Foundry and Machine Co.
Wm. Van Order, O. C. Keckley Co.
J. W. VanAlstyne.
A. G. Wightman, Hawthorne Paper Co.
Alfred H. White, University of Michigan.
F. A. Whittiger, Kuttroff Pickhardt & Co., Inc.
Andry Weir, Wausau Paper Mills.
John D. Watson, Wisconsin Wire Works.
J. J. Wall, General Electric Co.
E. H. Williams, Williams Gray Co.
James H. Wright, Wm. Cabble Mfg. Co.
C. E. Youngchild, Nekoosa-Edwards Paper Co.
W. A. Yule, T. C. Huvck & Sons.
Jos. P. Zelinske, McGillan Asmuth Paper Mills.

Nepco Entertains Paper Salesmen

Thirty-two Chicago representatives of the Inlander Steindler Paper company headed by Mr. Steindler, vice president and general manager, in two special cars visited the plants of the Nekoosa Edwards Paper company October 20. A. R. Jackson, manager of the Chicago office of "Nepco," accompanied these gentlemen on the trip.

The first place visited was the Nepco hydro-electric plant, at Wisconsin Rapids, which furnishes about ½ of the Company's Hydro Electric Power; from this power house the party proceeded to Port Edwards. Here they saw the processes in the manufacture of paper, starting with the sawing and barking of the wood, the groundwood and sulphite process, the making of the paper from these and the shipping of the finished product. Luncheon was served at the Nepco hotel.

After lunch the men resumed their journey to Nekoosa visiting all the plants there. At Nekoosa there is also a sulphate mill. One of the famous brands of Nepco paper in which these men were particularly interested was on the Nekoosa machines so they were able to see just what went into it and how it was manufactured.

A dinner at the Bull's Eye Country club at Wisconsin Rapids closed the days program, the party leaving on the evening train for Chicago.

Use of Control Methods In Grinding

Two Methods Available in Groundwood Mill, Control of Stock Volume and Individual Stones—Graphic Charts Show Results of Operation

By **Lyman Beeman***

Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.

THE use of laboratory control methods in grinding has been a fairly recent development in the operation of groundwood mills. It has been a part of the rapid growth in recent years of pulp and paper technology. When control methods are spoken of it is naturally assumed that some avenue of information as to the facts has been provided to make possible the most efficient and desirable supervision of the operating units. This, then, is the basis of grinding by laboratory control—to learn quickly and accurately the facts in regard to the product of the grinders and to use these facts in sustaining or correcting the output.

The old so-called "practical" methods of operating grinders by the feel and looks of the stock and the running conditions of the stone are very effective when used by an experienced pulp maker but lack the quality of numerical expression which is so essential to keeping of records and to standardization of operating conditions. The use of these vague and uncertain practical methods can by no means be abandoned with benefit but rather should be used to supplement the more definite and reliable numerical indication of quality which such a test as the "freeness test" gives.

The most common and familiar method of measuring the quality of the stock which a stone is producing is by the use of the "freeness" or "sedimentation test." Although the strength test on hand sheets of groundwood gives some indication of the stock quality, the freeness test may be said to be practically the only test of any wide use or importance. It is the use of this test that we will consider. Other tests such as examination by the blue glass, the microscope, or the lantern slide give some indication of quality but do not lead themselves to routine work or to numerical expression. The blue glass is the most simple and we sometimes use it if some further information about a stock seems desirable.

The problem of control may be approached from two angles—first, the control of the aggregate volume of stock going to paper machines or, second, to the control of the individual stones producing the stock. By controlling the freeness of the aggregate volume going to the machine the pulp mill may serve the paper mill to the best possible advantage and by controlling the individual stones the pulp mill may grind with the greatest efficiency. These two phases of control naturally go hand in hand.

Control of Stock Volume

With the object of delivering a stock of uniform freeness to the machine chest, the groundwood as it enters the measuring system is sampled and tested every hour, the results being then posted on the testing station log sheet and on the chart on the grinder room bulletin board in the form of a freeness curve.

Three of these bulletin board sheets are shown in Charts Nos. 1, 2, and 3 just as they were taken from the bulletin by the testing station operator and filed. Chart No. 1 was made on May 4, 1923, during the spring grinding season when the stock was being produced at 100-110 freeness. Chart No. 2 was made on July 24, 1923, when practically all of our consumption was being ground but at a freeness of 90-100. Chart

(Continued on page 17)

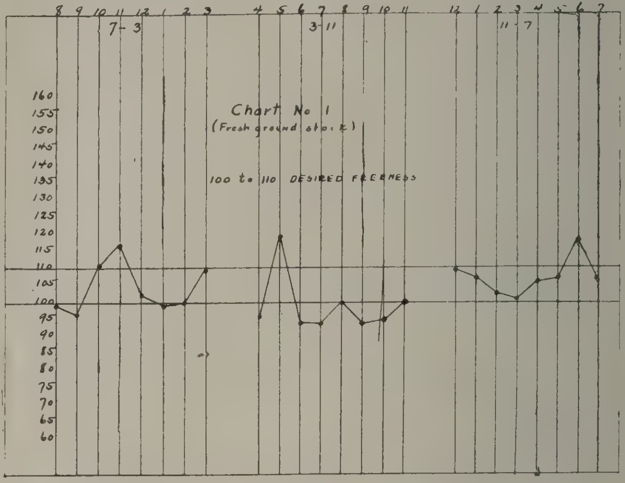

Chart No. 1. Desired freeness 100 to 110.

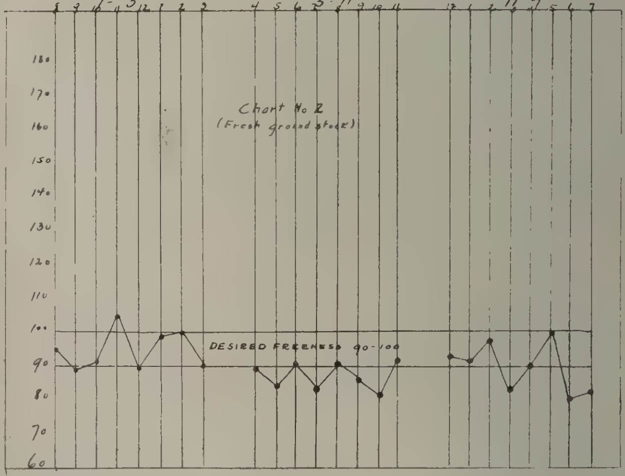

Chart No. 2. Desired freeness 90 to 100.

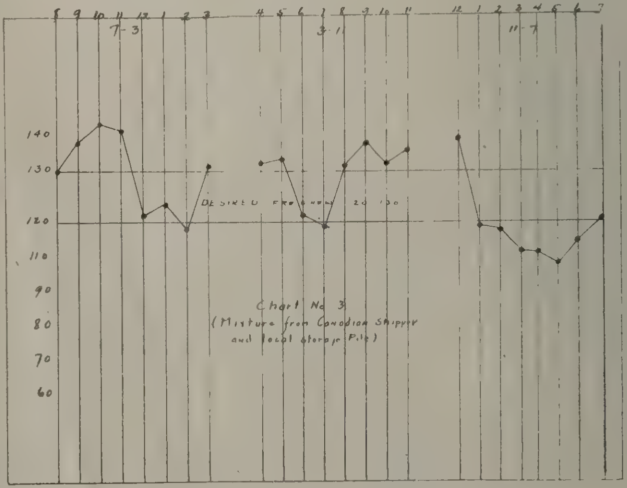

Chart No. 3. Desired freeness 120 to 130.

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*Presented at Superintendents meeting of the Joint Convention at Appleton, Wis., Oct. 27, 1923.

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester, The New York State Forestry Association

Protective Association Organized

An aggresisive campaign for a definite progressive forestry policy for the state of Wisconsin will be the outcome of an important meeting held at Wausau, Wis., October 23rd, at which representatives of fourteen Wisconsin paper and pulp mills organized the Wisconsin Forest Protective association, with a program of scientific taxation, adequate forest fire prevention and reforestation as the objectives.

The new organization was perfected after a conference of the paper manufacturers with several state officials, including State Tax Commissioner Lyons, State Conservation Commissioner Hall and State Forester Harrington. D. C. Everest of the Marathon Paper Mills company of Rothschild, Wis., was elected president, J. L. Delbridge of the Falls Manufacturing company of Oconto Falls, Wis., vice-president, and B. T. McBain of the Nekoosa-Edwards Paper Co. of Port Edwards, Wis., secretary-treasurer.

The conference will have an important bearing upon the future of the Wisconsin paper industry as concerns its supply of pulpwood. Wisconsin, third in the amount of production of paper among all the states of the Union, has been backward in its forestry development, not having felt the pinch of shortage already evident in the East.

The conference is due to the efforts of the American Paper and Pulp association, in cooperation with such men as Mr. Everest from the Wisconsin field, to develop a forestry policy for Wisconsin that will insure the permanency of the paper industry in that state through preservation of its forests and their continued production of the raw material needed. Recent forest fires aided not a little in bringing about a realization of the need for aggressive action by the mills themselves.

The announced policy of the new organization is to take active leadership in forestry matters as an economic matter, and Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp association, was one of the chief speakers at the Wausau meeting. It was his cooperation with State Forester Harrington and Mr. Everest and other manufacturers which made the conference possible. He has pledged to the organization all the assistance that the paper industry can give.

Fires in Wisconsin

What fire prevention in the forest means to the paper industry was brought seriously to the minds of all timberland owners of Wisconsin by fires occuring this month in the northern area of that state and in northern Michigan. Fires in both states threatened paper company holdings and it is very possible that more complete reports will indicate that some losses were actually sustained by paper companies in those regions.

Two arrests were made for the setting of fires in northern Michigan and confessions secured from those accused. The two men arrested, however, deny starting a fire which resulted in a fatelity.

Forest fires between Ashland and Superior, Wisconsin, were in the region where several paper companies have holdings. A fire in the Upper Peninsula of Michigan did heavy damage to a lumber company's holdings, but fears for the property of the Ontonagon Paper company proved to be baseless. The company's timberland holdings were endangered but the fire was checked in time. The fires in northwestern Wisconsin were so serious that detachments of the national guard were called out to fight the flames. Rain was the final factor in turning the tide of loss, and there is not much liklihood of further danger this fall.

These fires have accentuated the need for better fire prevention methods. One of the companies that has been in active cooperation with the state and federal authorities is the Cornell Wood Products company, which has established a cooperative fire prevention system.

Forestry Legislation Among States

Twenty-two states enacted some form of forestry legislation during the year 1923. This means that action was taken by more than half of the states where legislatures were in session and timber taxation was one of the live issues of the year

Thirteen states east of the Mississippi enacted some form of forestry legislation, but California enacted the largest number of laws—seventeen in all, including resolutions and amendments.

Vermont decided to exempt all artificially planted forest land from taxation on its timber content for thirty years, such land to be taxed on its value as bare land alone.

Michigan passed a deferred tax law, but it was vetoed on a technical basis by the governor. It will probably be repassed in a corrected form by the next legislature.

Minnesota will submit a constitutional amendment to a vote of the electors providing for a deferred yield tax.

Several states passed laws to promote fire prevention, but most of these do not apply in a material way to paper and pulp company holdings.

Aeroplane Survey Continued

The use of aircraft for fighting forest fire and for forest cruising in Quebec has not been checked by this season's series of accidents. Flying has been resumed in the Lake St. John district and an attempt will be made to complete this summer's surveying program.

In addition to the work of the government, several surveys are being made for Price Brothers and the inventory of the forest resources of that company will be carried on next summer on a larger scale than ever.

Final Hearings by McNary Committee

The schedule has been completed for the final hearings of the so called McNary committee of the U. S. Senate which has been investigating forestry conditions throughout the country.

Before presenting its report to the Senate the committee will hold hearings at Asheville, N. C., Nov. 15 and 16; Harrisburg, Nov. 19 and 20; Washington, D. C., Nov. 22, and possibly 23.

The hearing at Asheville will involve the forestry problem of the Carolinas and Virginia, where the paper industry is rapidly developing, and the Harrisburg hearing may be attended by Pennsylvania paper men.

R. S. Kellogg, chairman of the National Forestry Program committee, will be an important witness at the final hearing at Washington where he will urge the cooperative method in the Snell bill, and in general outline the requirements of the paper industry as well as the other wood-using industries.

Senator McNary is quoted in an interview at Tacoma, Wash., as saying that the senate bill for the promotion of reforestation will include the following probable provisions:

Greatly augmented equipment and personnel for protection against forest fires.

A nominal tax on logged off lands segregated for reforestation, probably a form of yield tax.

Improved logging methods and elimination of waste.

Cooperation between national government, states and private owners in promotion of reforestation.

Secretary Wallace on Alaska

Secretary Wallace of the Department of Agriculture has issued a new statement on the possibilities of Alaska in the development of the paper industry on the Pacific coast, in the form of a correction of an editorial in a paper trade journal. His letter, which has been given wide distribution, discusses in some detail the waterpower and transportation situation in Alaska and concludes by saying:

"In short, the rate of development of the pulp and paper industry in the Territory will be controlled by the economic factor of distance from consumption centers, and by the necessity, inherent in the industry itself, for large capital investments rather than by physical disadvantages.

"The physical conditions in southeastern Alaska—presence of cheaply developed power, an enormous supply of inexpensive wood, and the availability of water transportation—are the very factors which make inevitable the expansion of pulp and paper manufacturing in the Territory."

Hoo Hoo Adopts Forestry Program

Hoo-Hoo, the fraternal society of the lumber industry, at its recent annual meeting adopted a forestry program and has authorized the extension of its membership to foresters.

The convention adopted resolutions making tree planting a recognized activity of every Hoo-Hoo club. Where possible such planting will be conducted in cooperation with state and national forestry departments and a permanent forestry committee will be appointed. This decision has already been followed by several announcements of the establishment of Hoo-Hoo experimental plantations in various parts of the country.

European Methods Impress U. S. Senator

Senator Couzens of Detroit, who visited Europe while the Senate Committe on Reforestation was touring the United States, has given out an interview on his return saying that the European method of meeting the reforestation problem has given him valuable information.

He proposes to utilize this information in future work with the committee.

The New York State Forestry association has been making a special effort along the lines of municipal and industrial forestry. A considerable number of the 65 municipal forests now under development in the state have been started under Forestry association influence. The industrial forestry movement is being carried on largely among the business firm members of the association. Nearly one thousand firms, representing all lines, joined with the association last year.

Prospect of New Frazer Mill

The Fraser Companies Limited may establish a paper mill at the mouth of the Tobique river in New Brunswick, at the junction with the St. John river. When the hydro electric development at Grand Falls is undertaken this mill will likely be built. The Fraser Companies Limited was originally known as the Fraser company, and founded by the late Donald Fraser of Fredericton N. B. Besides lumbering interests in Fredericton, pulp mills were built at Edmundston and Chatham in New Brunswick. The company executives are: Archibald Fraser, president; Donald Fraser, vice president; A. W. Brebner, treasurer; W. Matheson, secretary. The board of directors consists of the Messrs. Fraser, Matheson and Brebner in association with Thos. Matheson and W. C. Pitfield. The president and vice president of the concern are sons of the founder. The executive offices are in Fredericton.

The Fraser business was founded within the family forty-six years ago. Four years ago, an issue of two million dollars in six per cent ten year first mortgage bonds was made. This was followed by another two million dollars issue in eight per cent general mortgage bonds two years ago.

The Edmundston mill is the larger of the two mills controlled by the company. Capacity at this mill is 120 tons of bleached pulp daily. The capacity of the Chatham mill is 60 tons of unbleached pulp daily.

Somewhat over four million cords of pulpwood is owned on the company's extensive timber lands, in New Brunswick and Quebec.

The Fraser company suffered severely during 1921 and 1922, there being a deficit of nearly $1,500,000 for 1921, and $260,000 for 1922. The surplus has been reduced by these deficits to $523,759.

Some improvement is said to be exhibited thus far this year, and there is a possibility of a surplus for this year, although no definite statement will be available for some months. Both the Edmondston and Chatham mills have been operated steadily, although there is a report of the pending suspension of operations at the Chatham mill. It is believed that if the company establishes a paper mill at the junction of the Tobique and St. John rivers the cheap power available from the Grand Falls development operations, formerly controlled by the International Paper Company, will be instrumental in showing a profit in operation. The only object to the mill at this site has come from salmon and trout fishermen and fishing clubs, who assert the dam at the month of the Tobique river will injure the fishing.

Embargo Seems Remote

The reason for the marked drop in exports of pulp wood during September is undoubtedly to be found in the fact that American mills have come to the conclusion that there is very little need to worry over the threatened embargo.

This view seems to be well founded. There are two reasons for it. In the first place, there is the prime minister's statement during the last session of parliament to the effect that if an embargo were placed on exports of such wood cut on privately owned land the wood of farmers and settlers would be exempt. In the second place, on August 14th the Canadian government passed an order in council which exempted from an embargo that may be declared exports of wood under contract dated prior to June 1st, 1923. As Mr. Barnjum points out, there is now very little wood left that would be affected by an embargo.

This turn in affairs confirms reports to PAPER that the opposition to the embargo proposal was growing to such an extent that it was likely to defeat the project.

PAPER

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May Forclose A. W. P. Co.

That foreclosure proceedings will shortly be instituted by the bondholders against the properties of the American Writing Paper Company of Holyoke, Mass., and elsewhere is broadly hinted in a notice issued by the Old Colony Trust Co. of Boston, leading depository for the six per cent first mortagage bonds of the company.

In its statement the company says: "The time for receiving deposits under the bondholders' protective agreement has been extended to and including Nov. 20, 1923. Since the date of the first notice calling for deposits of the bonds, permanent receivers have been appointed on creditors' bills filed in New York, Massachusetts and other jurisdictions in which the company owns property. These appointments constitute a default under the mortgage.

"To protect the interests of the bondholders foreclosure proceedings should be instituted promptly. The committee, however, will not feel justified in requesting the trustees under the mortgage to institute such proceedings until a substantial amount of the bonds have been deposited. The importance, in their own interest, of promptly depositing their bonds is therefore urged upon all bondholders who have not already deposited."

The company urges that bonds be deposited with it, with the Central Union Trust Co. of New York or with the Springfield Safe Deposit & Trust Co. of Springfield, Mass. Certificates of deposit will be issued and application has been made to list these certificates on the Boston and New York Stock exchanges. Josiah F. Hill of 44 State street, Boston, Mass. is secretary of the Protective committee.

Special Meeting of Paper Exchange

A special meeting was held October 25 on the New York Paper Industries exchange in the Pershing Square building, 100 East Forty-second street, at which were present President George W. Gair and Executive Vice President John R. Mauff of the exchange, and more than half a hundred waste paper packers and brokers, and a scattering of paper board dealers. The meeting was held at 11 a. m., prior to the usual hour of trading betewen 12 o'clock noon and 1 p. m., and was arranged by the exchange officers to provide a time and place for paper stock dealers to ask questions concerning the operations of the exchange, its purposes and plans.

President Gair opened the meeting and talked at considerable length on the aims of the exchange and the benefits to be derived from membership in the trading body by waste paper concerns. He stated that the primary purposes of the exchange are to stabilize prices of box board and waste paper, to determine the market values of these commodities through the exchange system of trading, and to breed a more cordial feeling and better business relations between board and paper mills and the dealers in raw material consumed by such mills.

Mr. Mauff followed Mr. Gair and outlined the system of trading in practice on the Paper Industries exchange in New York and Chicago, and emphasized how sucessful this mode of trading had been in other commodities, notably sugar, wheat, coffee and cotton. He told of the advantages to be gained by membership in the exchange, and stated that its operations in Chicago were regarded as quite satisfactory, no less than 13 of the largest paper stock concerns in the Middle West having joined the Chicago branch, and the exchange in that city functioning in a highly successful manner.

Mr. Gair and Mr. Mauff then answered a number of questions regarding different phases of the exchange's operations asked by the paper stock dealers present, and an invitation was thereupon extended to any and all of the waste paper packers and brokers to become members.

Three responded, Atterbury Bros., of New York; the Lincoln-Melrose Company, Inc., of New York, and the Concord Paper Company, of Brooklyn. The announcement was made that the drive for members among the paper stock fraternity of Greater New York would be continued, and Mr. Gair closed the meeting by saying that he felt sure if the paper stock dealers would give the subject some thought they would readily see the benefits to be derived by membership in the exchange.

Mr. Mauff announced that two of the largest paper stock concerns in the West had just been added to the membership of the Chicago exchange, namely, the Pioneer Paper company, of Chicago, and the Detroit Paper Stock company, of Detroit, Mich.

The announcement also was made that trading by non-members on the New York Exchange would be continued for the balance of the week but that on Monday, October 29, none but members would be allowed to trade on the local exchange.

Development in Alaska

William G. Weigle, supervisor of the Snoqualmie National forest, whose headquarters are in Seattle, announces that plans are under way to establish two paper mills in Southeastern Alaska and also two new ones in the vicinity of Seattle, Washington, to utilize a portion of the enormous pulp resources of the two regions.

Mr. Weigle states that Colorado interests have dispatched engineers to the Shrimp bay region, near Ketchikan to survey sites for water power. California capital has engineers in the Thomas bay district near Petersburg, Alaska.

Alaska has much pulp wood timber and the government is putting it on the market as fast as surveys and values can be produced.

The Hartford Tissue Mills, Inc., have been incorporated at East Hartford, Conn., with an authorized capital of $100,000. The incorporators are Edward Dugan, 25 Norwood street, and others, all of Hartford.

New Developments in Paper Making

Waterproofing Paper

Paper from which containers, etc., are to be made are waterproofed as follows:

The paper is sized with an approximately ten percent solution of animal size, casein, or albumin at a temperature varying between 35 and 40 degrees C and after passing between press rollers either inside or outside the size bath, is reeled and allowed to stand for several hours to effect uniform distribution of the sizing material. Alkalies (for example, caustic soda up to two percent) or acids (for example, lactic acid up to 30 percent on the weight of the dry size) may be added to the solution to facilitate its absorption by the paper.

The hardening agent, which may be a solution of formalin (0.5 percent), alum, chromium salts or the like, is then applied to one side of the paper preferably by means of a roller, in sufficient quantity to harden the whole of the size, and the paper is again reeled and left for 24 hours.

The treated paper is then cooled in a current of air to prevent the formation of pores and hair cracks and is subsequently air-dried. This process is patented in British patent No. 201,463.

* * *

Hemp and Wood Fibers in Paper Pulp

The difference in the micro-structure of the various fibers is well brought out by applying Cross and Bevan's double staining method, using malachite green and Congo red. In making slides for examination a concentration of pulp of 0.02 to 0.03 percent was found suitable. The slide is examined both under ordinary light and under polarized light. A magnification of one hundred diameters is sufficient, but four hundred diameters should be available for confirmatory examination. Photomicrographs of characteristic hemp fibers under ordinary and polarized light and low and high magnification are shown.

The quantitative determination of the fibers was carried out under the low power magnification, the number of diameters and the fraction of a diameter of the field represented by each of the fibers being estimated in about 20 fields taken from each of three slides. When the percentage of hemp is fairly high (above ten percent) the results are sufficiently good for practical purposes. Full details of the methods are given.

For further information the reader is referred to W. Dickson's article in the Analyst, 1923, volume 48, pages 373-378.

* * *

Beating Problems

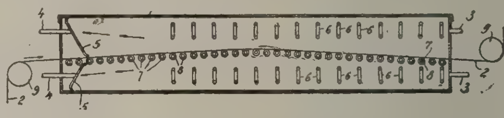
A paper was recently delivered before the Edinburgh conference of the Technical section of the British Papermakers' association on the subject of beating which brought forth a very interesting discussion. Among the points emphasized was the fact that certain tests have seemed to indicate that a wider spacing of the bars that is common gives a better turning beater and that this would be the tendency in future beater design. It was also shown that as far as the density of the stock in the beater is concerned, above eight percent density the power consumption increased and the rate of travel of the stock decreased. A considerable saving in power can be effected by tiling the beater. As far as the temperature of the stock in the beater is concerned it was brought out that a higher temperature was always obtained in concrete tubs than in metal, due to the lower radiation loss of the concrete.

There was also some discussion regarding the degree of beating attained in the beater. This is an important consideration, especially where the pulp is not made in the same factory in which it is finally converted into finished paper. The way in which the pulp is digested has, of course, a marked effect on how long it must be worked in the beater.

* * *

Paper Drying Machine

The accompanying diagram shows a paper machine which is patented in United States patent No. 1,469,048. The dryer is used for removing the moisture from webs of paper.



The dryer unit consists of a casing having passages at its ends for the entrance and exit of the web. Heating means are provided above and below the web of paper as it passes through the apparatus. Means are also provided for circulating air through the casing at the opposite faces of the web to be heated. A series of roller supports are arranged throughout the length of the casing on which the paper web rests while moving through the machine.

* * *

Combined Bleach for Sulphite Pulp

Experiments were carried out on the bleaching of a Rittner Kellner Sulphite pulp suspended in water which under normal conditions was bleached to a full white in from five to six hours, with the consumption of 3.2 percent of chlorine in the form of bleaching powder and a loss in weight of 3.5 percent. By passing the chlorine gas through the suspension of this pulp in water it was impossible to bleach to a full white. The absorption of chlorine was rapid at first, but after 2.5 percent of the chlorine had been absorbed further quantities of the gas passed through unchanged.

Greatly superior results were obtained by a combined chlorine and bleaching powder process whereby the pulp was first treated with chlorine water, then washed either with water or caustic soda lye and finally bleached with ordinary bleach liquor.

It was found advantageous not to use so much chlorine gas in the first treatment as was required to saturate the pulp, but to employ only 0.85 to 0.86 percent of chlorine in the form of chlorine water. Practically the entire quantity of the water used was absorbed to useful purpose. The pulp was then washed either with water or with a solution of caustic soda of one percent concentration. In the latter case the extract was dark reddish brown in color.

The secondary bleaching was performed with ordinary bleach liquor and the consumption of chlorine in this process required to produce a good white was 0.85 percent in case of the pulp washed with water and 0.58 percent where the pulp had been extracted with caustic soda. By using the combined method the total quantity of chlorine required to bleach the pulp could be reduced by 45 to 54 percent, as compared with the single bleaching powder process. *Papierfabrikant, 1923, pages 52 to 60.*

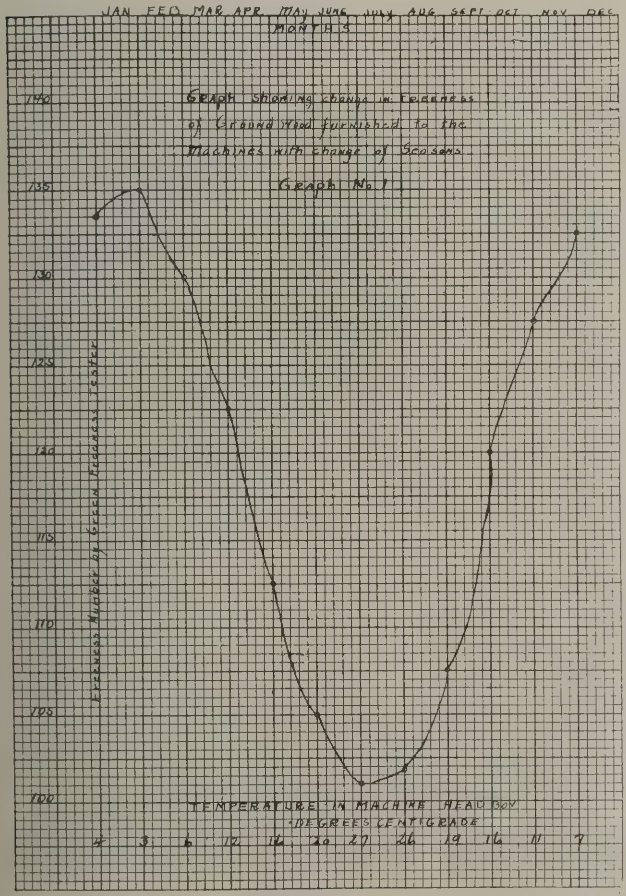
Control Methods in Grinding

(Continued from page 12)

No. 3 was made on Oct. 12, 1923, when nothing was being ground, all the pulp coming from storage and from cars from the Canadian shipper and the machines being furnished with stock at a freeness of 120-130. It will be noted that in Chart No. 3 the freeness was much less uniform, the control being more difficult.

From these three charts it can be seen that at different times of the year the groundwood furnished to the paper machines varies as to freeness, on May 4 the desired freeness being 100-110, on July 24 being 90-100 and on Oct. 12, being 120-130. This change in furnish is necessary because of the great change in temperature in the head box of the machine, the temperature varying from 3° C. in February to 28° C. in July, making a very great difference in freeness effect on the wire.

In Graph No. 1 can be traced the general trend of the desired freeness with the change in temperature caused by the change in seasons. There is no effort of course to hold the stock at some pre-determined point such as might be drawn up in advance but rather the effort is made to follow the machine conditions and provide as nearly as possible the stock that will run the best. This graph does not show exactly what we have done rather shows the general tendency of the fluctuations, the conditions of the moment determining minor irregularities of that moment.



Graph No. 1

The use of the hourly test is not only valuable as an aid to holding a uniform stock with the gradual changes occasioned by the seasons but is also an important aid in indicating and helping to hold quality with the grinding of inferior woods such as balsam, popple, and jack pine or with the reducing of the sulphite content of the paper. This test gives reliable facts in a numerical way so that when some change is made or some improvement is being developed in the handling of the stock a definite means of observation is provided.

The second angle from which the problem of control may be approached, the control of the individual stones producing the stock, is complicated principally by the very great difference in quality and properties of stones. This difference can hardly be appreciated until one has the opportunity of watching the performance of a group of stones by means of the freeness test. Although it might be readily accepted that different quarries would produce different products, but that stones from the same quarry and supposedly from the same ledge should be so different is rather astonishing. It is this difference that makes it so important to observe and handle the grinding units by the aid of some definite test such as the freeness test. If at some time an artificial grind stone can be made which will be uniform and standard, then it will be possible to standardize burring, grinding temperature, etc., with the expectation of obtaining a standard pulp.

There seems to be two general kinds of grinding surfaces—first, one in which the grit holds its cutting edge and gradually roughens until it is making a very free pulp and, second, one which does not hold its cutting edge but gradually falls off in production, continually making a slower pulp. Although the first kind of surface seems to be more prevalent in English stones and the second more prevalent in domestic stones, it can hardly be said that the holding of the cutting edge is typical of English stones. The point is that one can draw no general conclusions but must observe and handle each stone as an individual with its own particular properties.

The samples for the freeness test are taken from each grinder between seven and eight each morning by the grinder room foreman or under his direction so that he knows the conditions at the time of sampling, the test is made immediately

(Continued from page 25)

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Beaters and Beating

Difficulty of Learning Just What Is Taking Place During Beating Operation—Hint of Invention by Author Reduces Time of Hydration 25 Per Cent

By C. E. YOUNGCHILD*

Paper Mill Superintendent, Nekoosa-Edwards Paper Co.

THERE are many kinds of beaters but the ones commonly used in the manufacture of pulp are the type I will touch upon in this paper. I use the word "touch" advisedly, because in a 10 or 15 minute paper I can even only do that but lightly.

Dr. Sigurd Smith in his new book on "The Action of the Beater" does the subject justice; but his book has over 200 pages of print as fine as that in a newspaper. In his preface he says in part:

"The complete absence of any theory of the action of the beater immediately made itself felt" when he was trying to design a small beater to do twice the work of existing designs. He says further:

"The complete inaccessibility of the actual beating zone renders it impossible to observe visually what takes place between the roll and the bed plate."

This difficulty has been experienced by all when trying to solve the problem of beating. It is a puzzle with no way of telling when it has been properly solved. In his foreword, he says in part:

"The beater, as the pivot of the mill, and the beating preparation of the fibrous raw material, as the paper making operation, are recognized as presenting a number of unsolved problems with the attraction of unrealized margins of advantage, both as regards quality, quanities of product in relation to raw material and cost of production, values of papers in relation to expenditure on account of power, labor and up-keep of machinery."

No one can dispute Dr. Smith in his statements in this work. It is common knowledge that the beating process can make or spoil stock and exercises a very marked influence on the character of the finished product. If the stock has not been properly beaten, it cannot be made into the required quality on the paper machine. It is therefore, a fact that "paper is made in the beaters" that is, for all grades requiring beating.

Some want their stock thin and others heavy consistency ——some want small beaters and others large ones—some call for quick action and large power use, while others think brushing and long time with small power use covers the bill.

Makers of beaters are a good deal like makers of paper mill machinery generally—they either don't know, or don't care to hurt the customer's feelings. They will usually make what is wanted, or claim their beater is a "cure all" for all ills. No two makers will make the same claims, however, for almost exact counterparts in construction except the name and paint on the outside.

My experience to be chronicaled here is with the Jones type of beater, 1600 pound size, as we furnish them, though I understood some mills furnish this same beater up to 2000 pounds dry weight. I have experimented with many types of fillings on various stocks; but chiefly on unbleached sulphite and sulphate, or Kraft stock.

Among the types of bars used were Helin, both wide and bar, all of them without the desired results. I have tried various speeds and bed plates but still without satisfaction, until, a little over a year ago, I tried a filling of my own design and it showed the best of any yet tried, using the North stone bed plate in conjunction therewith. Mr. B. T. McBain helped me with the idea and its application and together we have applied for a patent with report from the Patent office that all our claims have been allowed.

For reasons which most of you will understand, on account of foreign patent rules, I cannot put a copy of claims or picture of the filling in this report; but as soon as patent has been issued, I expect to make the other applications necessary and then will be pleased to have complete details made public. Suffice it to say, however, that on hard Kraft stock to test point for pound or better on the finished paper, my filling has shown hydration of the stock in 245 to 30% less time and with no greater power requirements.

I have eight such fillings in use now at Nekoosa and four at Fort Edwards. As fast as I can equip the balance of Nekoosa beaters, the work is being done. I find it to be of equal value on sulphite stocks. My filling can be put in any type of beater and the old bars now in use can be utilized. My improvement retards circulation some, still it increases the beating surface almost 100%.

The four beaters so equipped at Fort Edwards are of "Niagara" type and they show at 110 R.P.M. less use of power than those regularly equipped by the makers. My theory is a combination of hard and soft steel, by straight and shearing cut or brushing against a stone bed plate and this theory has worked out to the great advantage of the Nekoosa Edwards Paper Co. as the Manager and I, myself, see the results.

Our chemical engineer, Mr. Eagan, has made some preliminary tests to confirm these results and finds with the instruments he has that there is the difference in hydration claimed. Further tests are being made at Port Edwards between the old type of bar in Niagara beaters at J. E. mill and the new Alexander mill beaters of the same make. These tests were not completed at the writing of this paper; but after the issuance of the patent, will be made public.

I truly believe that there is nothing under the sun in pulp and paper making but what can and will be improved and that the beater is one place where not only the design but the method of operation has needed more attention than has been given them in most mills.

---

* *Read before Superintendents association at Papermakers' convention, Appleton, Wis., Oct. 25-27, 1923.*

New Yellow Dye

The most recent development made in the dyestuff industry has resulted in the practical production of a lemon yellow shade of dye which will work level when used in tinting or dyeing. This is Sulphide or Wood Pulp Yellow G. N., and Bachmeier & Company, Inc., of New York and Boston, have the exclusive agency of this color. The usual high grade standard of all Baco products has been given this product, and all shipments are standardized before leaving the factory.

Baco Paper Yellow G. N. is in every way equal to its pre-war prototype and sells for a nominal price, considering its qualities and level dyeing properties. The dye produces that clear, bright, lemon yellow shade and tint which is in demand by the paper maunfacturers.

To all those interested and who desire a practical try out of this product, a trial tin or keg will be sent on approval upon receipt of requests.

Construction News

HOLYOKE, MASS.—The Judd Paper Co., has awarded all miscellaneous contracts for roofing and sheet metal work, plumbing, etc., for its new three-story and basement addition, 90x100 ft., now in course of erection, estimated to cost $125,000, and purposes to push the structure to completion. George P. B. Alderman & Co., 316 High street, are architects.

TROY, N. Y.—The J. A. Manning Paper Co., 68 George street, affiliated with the Manning Abrasive Co., has plans under way for the erection of a new one-story plant at Green Island, near Troy, estimated to cost about $350,000, including equipment.

NEW HAVEN, CONN.—The New Haven Pulp & Board Co., Greene street, has awarded a general contract to the Dwight Building Co., New Haven, for extensions and improvements in its plant, estimated to cost $21,000. F. L. Smith, 21 East Fortieth street, New York, is architect.

SAN FRANCISCO, CAL.—The Paraffin Companies, Inc., 40 First street, manufacturer of paraffin papers, box board and kindred products, has tentative plans under advisement for the rebuilding of the portion of its mills at Antioch, Cal., destroyed by fire, Oct. 15, with loss approximating $350,000, including buildings, machinery and stock.

EAU CLAIRE, WIS.—In connection with its new pulp and paper mill now in course of construction, the Dells Paper & Pulp Co., has plans for the erection of a new dam on the Chippewa river, for water power and hydro-electric service at the plant. It is expected to cost close to $1,000,000, with necessary equipment. Application has been made to the Wisconsin Railroad commission for permission to build.

PHILADELPHIA, PA.—The Earle-Parris Co., 41 North Eleventh street, manufacturer of paper specialities, has completed plans for the construction of a new addition to its plant at 123 North Eleventh street, including alterations and improvements in the present building.

JUNEAU, ALASKA—It has been definitely decided to construct and operate a new paper mill on Shrimp bay, Behm canal, to be devoted primarily to the manufacture of newsprint, and the project has been placed in charge of A. E. Millington, engineer, Denver, Colo., who will prepare plans and specifications at once. A company will be formed to operate the plant, which will be designed for an initial output of about 120 tons per day. The project will also include the construction of a hpdro-electric power plant for service at the mill. The estimated cost is placed at $750,000, including equipment. C. A. Millington and K. J. Carney, both of Denver, will be associated engineers for the work.

CHICAGO, ILL.—The Western Bag & Paper Co., 521 West Sixty-third street, has awarded a general contract to the Erickson Christiansen Co., 7219 Vernon avenue, for the erection of a new plant at 6354-58 Wentworth avenue. It will be two-story, 60x125 ft., designed for general operating and storage service, and is estimated to cost $35,000. Plans have been filed and work will proceed at once.

TOMAHAWK, WIS.—The Tomahawk Kraft Paper Co. has awarded a contract to the Wausau Iron Works, Wausau, Wis., for structural steel for the erection of a new digester building at its plant, estimated to cost in excess of $80,000, including equipment. It is proposed to lay foundations and commence work at an early date.

New Companies

NEWARK, N. J.—The Rowe-Williams Co., 520 Essex building, has been incorporated with a capital of $100,000, to manufacture stencil papers and kindred products. The incorporators are Joseph W. Rowe, H. Von Lengerke and Daniel A. Williams.

DALLAS, TEX.—The Southwest Tablet Mfg. Co., has been incorporated with a capital of $40,000, to manufacture paper

(Continued on page 21)

GREEN-BAY WIRE WORKS

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Doings in Canadian Paper Field

Pulp and Paper Exports

The regular report of the Canadian Pulp and Paper association states that the total value of the pulp and paper exports from Canada for September was $11,715,869. This was a decline from the previous month of $1,579,400 but an increase of $1,393,586 over September 1922.

Details of the various grades exported are given below:

	September 1922		September 1923	
	Cwts.	Value	Cwts.	Value
PAPER:				
Newsprint	1,591,145	$5,632,758	1,818,591	$6,870,190
Book Paper	4,675	37,759	5,199	40,948
Other Paper and Manuf's.		574,097		653,113
		$6,244,614		$7,564,251
PULP:				
Sulphate	270,053	825,789	234,439	761,695
Sulphite Blchd.	228,190	933,358	225,829	929,121
Sulphite Unblechd.	563,068	1,310,640	456,819	1,282,808
Mechanical	739,364	1,017,882	681,593	1,177,994
	1,800,675	4,087,669	1,598,682	4,151,618

The distribution of these exports in September was as follows:

	Paper	Pulp	Total
U. S. A.	$7,072,584	$2,954,723	$10,027,307
U. Kingdom	190,229	1,095,288	1,285,517
All Other	301,439	101,607	403,045
	$7,564,251	$4,151,618	$11,715,869

Exports of pulpwood in September amounted to 112,366 cords valued at $1,172,814 compared with 94,351 cords valued at $974,568 in September 1922.

For the first nine months of this year the value of the exports of pulp and paper has shown a considerable increase over the value in the corresponding nine months of 1922, the total being $104,636,736 compared with $83,792,893 for last year, an increase for this year of practically 25 per cent. Increases both in quantity and values have been shown in practically all grades of pulp and paper and these exports reflect the increased activity of the Canadian mills.

Details for the various grades are given in the following table:

	9 Months 1922		9 Months 1923	
	Tons	Value	Tons	Value
Newsprint	697,924	$49,689,864	839,222	$63,277,966
Book Paper (Cwts)	20,663	149,017	38,422	259,699
Bond & Writing (Cwts)	8,151	85,544	17,713	181,139
Kraft Wrapping	13,325	2,057,623	15,658	2,369,644
Mechanical Pulp	220,870	6,643,783	248,189	8,222,122
Sulphite Pulp	255,220	15,976,507	295,823	19,961,032
Sulphate Pulp	108,553	6,658,849	107,637	7,031,961
Total Paper		$54,503,754		$69,421,621
Total Pulp		29,289,139		35,215,115

British Empire Forestry Conference

The forest fire danger in its relation to reforestation is the point most strongly emphasized in the formal report of the British Empire Forestry Conference just issued as a review of the conference held in Canada this summer. The report deals at length with the great need for better fire prevention methods, reduction of waste in logging and sawmill operations, and application of more efficient methods of silviculture.

A most important recommendation deals with the establishment of "reserve forests" or clearly defined districts intended to remain as forests, where the arts of fire prevention and silviculture would be specialized. In other forests areas not so well suited for reforestation no attempt would be made to replant trees. Natural reproduction would be the method adopted.

The conference declared that the empire should be self-sustaining in its forest requirements.

Particular attention was paid to Canada, because of its vast forest areas. Fire control, says the report, must continue to play an important part in the protection of the standing timber, and forest officers must be clothed with power to conscript labor in times of special emergency.

The report strongly recommends use of the aeroplane as a medium for spotting and checking fires in the early stages. Subsidies are urged in favor of commercial air companies, sufficient to allow them to carry out forest protection work at rates which are within the means of the forest authorities.

The silvicultural possibilities of Canada are reviewed by provinces, and an abstract of the recommendations follows:

For Eastern Canada—Forest planting, supplemental to the more requisite intelligent management of existing forests. More attention to the hardwood problem.

For The Prairie Provinces—Extention of forest shelter belts on the prairie farms.

For Western Canada—More economical logging; protection of seed trees now imperiled by debris and waste matter following logging operations.

Almost coincident with the report, Robson Black, secretary of the Canadian Forestry association, told the Ottawa Rotary club of the danger of forest fire in relation to the forest policy of the dominion. He said that two men by carelessness had been responsible for the burning up, in a single fire, of sixty-six years' supply of timber for one mill and he added that, along the Montreal river, prospectors had destroyed twenty years' supply of wood for the mills of Ottawa.

Report to Forestry Conference

Timely warning of the seriousness of the present timber situation in Ontario and throughout the dominion is sounded in the reports of committees presented to the Second British Empire Forestry Conference, which made a six weeks tour of the forest areas of Canada this summer. A report of the proceedings and resolutions of the conference has just been issued by the Dominion government.

The matters brought up which particularly affect Ontario were concerned with forest fire protection, reforestation and State forest regulation.

It is indicated that at the present rate of use and destruction, the accessible areas of virgin softwood will not last 25 years. Since similar situation exists in the United States, and since that county is dependent on Canada for two-thirds of its newsprint, the committee on softwoods resources advises that Canada should take the necessary steps to conserve and augment its resources of growing coniferous timber. The need for the dedication of certain areas as reserved forests, containing within them "regulated State forests" is stressed by the conference.

The annual treking of timber and pulpwood cutters to the woods in the Fort William district has commenced, several of the larger concerns now having men and supplies on their way to the scene of operations. The Fort William Paper Company lately sent a large quota of pulpwood cutters to Yond, their principal camp, 172 miles west on the Grand Trunk lines to Sioux Lookout. The average wage paid is $45 a month and board.

(Continued from page 19)

specialties. The incorporators are V. A. Stovall and W. C. Fullilove, both of Dallas. Plans are being developed for early operations

New York, N. Y.—The Sunshine Folding Box Co., has been incorporated with a capital of $50,000, to manufacture folding boxes and other paper containers. The incorporators are M. Feinstein and H. Barshop. The company is represented by M. H. Mensch, 305 Broadway, New York.

Indianapolis, Ind.—The Indiana Shipping Container Co., 818 State Life building, has been organized by Harold R. Victor. The company will deal in corrugated and solid fiber boxes and other paper containers.

East Orange, N. J.—The Seacoast Paper Mills, Inc., has been incorporated with a capital of $5,000, to operate a paper mill. The company is represented by the New Jersey Registration & Trust Co., 525 Main street, East Orange.

New York, N. Y.—The Miad Folding Box Co., has been incorporated with a capital of $50,000, to manufacture folding boxes and other paper containers. The incorporators are I. Shumis and P. H. Weiss. The company is represented by William Kaufman, 1482 Broadway, New York.

New York, N. Y.—The Triangle Paper Co., has been incorporated with a capital of $20,000, to manufacture and deal in paper products. The incorporators are N. Engel and M. Kazdan. The company is represented by Konnoson & Konnoson, 170 Broadway, New York.

Financial

New York, N. Y.—The Bowater Paper Co., has arranged for an increase in capital from $150,000 to $200,000 for general expansion.

Covington, Ky.—The Crescent Paper Co., has filed notice of increase in capital from $10,000 to $40,000, for increased operations.

New York, N. Y.—The Holyoke Paper Products Co., Holyoke, Mass., has filed notice of organization to operate in New York with a capital of $100,000 and 2,000 shares of common stock, no par value.

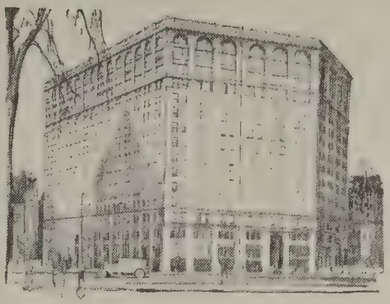
The Lagerloef Trading Co., 52 Vanderbilt Avenue, New York, representing Norway pulp interests, has secured a decision in the United States Circuit Court of Appeals, Oct. 19, at Indianapolis, Ind., against the American Paper Products Co., Carthage, Ind. A judgment of $72,347.52 was allowed the plaintiff. The decision was based on a breach of contract; the Indiana company ordered a shipment of pulp through the Lagerloef organization, and after shipment, but before receipt, it attempted to cancel the contract. The lower court held for the defendant. The higher tribunal, however, holds that the contract was binding and so renders its decision. The amount originally asked was $45,000, but with costs and interests it has reached the sum awarded by the court.

German Paper in Brazil

On August 1 good hard-sized printing paper of German origin was being sold on the Rio de Janeiro market at £32 per metric ton, c. i. f., or about 25 per cent of the price asked for a similar quality of American paper, according to a recent report received by the Department of Commerce from Assistant Trade Commissioner Bernard H. Noll.

German doublecoated book paper, supercalendered, was quoted at £39 per metric ton, c. i. f., 90 days' sight or 120 days' date.

A large quantity of paper, declared as printing paper, was still laying in the custom house, awaiting a decision by the government as to whether the newspapers were to be allowed to continue the importation of paper declared as newsprint at the reduced rate applicable to newsprint and other printing paper to be used by them.



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Doings in Canadian Paper Field

Newsprint for Nine Months of 1923

A report issued by the Canadian Pulp and Paper association states that the production of newsprint paper by Canadian mills during the first nine months of the current year amounted to 944,820 tons. This quantity is considerably greater than the total previously reached in any complete year with the exception of 1922, when the output was 1,081,364 tons.

In the corresponding nine months of 1922 the Canadian mills produced 799,373 tons, so that this year's output up to the end of September exceeds that for last year by 145,447 tons, or over 18 per cent. If the mills maintain this level of production during the last three months of the year, the output for 1923 will be well over 1,250,000 tons.

By far the greater part of the newsprint manufactured in Canada is destined for export and up to the end of September exports of this grade of paper amounted to 839,222 tons, or practically 90 per cent of the total production. The United States is naturally the chief market and 821,788 tons, or 97 percent of the total exports have gone to that country in the first nine months of the year. The remaining 17,434 tons have been distributed mainly to New Zealand, Australia and South Africa.

The following table shows the quantities exported to the various countries up to the end of September.

	Nine Months	
	1922	1923
Exports to;	Tons	Tons
U. S. A.	821,788	644,733
Australia	5,667	25,488
New Zealand	7,343	8,904
South Africa	3,168	6,019
Latin America	439	3,148
All Other	817	9,632
	839,222	697,924

The value of these exports in 1923 was $63,277,966 and in 1922, $49,689,864.

Newsprint exports this year have exceeded those for last year by 141,298 tons, or 20 per cent, while those to the United States were greater by 177,055 tons, or 28 per cent. Exports to other countries declined considerably from last year's figures, a decline especially noticeable in the case of Australia.

Barnjum Practically Gives Up

F. J. Barnjum, prominent Nova Scotia lumberman and noted conservationist, in a letter to the chairman of the Royal Commission on Pulpwood, explains his reason for not appearing before the commission during the Nova Scotia sittings.

He says that the Government has already "taken the means" to render the findings of the commission abortive should the commission recommend an embargo. Mr. Barnjum states that Premier King announced at the last session of Parliament that it was the government's intention to exempt farmers' and settlers' woodlots from the operation of the act to stop exportation should it be put in force by Order-in-Council. He also states that the government, in August, 1923, passed an order in council exempting for a period of ten years all wood exports under contract bearing date prior to June 1 from the provisions of any embargo that might later be applied under the authority which the government secured from parliament last session.

"The government tied its own hands, he says, "and the hands of your commission because, with the farmers, woodlots already exempt as described by the prime minister, and freehold wood under contract exempt by order in council, there remains practically no pulpwood which an embargo, if applied, could affect."

Official circles at Ottawa, however, say that Mr. Barnjum's statement is a misinterpretation of the facts in the case. It is stated that the underlying purposes of the whole series of events upon which Mr. Barnjum has commented, had the purpose of removing fears which were entertained in certain quarters that vested interests would be disregarded in the adoption of an embargo on pulpwood. The order in council of August 14 and the statement made by the premier in the House are explained as being two steps in a carefully considered policy.

Pulp Price Rising

As a result of the strike which curtailed consumption of paper by the New York dailies for some time a light overproduction of newsprint had developed, and the rumor was circulated that some of the Canadian and American mills might have to close down for one day a week for some time until the surplus was taken care of without any disturbance of existing prices.

The possibility of the Canadian mills having to take such a step has been eliminated, and the situation has been completely reversed as a result of the curtailment of American mills output owing to the water scarcity.

Reports have been received in Toronto that the supply of groundwood pulp has run out at many mills in Maine, New York and Wisconsin, due to continued drought. The mills affected are endeavoring to replenish their supplies in Canada and producers in Canada can sell all they can spare at $50 a ton, the rate having been advanced from $45 a few weeks ago. It is even said that $55 a ton has been offered.

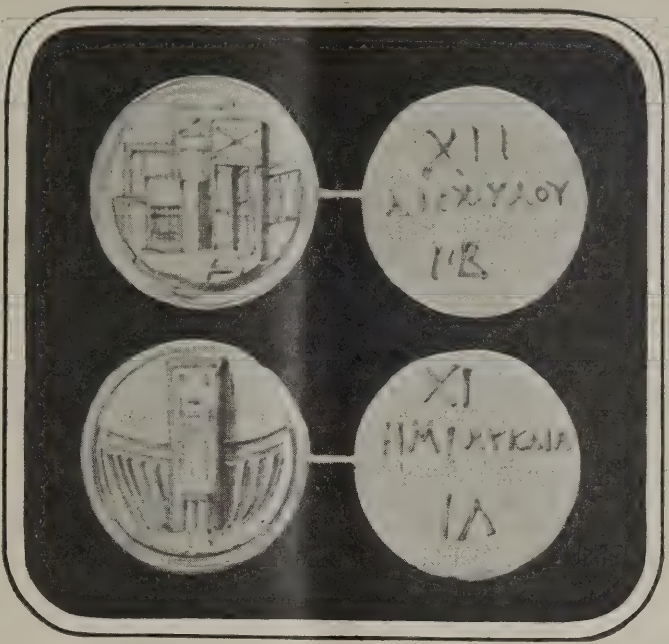
This situation is likely to create a demand for newsprint in the American market which will quickly absorb all the surplus in Canada and create a shortage in the near future.

New Ruling on Sales Tax

A synopsis of an important ruling as it affects the Canadian pulp and paper trade in relation to the sales tax has just been sent out to the members of the Canadian Paper Trade association by the secretary.

The new rulings provide that all licensed manufacturers will also be allowed to operate as licensed jobbers; on all purchases from licensed manufacturers or licensed wholesalers for re-sale, either in the same condition or after further processing, there will be no tax; on sales to other licensed manufacturers or licensed wholesalers there will be no tax; on sales to non-licensees, of goods of their own manufacture or production, they will collect a tax of 6 per cent on the invoice price; on sales to non-licensees, of goods other than their own manufacture or production, they will pay the government 6 per cent, based on their cost price, but will be under no necessity to show the amount on the invoice; licensed manufacturers or wholesalers are entitled to a deduction on all goods on hand of the amount of sales tax actually paid by them since May 19, 1920.

It is announced that the Foundation Paper Company has taken over the old Nipigon Fibre and Paper mills at North Bay, Ont., and that the intention is to place a large staff of men at work to get the plant into shape for early operation, presumably December 1st.



Two theater "tickets" of carved bone, from ancient Pompeii. The upper represented one admission to what we now call the gallery; the lower, a box seat.

—*Gandy & Gell's Pompeiana*

Admission: One Bone

The play was the thing, in ancient days as now. Good and evil, reward and punishment, guile and innocence, the whole worked up into a cross section of life, have held the same keen interest through the ages.

In Pompeii the crier announced the coming of the play. These days we read the advertisement in our favorite newspaper. Then, the scene was explained by voice; now, we refer to our program. Then, a slab of bone served a long life as a ticket; now, we print a new batch of pasteboards for each performance.

The play is still the thing, but its technique has changed. The modern play manager throws a good part of his burden onto paper.

Hammermill Paper Company
Erie, Pennsylvania

Doings in Canadian Paper Field

Arguments Against Embargo

The bulk of the testimony adduced before the Pulpwood commission, appointed to investigate the advisability of imposing an embargo on exportation of pulpwood to the United States, continues against such a proposal.

A. J. O'Conner, manager of the Bonny River Lumber company, with head office at Bonny River, N. B., in his testimony, strongly opposed the embargo. He said he did not know of one farmer in the two counties of New Brunswick in which his company operates who favors the embargo. Those counties are Charlotte and Albert. He said pulpwood brought much more money into the country than lumbering. He pointed out the farmers in his section received eleven dollars per cord for export, and but five dollars per cord when sold to local mills. And then in some instances they had to transport the wood to the mills. He said the farmers would be at the mercy of the local mills if an embargo were imposed. In his opinion, the price per cord would drop to about three dollars. He believed that when new mills were established because of the embargo, there would be little remaining. In Albert county there were about seventy-five million feet of pulpwood. He said fields were now bearing spruce and fir pulpwood that a quarter century ago produced hay. The pasture lands of old are now showing pulpwood at ten thousand feet to the acre. And it is all excellent spruce and fir.

Cornelius Crawley of Cork, N. B., offered a petition signed by twenty six farmers of Cork against an embargo, and also strongly against an export tax. Mr. Crawley said the imposing of an export tax might be instrumental in reducing the price of pulpwood. He said ninety per cent of the pulpwood cut in his section was exported to the United States, where eleven dollars per cord was offered against from five to six dollars in Canada.

N. E. Hason of Fredericton, N. B. testified that it would be impossible for United States pulp and paper manufacturing concerns to secure pulpwood lands as most of the crown lands have been leased for long periods. He stated that the proper stumpage dues were not paid on crown lands in the province of New Brunswick, and added that this situation has always existed.

W. E. Golding, manager of the New Brunswick Railway company which is controlled by U. S. capital, was another who opposed an embargo. He said his company owned nearly two million acres of granted lands. He said if the fire menace could be controlled, there would be no fear of extinction of pulpwood. He believed it would be a sad error to impose an embargo on pulpwood as the United States would probably retaliate with a duty on sawn lumber, and would damage the lumber business of Canada greatly. He said if the embargo was imposed hundreds of farms would be abandoned, and it was desirable to keep the people on the farms in eastern Canada. Mr. Golding said his company owned about eight million cords of pulpwood. He suggested additional lookout towers and forestry police as means of curbing fires. He also pointed out that bud worm damaged timber could be sold only as pulpwood.

K. L. Golding, a pulpwood operator of St. George, N. B., expressed himself as opposed to an embargo. He said there would be no need of an embargo. He suggested six or eight aircraft as a fire patrol, and said there would be no worry about the supply of pulpwood if proper measures were adopted to limit damage from fires in the eastern Canada woods.

G. B. Jones, of Aphaqui, N. B., a member of the Canadian House of Commons, and A. F. Bentley, of St. Martins, N. B., a member of the New Brunswick House of Assembly, both denounced the embargo talk before the commission. Mr. Jones said he had yet to find one man in his constituency favor the embargo. He said the farmers in his section all have woodland practically all ship their pulpwood to the United States. He said it would be inadvisable to establish mills in his section, as St. John, N. B., was the most desirable site. He said he had gone through the constituency he represents in the parliament to find what sentiment exist there and found it strongly against an embargo. He said he bought pulpwood himself, mostly from farmers and shipped all to the United States, as the price offered by the Canadian companies was too small. If the embargo were imposed, the eastern provinces would suffer greatly, as there would be a large percentage of the farms deserted. In speaking of bud worm, he said the damage inflicted by this pest in his section was rated at about thirty three per cent. Forest fires during 1923 inflicted more damage than in any previous year.

Must Have Outlet for Wood

In his testimony before the Canadian Pulp Wood Commission Angus McLean, head of the Bathurst Company of New Brunswick, the largest producer of pulp and paper in the maritime provinces, expressed his opposition to an embargo on pulpwood exports as follows:

"My strong conviction is that such legislation would be a serious mistake and should not be enforced. So far as Nova Scotia and New Brunswick are concerned, there is a surplus of pulpwood. In this district it is going to waste and the prohibition of export would mean a still greater loss. There is no shortage in this part of the province. There is a surplus, and if the United States market is cut off it would be very serious to the farmers and dealers."

"They would have nothing but the local market, which would greatly depreciate the price of their product. If we developed to the limit of possibility so far as power is concerned, there would still be plenty of wood. There is not the power needed to manufacture paper extensively. All that can be made until we get additional power is pulp, and the only market for this is in the United States, where we have to compete with Germany and the Scandinavian countries, which are almost putting us out of business."

Facts About the Three Rivers Mills

The Three Rivers Que, plant of the International Paper Co. consumes 260,000 barrels of fuel oil per year. It had eight boilers and 32 burners with an oil storage capacity of 150,000 barrels. The boiler plant furnishes steam for running the paper machines, drying the paper, cooking sulphite and heating the mill.

The wood piles are said to contain 55,000 cords; the plant uses about 135,000 cords annually.

The filter plant supplies water for the process purposes, there being 20 filter beds.

The groundwood pulp mill has 14 magazine grinders, capacity 20 tons groundwood per grinder per day. The groundwood storage tank reservoir has a capacity of about 75 tons of groundwood pulp. The three digestors have a daily capacity of about 90 tons.

(Continued from page 17)

in the testing station and posted on the grinder room bulletin beside the chart of the hourly freeness at the measuring system and beside the chart showing time of last sharpening of each stone. The sampling and testing of the grinder stock at the beginning of each shift is good in a small mill but rather cumbersome and unnecessary with a large number of grinders.

To supplement his practical observation and knowledge, the grinder room foreman has before him with this method a numerical expression of the quality of the stock going to the machines, the quality of the stock from each stone and the time that each stone was last sharpened or dressed, and is in a position to handle the stones with the best possible results. The free cutting stones are sharpened with a finer burr than the others and if any stone is cutting very free stuff it is either run over lightly with a fine diamond, No. 12 or No. 14, or is dulled with a piece of iron. The stones which have a tendency to drop off in production quickly with a drop in freeness are sharpened with a coarse burr. With the object of keeping all the grinders making about the same grade of stock rather than having some running high and some low in freeness, the stones which have a tendency to roughen up are dressed to keep the freeness down and the stones which have a tendency to smooth off are dressed to keep the freeness up.

The grinding surface has so much more influence on quality than has temperature or pressure that nearly all the attention is focused on the stone surface. Although the temperature is reduced occasionally to bring the freeness down on some stone, in general the effort is made to hold it 50 to 60° C. The pressure is out of control because of the fluctuations in power and the grinding surfaces must sometimes be modified to hold the quality with changes in pressure.

The object in building up a system for controlling the grinding has been to avoid elaborate testing or complicated statistics but to have one simple reliable test by means of which the attention could be focused on the one important variable within control, the grinding surface. The kind of wood and the condition of the grinding surface are the things of primary importance, with the temperature, speed and pressure entirely secondary in importance in determining quality.

Dyeing and Tinting of Paper

(Continued from page 6)

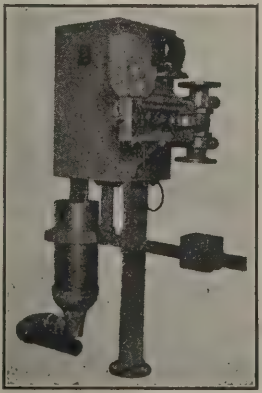
backwater; the application of suitable mordants, such as the tannins, particularly in dyeing fiber mixtures, and the use of coal tar dyestuffs in conjunction with natural and mineral colors, such as iron ochres and artificial mineral colors, such as iron buff, chrome yellow, etc.

The effects upon the dyestuff absorption of prolonged beating, and of the degree of "hydration" of the fibers is at present still under investigation.

Very little information has so far been published on the dyeing of paper pulp, although a considerable amount of knowledge is probably available in paper mills.

There can be no doubt that reliable information should be of considerable value to the industry, but the directions in which investigations might be carried out are so numerous that, in order to obtain the most useful results, scientific investigators must in future look forward to the practical worker in the mill for useful suggestions.

EASTWOOD
WIRE M'F'G CO.
FOURDRINIER WIRES
BELLEVILLE, NEW JERSEY, U.S.A.



Is Your Stock Jordanned Uniformly?
It WOULD be—and your WEIGHTS would run better IF—
You used the TRIMBEY AUTOMATIC CONSISTENCY REGULATOR
More than 210 in use - - - Ask us about it
Also "Made in Canada"
TRIMBEY MACHINE WORKS, Glens Falls, N. Y.

CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE	
Bond	8.00 @ 40.00
NEWS	
Contract Basis	3.75 @
BOOK	
S. & S. C.	6.75 @ 7.50
M. F.	6.50 @ 7.25
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .90
Manila No. 1	.80 @ .90
WRAPPING	
No. 1 Domestic	6.50 @ 7.25
No. 1 Jute	8.25 @ 8.75
No. 1 Wood	4.75 @ 5.00
Butchers	4.00 @ 4.25
BOARD	
News	55.00 @ 60.00
Chip	55.00 @ 60.00

Paper and Board

New York, November 6—It might be said that the market situation in paper and paper board at present is somewhat divided. On the one hand there is pronounced firmness, with quoted prices holding strong and with the tendency in an upward direction; on the other hand, there is easiness observable with some slight declines recorded and with the probabilities seeming to favor a further sagging of values.

In other words, there is a brisk demand for some kinds of paper, and a comparatively limited demand for others, with the result prices of those descriptions of paper which are moving actively are firm while quotations on those kinds which are not in such good demand tend to decline. Competition for business is exceedingly keen; perhaps this explains more than any other reason the easiness in prices in some quarters. Manufacturers are making every effort to secure as large a share of the available business in paper as they can with the idea in view of keeping their plants running at as close to capacity as possible, and with demand for certain kinds of paper failing to measure up to a volume where all the mills making such grades of paper can obtain enough business to warrant full production, it stands to reason some mills are shading prices in their drives to corral orders.

In newsprint, the market is very firm. The demand is so voluminous for print paper that mills not only are provided with a ready outlet for all the supply they are producing but could doubtless market additional tonnage if they had the facilities for increasing their output. Publishers are using newsprint at a record rate. So great is the demand for advertising space in the daily newspapers that publishers are obliged to omit many columns of advertisements from nearly every issue they print, because they are limiting the size of their issues owing to the paper situation.

Bag papers are firm, and so are most kinds of building papers. There is a steady demand for these products of sufficient volume to keep most mills busy, and competition therefore is not disturbing prices. The tone of book paper prices, however, could be much steadier than it is. The same is true as regards fine papers, wrapping and tissue papers, and box boards. The movement of such paper mill products into consuming channels is restricted. Buyers are operating on a most reserved scale, confining their orders to supplies directly and actually required, and since demand has not reached the dimensions most of those in the trade had anticipated for about this time there is a natural disposition on the part of manufacturers to grant price concessions when to do so results in the securing of orders.

The case of box boards is an apt illustration. Current demand for plain chip and news board is running at a rate about ample to keep mills in the East operating at 75 to 80 per cent of capacity. It is a well known fact that for a board manufacturer to realize a fair profit he necessarily must have his mill producing at very close to capacity; if production falls below such a level the overhead remains the same and the producing cost of each ton of board automatically rises, so that nearly all of the profit is eliminated. Under prevailing market conditions board manufacturers are not able to get enough business to justify full production, and in an effort to secure as many orders as possible so as to increase their output and thereby increase their rate of profit, mills are cutting prices in some instances to wean business away from competitors.

Quotations on box board have moved slightly lower. Plain chip is quoted at $55 a ton f.o.b. New York, and most mills are naming the same price on news board, though some are quoting $57.50 on the latter. Paper box manufacturers are buying in fairly good volume but not in heavy enough tonnage

SCANDINAVIAN PULP
AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

to keep mills operating full. The result is that in some cases buyers are getting board a little below quoted rates

No definite changes of note have occurred in book paper quotations. However, consumers are placing orders at concession in some directions, especially in instances where large amounts of paper are concerned because manufacturers are willing to concede something in price if assured of ample business to keep their machines in full operation. Wrapping and tissue are quoted at previous prices but there is also some shading of quotations on these papers. Demand for fine papers is improving. Printers are absorbing larger amounts of bond and ledger, reflecting the increased demand for stationery from commercial houses, and quoted prices on these papers are fairly steady though the quotations named by different mills show some irregularity.

Quotations are as follows:

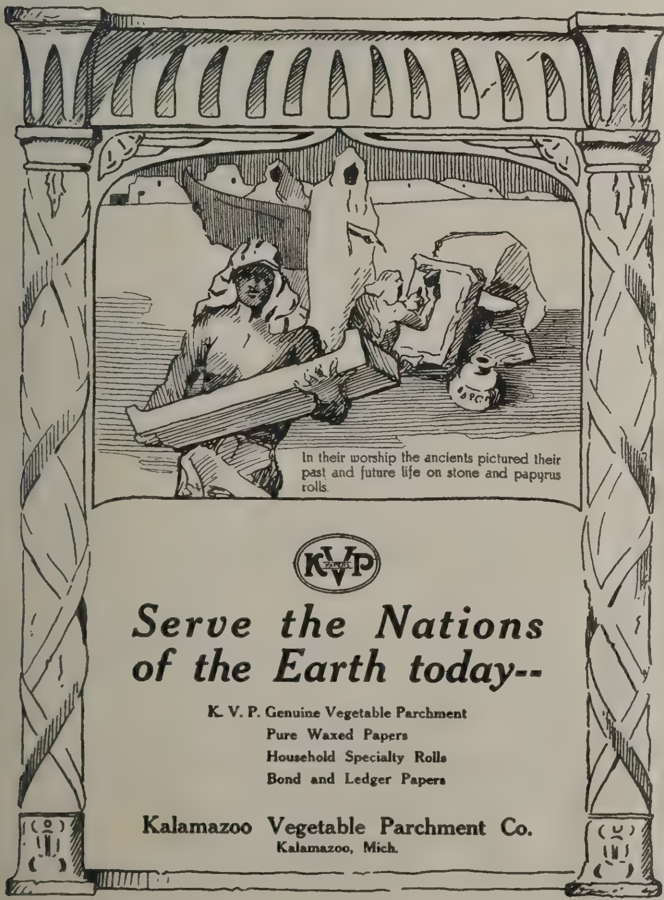
Bond	.08	@	.40
Ledger	.09	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superior	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. c. b. Mills—			
Rolls, contract	3.75	@	
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft f. o. b. N. Y.—			
No. 1 Domestic	7.00	@	7.50
No. 2 Domestic	6.25	@	7.00
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.25	@	7.75
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.75	@	7.50
M. F.	6.50	@	7.25
Lithograph	9.00	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	3.75	@	4.00
Boards, per ton, f. o. b. N. Y.—			
News	55.00	@	60.00
Straw, in sheets	55.00	@	60.00
Binder Board	85.00	@	90.00
Chip	55.00	@	60.00
Manila Lined Chip	70.00	@	75.00
Woodpulp	80.00	@	85.00

Mechanical Pulp

Not much change is noted in the ground wood market. Demand for this commodity is holding up on a fairly broad scale; if anything, there is not enough ground wood offered by producers in this country and Canada to cover the wants of buyers, and quotations are marked by a firm undertone. Domestic ground wood for prompt shipment is bringing around $42 a ton f. o. b. grinding plants, quotations ranging about $2 a ton on either side of this level and depending on the freight rate to consuming points and the air dry percentage of the pulp involved. Canadian producers are reported securing from $45 to $50 a ton at pulp mills, and are shipping a large proportion of their output into the United States. Most members of the trade are of the opinion that ground wood will hold firm in price now that the winter is coming on when the freeze up usually reduces the production.

Foreign and Domestic Chemical Pulp

Easiness is still apparent in chemical wood pulp. According to reports, demand from consumers has not as yet expanded, and buying is very spotty, some paper and board mills doing little or no purchasing at all and others coming into evidence as buyers only in an occasional way. Aside from business against contracts or back orders, it is doubtful whether there is a concerted movement in any one direction, and with sellers in at least certain cases having pulp they desire to market, it is but natural that prices display a softening tendency. Unbleached sulphite of No. 1 domestic and foreign quality is quoted at about 3 cents a pound at pulp mills or ex dock New


In their worship the ancients pictured their past and future life on stone and papyrus rolls.

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Serve the Nations of the Earth today--

K. V. P. Genuine Vegetable Parchment
Pure Waxed Papers
Household Specialty Rolls
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Daily Capacity of 600 Air-Dry Tons

The extent
of our production of
High Grade
BLEACHED
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insures uniform quality, prompt
shipments and market prices

BROWN COMPANY
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Woolworth Bldg.
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CURRENT MARKETS—Continued

York but this price is being shaded. Similarly, kraft pulp is quoted at 2.90 to 3 cents for the No. 1 grade yet buyers are getting some supply under this level. Prices are in a very uncertain position, and those listed herewith on a f. o. b pulp mill or ex dock New York basis are largely nominal:

Sulphite, foreign—			
Bleached No. 1..	4.00	@	4.50
Unbleached No. 1.	2.90	@	3.25
Unbleached No. 2 .	2.80	@	3.00
Easy Bleaching	3.25	@	3.50
Sulphite domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No. 1.	3.00	@	3.25
Unbleached news grade	2.90	@	3.15
Easy Bleaching	3.25	@	3.50
Mitscherlich, unbleached	3.25	@	3.50
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.85	@	3.15
Kraft, domestic	3.00	@	3.25
Sulphite screenings, refined	1.75	@	2.00

Domestic Rags

Most grades of papermaking rags are merely holding their own in price. Demand is of a character which fails to instill strength in quotations, and while dealers are generally maintaining asked rates they are accepting orders in some cases at less than what they ask. Roofing stock is probably as steady as any other class of rags. No. 1 roofing is selling at 1.50 to 1.60 cents a pound f. o. b. New York, and No. 2 packing is bringing 1.245 to 1.345 cents New York. Old whites are fairly steady, and so are thirds and blues. New cuttings tend to sag in price, especially such grades as white shirt cuttings and black cuttings which are in rather large supply and which paper mills are buying only in limited amounts. Quotations f. o. b. New York are:

New Shirt Cuttings,			
No. 1	12.50	@	13.50
No. 2	6.25	@	6.75
Fancy Shirt Cuttings	6.00	@	6.25
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.75
White Lawns	11.00	@	11.25
New Muslin unbleached	11.25	@	11.50
Light Silesias	8.00	@	8.25
Black Silesias	5.00	@	5.25
Overall Cuttings,			
Blue	8.00	@	8.25
Washables	5.00	@	5.25
New Black Mixed .	4.75	@	5.00
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street.	2.65	@	2.90
Thirds and Blues, repacked	3.00	@	3.25
3rds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags No. 1	1.50	@	1.60
Roofing Rags No. 2	1.25	@	1.35

Imported Rags

Dark colored cottons are reported moving fairly freely to roofing paper mills at around 1.50 cents per pound ex dock New York, consumers readily meeting this price for spot lots and in most instances for such rags for forward shipment from abroad. New light prints are a little higher in price at 6.25 to 6.50 cents ex dock New York, and old German light prints have sold at 3.50 cents per pound and slightly higher. Quotations ex dock New York are:

Lins., White No. 1	12.00	@	13.00
Ger. Blue Cottons..	2.75	@	3.00
French Light Blue.	3.00	@	3.25
New Light Prints ..	6.25	@	6.50
New Unbleached ...	10.00	@	10.25
German Linen, blue.	3.75	@	4,00
German Linen, grey	5.75	@	6.00
German S. P. F.'s.	6.00	@	9.00
German Light Prints	3.50	@	3.75
Dk. Colored Cottons	1.50	@	1.60

Bagging, Rope, Etc.

Old manila rope is one of the strongest items in the papermaking supply trade. Demand for this article is brisk and buy-

A ROLLING STONE
GATHERS NO
MOSS

BUT, Paper rolled by Press Rolls of Barre Granite gathers increased profit for those whose machines are equipped with these famous rolls.

Full information about them will be sent upon request.

JONES BROTHERS CO.

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executives of paper mills
purchasing agents
real buying-power

you should advertise in

PAPER

the trade journal devoted exclusively to the manufacture, sale and use of pulp and paper Published by

Hughes Publishing Co., Inc.,
1478 Broadway, New York

CURRENT MARKETS—Continued

ers are granting advanced prices, sales of No. 1 domestic manila rope at 6.25 and 6.50 cents per pound f. o. b. New York having been reported, and of foreign rope at 6 to 6.25 cents ex dock at this port. Bagging, on the other hand, is quiet. Occasional sales are reported but the scope of the movement toward mills is narrow, and prices are quotably unchanged. F. o. b. New York quotations follow:

Gunny, No. 1	1.25	@	1.35	Wool Tares, light ..	1.25	@	1.50
Foreign	1.20	@	1.30	For. Manila Rope..	6.00	@	6.25
Wool Tares, heavy .	1.50	@	1.75	Domestic Rope	6.25	@	6.50
Scrap Bagg. No. 1	1.15	@	1.25	Mixed Strings	1.25	@	1.50
Roofing Bagging ..	.90	@	1.00				

Old Paper

Prices of old paper are sliding off at a rapid clip. There is little demand from consuming quarters which might be described as important, and the market seems to be weakening under its own weight. Shavings have eased off to 4 cents a pound f. o. b. New York for No. 1 hard white, and 3.10 cents for No 1 soft white shavings, and probably buyers are operating at less than these figures in some cases Old magazines are particularly weak in price. Offerings by dealers of flat magazines at 1.65 to 1.75 cents a pound New York and of No. 1 crumpled magazines at 1.35 to 1.45 cents have been reported, with few buyers appearing. Folded newspapers are down to $1 a hundred pounds f. o. b. this citp, and No. 1 mixed paper is freely offered by dealers at 70 to 745 cents per hundred pounds New York .Kraft paper is comparatively steady though some decline has occurred in this grade, sales at 2.10 cents a pound having been recorded. F. o. b. New York quotations are:

No. 1 Hard White Shavings	3.90	@	4.10	White Blank News.	2.10	@	2.20
No. 2 Hard White Shavings	3.25	@	3.50	Common Paper	.45	@	.50
No. 1 Soft White Shavings	3.10	@	3.25	Kraft No. 1	2.10	@	2.20
Box Board Chips ..	.80	@	.85	New Manila Cuttings	2.25	@	2.50
No. 1 Colored Shavings	1.85	@	2.00	New Manila Env. Cuttings	3.00	@	3.25
Magazine flat stock.	1.65	@	1.75	Bogus and Mill Wrappers	.90	@	.95
No. 1 Crumpled ...	1.35	@	1.45	News, strictly overissue	1.15	@	1.25
Solid Ledger Books	2.20	@	2.30	Folded News	1.00	@	1.05
Ledger Stock	2.00	@	2.10	No. 1 Mixed Papers.	.70	@	.75

Twines

Some slight improvement in demand for certain kinds of twine has been reported but the market generally continues in a quiet condition. Quoted prices are nevertheless maintained, the strength in raw material being one of the most important sustaining factors. Quotations follow:

Sisal Hay, pure ...	13.25	@	14.25	Jute Wrapping Twine, A grade	19.00	@	
Manila Hay, pure..	16.25	@	17.25	Papermakers Twine.	10.50	@	
Sisal Lath Yarn ..	12.25	@	13.25	B. C. Hemp, 18 ...	.39	@	.40
Manila Rope, pure, ¾ inch diameter .	15.25	@	16.25	B. C. Hemp, 24 ...	.38	@	.39
Hardware rope	12.25	@	13.25	B. C. Hemp, 36 ...	.36	@	.37
Jute rope, ¼ diam. and over, coils ..	12.00	@	14.00	American Light India— No. 6	19.50	@	
Sail twine, A grade.	19.00	@		No. 7	18.50	@	

Chemicals

Casein is said to have sold down to 14 cents per pound, duty paid, for the foreign product, representing a slight recession in price. There is a steady call for bleaching powder and quotations hold at around 1.50 cents a pound. Other papermaking chemicals are in routine movement with no changes of consequence recorded in quoted prices.

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& Co., Inc.
128 Duane Street, New York

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Branch Offices:
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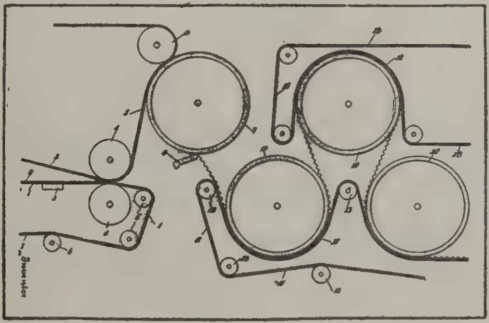

The crepe being formed while the fibres are steaming hot and pliable is dried without stretching; not only retaining form better, but shedding less lint than cold creped paper products.

For particulars address:

Tompkins-Hawley-Fuller Co.
VALATIE, N. Y., or OREGON CITY, ORE.

CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of October 29-November 3

Paper

Str. Bayern, Hamburg—C. H. Young Publishing Company, 266 rolls newsprint; Order, 70 bls. wrapping.

Str. Resolute, Hamburg—E. Dietzgen & Co., 4 cs. drawing.

Str. Mauretania, Southampton—A. C. Dodman Jr. & Co., 77 cs. hanging; J. C. Robold & Co., 1 cse. hanging.

Str. America, Genoa—Hensel, Bruckman & Lorbacher, 4 cs.

Str. Canadian Pioneer, Sydney—Order, 13 cs.

Str. Pittsburgh, Bremen—A. Frankan & Co., 3 cs.; C. G. Keferstein, 36 bls. wrapping; Standard Underground Cable Company, 5 rolls; from Southhampton—Columbian Company, Inc., 1 cse. cigarette; J. Hanheimer, 133 bls. filter.

Str. Rotterdam, Rotterdam—Republic Bag & Paper Company, 138 bls. wrapping; Pulp and Paper Trading Company, 86 rolls strawboard; F Euler Company, 11 cs. filter; American Express Company, 2 cs., Keuffel & Esser Company, 32 cs. drawing; W. Van Doorn, 71 bls.

Str. Verbania, London—W. H. S. Lloyd & Co., 19 bls. hanging.

Str. Asuncion de Larrinaga, Marseilles—Louis DeJonge & Co., 80 cs. writing.

Str. Port Albany, Liverpool—A. C. Dodman Jr. & Co., 19 bls. hanging.

Str. Randsfjord, Hafslund—H. Reeve Angel & Co., 11 rolls wrapping; P. Rudolph Company, 7 rolls wrapping.

Str. Clara, Trieste—American Exchange National Bank, 68 rolls newsprint; New York Trust Company, 2,331 bls. wrapping; Publicity Paper Corporation 70 cs. writing; Draeger Shipping Company, 1 cse. wrapping; Order 14 bls. printing.

Str. President Arthur, Bremen—J. P. Heffernan Paper Company, 109 bls. wrapping; Order, 144 rolls and 137 bls. wrapping.

Str. Albania, London—W. H. S. Lloyd & Co., 11 bls. hanging; H. Reeve Angel & Co., 13 cs. filter; F. L. Kraemer & Co., 5 cs. writing.

Str. Columbia, Glasgow—Standard Underground Cable Company, 138 rolls wrapping; Perry, Ryer & Co., 98 cs. printing.

Str. Volendam, Rotterdam—Republic Bag & Paper Company, 800 rolls wrapping; Pulp and Paper Trading Company, 78 rolls strawboard.

Str. Falls City, Hamburg—Irving Bank-Columbia Trust Company, 191 cs.; Publicity Paper Corporation, 180 bls. wrapping; International Acceptance Bank, 247 rolls newsprint; Mills Needle Company, 7 cs.; Order, 184 bls. wrapping.

Str. Byron, Constantinople—Order, 11 cs. cigarette.

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New York
Western Sales Office
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Chicago, Ill.

CURRENT IMPORTS—Continued

Str. Celtic, Liverpool—Meadows, Wye & Co., 5 cs. tissue; hanging; B. F. Drakenfeld & Co., 10 cs. printing; A. C. J. J. Gavin & Co., 1 cse. photo; W. H. S. Lloyd & Co., 5 cs. hanging; B. F. Drakenfeld & Co., 10 cs. printing; Dodman Jr. & Co., 24 bls. hanging.

Str. Cleveland, Hamburg—F. Henjes, Jr., 4 cs. pasteboard; A. W. Fenton, Inc. 29 bls hanging; J. W. Hampton Jr. & Co., 10 cs. writing; Equitable Trust Company, 26 rolls newsprint; National City Bank, 74 rolls wrapping; C. B. Richard & Co., 23 cs.; Order, 33 cs. paper bags, 7 bls. wrapping and 23 cs. pasteboard.

Str. Conte Rosso, Genoa—Japan Paper Company, 68 cs.

Str. Eglantine, Havre—American Express Company, 2 cs. writing; Rose & Frank Company, 80 cs. cigarette.

Str. Orca, Hamburg—Guaranty Trust Company, 256 bls. and 82 rolls wrapping and 101 rolls newsprint; Corn Exchange Bank, 134 rolls newsprint; Seaman Paper Company, 6 rolls newsprint; Wilkinson Bros. & Co., 1,138 bls. and 228 rolls wrapping; W. Hartmann & Co., 428 bls. and 80 rolls wrapping and 157 rolls newsprint; bernard, Judae & Co., 16 bls. wrapping; International Acceptance Bank, 486 rolls wrapping; J. W. Hampton, Jr., & Co., 15 cs. writing; Publicity Paper Corporation, 51 cs.

Str. Suffren, Havre—Surbrug Company, 20 cs. cigarette; DuPont Cellophane Company, 19 cs.; Rose & Frank Company, 20 cs. cigarette; Japan Paper Company, 5 cs.; Coenca-Morrison Company, 8 cs.; Whiting-Paterson Paper Company, 15 cs.; H. Maillard, 7 cs. pasteboard.

Str. Majestic, Southampton—A. Murphy & Co., 3 bls. hanging; International Mercantile Marine Company, 3 cs. hanging; Globe Shipping Company, 3cs. writing.

Wood Pulp

Str. Bayern, Hamburg—Ladenburg, Thalman & Co., 100 bls.

Str. Rotterdam, Rotterdam—M. Gottesman & Co., 2,100 bls.; Castle & Overton, 503 bls.

Str. Randsfjord, Hafslund—Kidder, Peabody Acceptance Corporation, 5,750 bls.; E. M. Sergeant & Co., 875 bls. sulphite; from Bergen—Central Union Trust Company, 265 bls.

Str. President Arthur, Bremen—American Woodpulp Corporation, 75 bls.

Str. Cleveland, Hamburg—Ladenburg, Thalman & Co., 108 bls.

Old Rope

Str. Rotterdam, Rotterdam—Brown Bros. & Co., 98 coils; Ladenburg, Thalman & Co., 80 coils.

Str. Ascuncion de Narrinaga, Barcelona—W. Schall & Co., 59 bls.

Str. Volendam, Rotterdam—Brown Bros. & Co., 46 bls.; Order, 65 coils.

Str. Cleveland, New York Trust Company, 81 bls.; Brown Bros. & Co., 27 coils and 13 bls.

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Bleached Sulphite Pulp	150,000 lbs.
Ground Wood Pulp	60,000 lbs.
Paper	200,000 lbs.

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Rothschild, Wisconsin

Sales Office:
1126 Conway Bldg., Chicago, Ill.

CURRENT IMPORTS—Continued

Old Bagging

Str. Rotterdam, Rotterdam—Maurice O'Meara Company, 101 bls.

Str. Anaconda, Antwerp—Mechanics & Metals National Bank, 68 bls.

Rags

Str. West Elcaso, Marseilles—Cleveland Trust Company, 116 bls.

Str. Ascunion de Narrinaga, Marseilles—Cleveland Trust Company, 211 bls.; Equtable Trust Company, 83 bls.

Str. Anaconda, Antwerp—Maurice O'Meara Company, 73 bls.; New York Trust Company, 356 bls.

Str. Clara, Malta—Ignazio, Abela & Co., 92 bls.; from Trieste—Kelly & Co., 405 bls.

Str. President Arthur, Bremen—Guaranty Trust Company, 134 bls.

Str. Albania, London—S. Birkenstein & Sons, 70 bls.

Str. Volendam, Rotterdam—American Woodpulp Corporation, 332 bls.

Str. Suffren, Havre—Mechanics & Metals National Bank, 73 bls.; Equtable Trust Company, 3,095 bls.; International Acceptance Bank, 83 bls.; New York Trust Company, 100 bls.

Str. Eglantine, Havre—Stone Bros. & Victor Galaup Company, 382 bls.

Str. Cleveland, Hamburg—Katzenstein & Keene, 174 bls.; Order, 81 bls.

Paper Stock

Str. Columbia, Glasgow—Irving Bank-Columbia Trust Company, 88 bls.

Str. Cleveland, Hamburg—W. Schall & Co., 109 bls.; Order, 172 bls.

Str Eglantine, Dunkirk—E. J. Keller Company, 131 bls.; Salomon Bros. & Co., 50 bls.

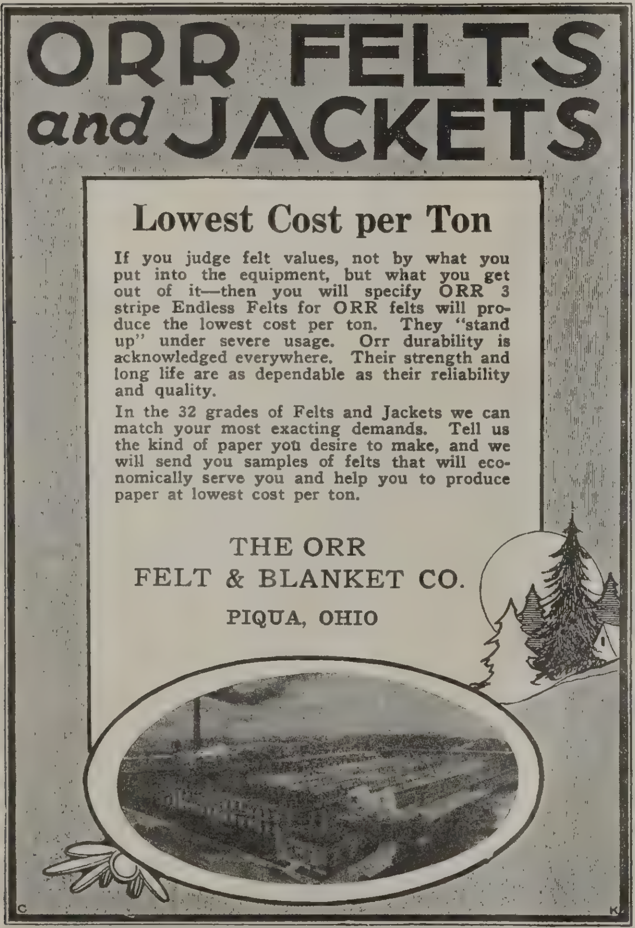
Casein

Str. Bayern, Hamburg—Bank of the Manhattan Company, 321 bags.

Str. Pan America, Buenos Aires—Kalbfleisch Corporation, 984 bags.

Talc

Str. Giuseppe Verdi, Genoa—L. A. Salomon & Bros., 800 bags.



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ANILINE COLORS

Bachmeier & Co., Inc., New York.
Heller & Merz Co., New York.
National Aniline & Chemical Co., New York.

ARCHITECTS AND ENGINEERS

Carey, James L., Chicago, Ill.
Ferguson, Hardy S., New York.
Hardy, George F., New York.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

BEARINGS

Link-Belt Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BEATING ENGINES

Black-Clawson Co., Hamilton, O.
Dayton Beater & Hoist Co., Dayton, O.

BELT CONVEYORS

Link-Belt Co., Chicago, Ill.

BLEACH

Penn. Salt Mfg. Co., Philadelphia, Pa.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOX BOARDS

Standard Paper Co., Kalamazoo, Mich

BOARD MACHINES

Black-Clawson Co., Hamilton, O.

BOND PAPER

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

BRASS WIRE CLOTH

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, O.

BRIMSTONE

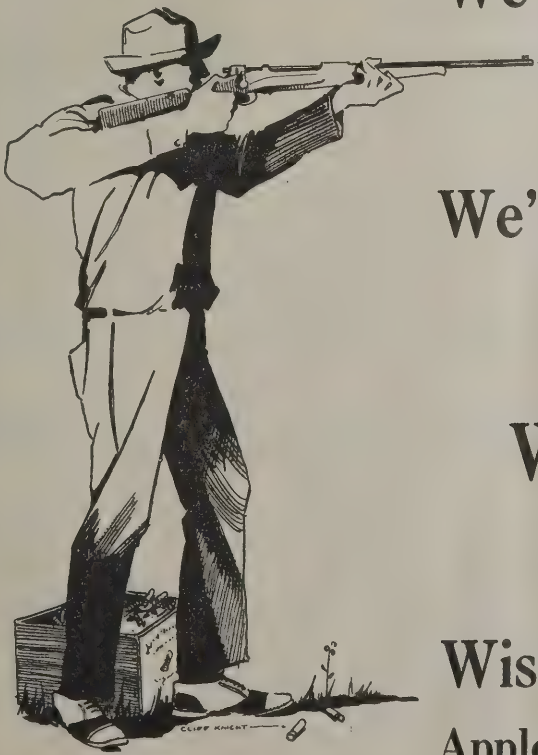
Union Sulphur Co., New York.

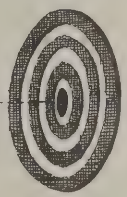
BRONZE WIRE CLOTH

Appleton Wire Works, Appleton, Wis.

CHAINS AND WHEELS

Link-Belt Co., Chicago, Ill.





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Kuttroff, Pickhardt & Co., New York.

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Trimbey Machine Works, Glens Falls, N. Y.

CONVEYORS AND ELEVATORS

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Hudson-Sharp Machine Co., Green Bay, Wis.

CREPE PAPER MACHINES

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Tompkins-Hawley Fuller Co., Valatie, N. Y.

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Black-Clawson Co., Hamilton, O.
Cameron Machine Co., Brooklyn, N. Y.

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International Wire Works, Menasha, Wis.

CYLINDER MOLDS

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Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

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Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

DANDY ROLLS

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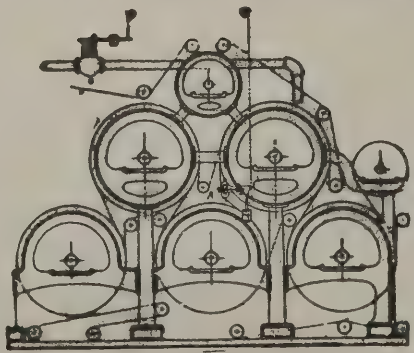

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Orr Felt & Blanket Co., Piqua, O.

Shuler & Benninghofen, Hamilton, O.

Waterbury Felt Co., Skaneateles Falls, N. Y.

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International Wire Works, Menasha, Wis.

Lindsay Wire Weaving Co., Cleveland, O.

Wisconsin Wire Works, Appleton, Wis.

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FRICTION CLUTCHES

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GRINDERS

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Pulp and Paper Trading Co., New York.

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Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

Sherman Paper Co., Watertown, N. Y.

Standard Paper Co., Kalamazoo, Mich.

West Virginia Pulp & Paper Co., New York.

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Castle & Overton, New York.

Keller Co., Inc., E. J., New York.

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RAG CUTTERS

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RAGS

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Castle & Overton, New York.

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Link-Belt Co., Chicago, Ill.

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Appleton Wire Works, Appleton, Wis

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Vol. XXXIII NOVEMBER 15, 1923 No. 4

Rubber Latex as Paper Size

Holland Technologists in Exhaustive Tests Reach Conclusions Opposite to the General Opinion of Paper Experts—A Paper Well Worth Careful Consideration

By A. van Rossem and W. Frenzyl

There have been quite a few papers and reports published within the last year or so on the use of rubber latex in the manufacture of paper and the advantages that may or may not accrue from this use. Not only American journals but foreign journals as well, particularly the English journals—for the idea of employing latex for this purpose was originated by the Englishman, Kays—have engaged in what may be called a scientific controversy regarding the value of rubber latex for paper manufacture. In the United States the opinion seems to be generally held that rubber latex has no future so far as the paper industry is concerned. The writer recently interviewed the executive officer of one of the largest paper concerns in the world and learned from him that after extensive investigations this concern had come to the conclusion that there was nothing to be gained commensurate with the cost by the incorporation of rubber latex with paper pulp and its manufacture into paper.

It would accordingly seem out of place to publish a translation of a paper on this much mooted subject. But this particular paper, which appeared in Papierfabrikant, 1923, 425-29, was written by two investigators who are connected with the Government Testing and Experimental Laboratory in Holland and its official character as well as the fact that the results have led to entirely opposite conclusions in favor of the use of the latex in paper manufacture have influenced the editors to publish it here in full. Whether this will reopen the discussion or not remains to be seen. At all events the dis- which is worth the careful attention and study of both rubber and paper technologists and executives.—Translator.

THE purpose of this investigation was to determine what effect, if any, the addition of rubber latex had on the properties of paper which was made from a pulp that had been previously mixed with the rubber milk in the manner of a size. The finished paper was examined to determine its resistance to folding, its tearing length, the elongation, the hygroscopicity, the degree of sizing quality and its writability or the ability of paper to resist penetration by ink.

The experimental investigations were carried out in the botanical laboratories of the Government Test-Bureau in Delft, Holland, and in part in the paper and cellulose laboratories of the Technical High School in the same city. Two series of tests were carried out, the second of which was used as a control of the first, so that checked results were obtained.

Making the Paper

Bleached sulphite cellulose was used in making the paper that was employed in these experiments. Rosin size and alum (papermaker's) were also used. Latex of standard quality was employed. A small experimental beater was available for mixing the pulp with the latex. One kilogram of the air-dried chemical pulp was beaten in 41 liters of water. The chemical pulp contained 7.8 percent of water. The concentration of the stock in the beater was accordingly 2.25 percent. After the pulp had been beaten for a period of two hours it attained a degree of hydration equivalent to 45-48 degrees on the Schopper-Riegler scale.

The following solutions were then prepared:

1. First, 45 grams of rosin size were dissolved in warm water and then diluted to make a volume of two liters.
2. Two hundred grams of sulphate of alumina were dissolved in two liters of water.
3. Latex containing 35.4 percent of rubber

and 20 cubic centimeters of a 20 percent solution of ammonia to the liter.

In making the papers used in the experiments three liters of the paper stock which had been beaten in the beater, thus containing 80 grams of absolutely dry chemical pulp, were in each case diluted with three liters of water and then further mixed under constant agitation with the requisite amount of the rosin solution or the rubber latex as above which was first diluted to one liter before use. After the mixture had been allowed to stand for fifteen minutes, so that the ingredients had become incorporated with one another, the requisite amount of the alum solution, first diluted to one liter, was added. After fifteen minutes the entire mass was diluted again to make a total volume of 25 liters and a sample of paper was made from the pulp to have a weight of from 55 to 65 grams per square meter.

The following different kinds of paper were made under conditions that were maintained as constant as possible, so that an equitable comparison of the properties of the papers was possible.

1. Paper which was not sized at all.
2. Paper made from stock which contained one, two and three percent of rosin size.
3. Paper made from stock which contained one, two and three percent of rubber latex.
4. Paper made from stock which contained one percent of rosin size and one percent of rubber latex.
5. Paper made from stock which contained two percent of rosin size and two percent of rubber latex.
6. Paper made from stock which contained three percent of rosin size and three percent of rubber latex.

In every case, with the exception of the paper in which no size at all was used, an equal amount of sulphate of alumina was added. This was 10 grams of sulphate to 80 grams of the chemical pulp. This is a decided excess in comparison with the amount of rosin and rubber latex used in making the paper.

Testing the Papers

The various papers that were made in this manner were tested under conditions that were maintained constant throughout the research. The results included in the tables that form a part of this report are the averages of at least five separate tests in each instance in most cases of ten individual observations. Tables A. B. and C are given below.

The results are shown in graphical form in figures I to V inclusive. These graphs afford an idea as to how the properties of the paper are affected by the use of rosin and rubber latex.

The tests were carried out in the usual manner. Only the following special points need to be mentioned. The impression of the screen or wire was clearly evident in the various paper samples. The testing strips which were used in making the tearing

TABLE A

Unsized paper with one, two, three and six percent of rubber latex in the stock; (55 to 65 grams per square meter).

Rubber in percent	Double folding test	Tearing length (on absolute dry material in meters)	Elongation in percent	Moisture in percent	Sizing quality	Writability
0	34	5435	4.0	6.9	none	none
1	26	4921	3.7	6.3	none	none
2	45	5063	4.4	5.9	slight to none	none
3	51	5092	4.1	5.4	slight to decided	moderate to good
6	106	4988	4.6	5.7	decided	good

TABLE B

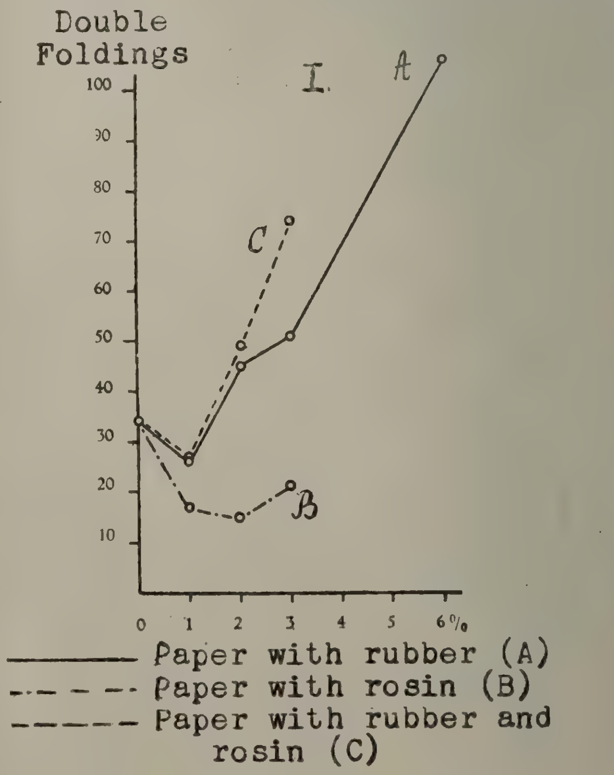
Paper without and with one, two and three percent of rosin size, but without any rubber latex; (weight 55 to 65 grams per square meter).

Rosin in percent	Double folding test	Tearing length (on absolute dry material in meters	Elongation in percent	Moisture in percent	Sizing quality	Writability
0	34	5335	4.	6.9	none	none
1	17	4488	3.4	6.8	slight to none	none to moderate
2	15	4345	4.3	6.1	slight	moderate
3	21	4164	4.4	6.3	decided to slight	moderate to good

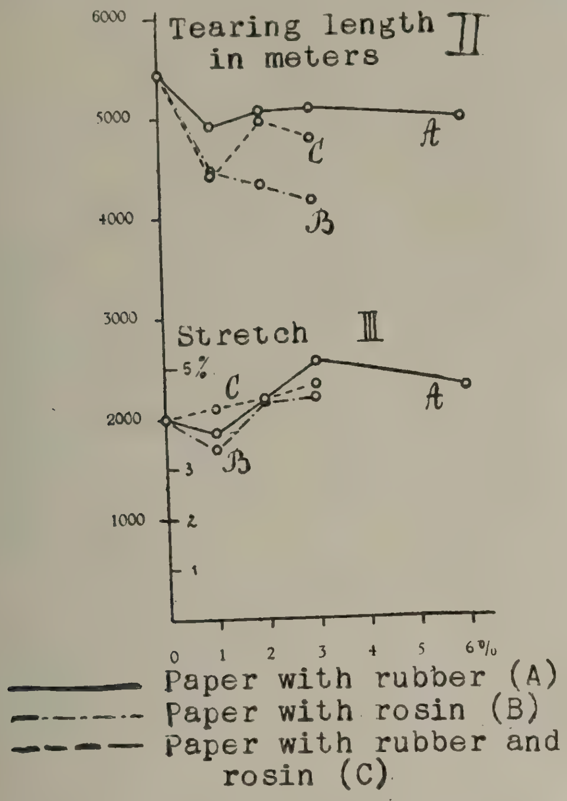
TABLE C

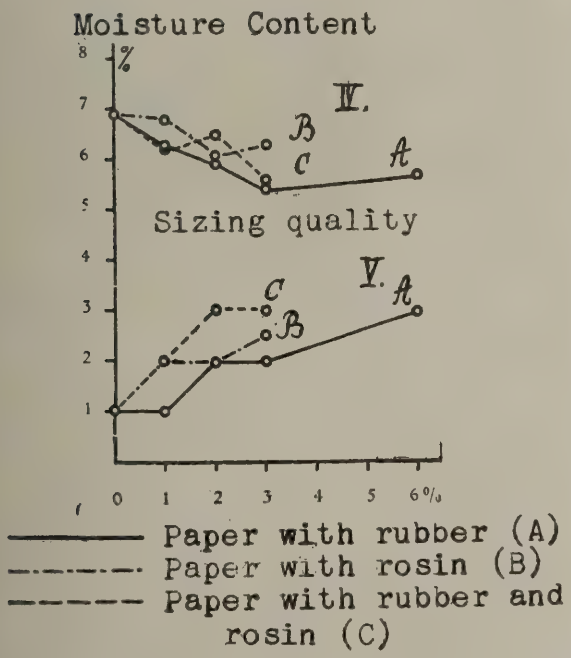
Paper without and with one, two and three percent of rosin size and one, two and three percent of rubber latex; (weight 55 to 65 grams per sq. meter)

Rosin in percent	Rubber latex in percent	Double folding test	Tearing length (on absolute dry material) in meters	Elongation in percent	Moisture in percent	Sizing quality	Writability
0	0	34	5435	4.	6.9	none	none
1	1	27	4423	4.2	6.2	slight	none to moderate
2	2	49	4969	4.3	6.5	decided	moderate to good
3	3	74	4786	4.7	5.6	decided	good



test were accordingly cut in the direction of the narrower dimension, in order to avoid having deeply impressed lines in the sample of paper which would materially affect the accuracy of the tearing test. In making the folding tests with the Schopper folder errors may be readily introduced into the determinations in this way. In order to avoid this the samples of paper were cut at an angle of 45 degrees.



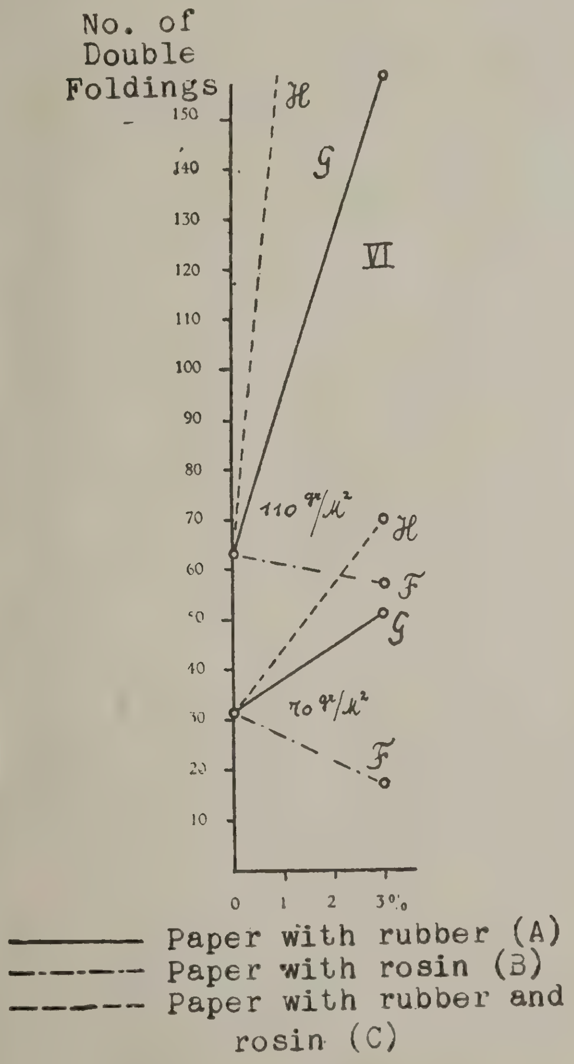


Discussion of Results

A comparison of the results obtained in the three series of experiments which have been described in detail above, will readily show the effect the addition of rubber latex produces in the finished paper. In each case a sample of paper was made without the addition of rubber latex or other sizing from the sample chemical pulp and under the same conditions. This makes it possible to tell exactly what effect is produced in the paper by the addition of the latex.

In examining the results in the tabulations under the column headed "double folding test," it will be seen that the addition of latex in proportions of over one percent has a marked effect in increasing the number of foldings that the paper will stand without tearing. On the other hand, in Table B it will be seen that the addition of rosin size has a decidedly unfavorable effect on the strength of the paper as indicated by this test.

The net conclusion that may be drawn from this part of the experiments is that the resistance of the paper is dependent on the inherent properties of the paper fiber, but that it is favorably affected by the addition of ruber latex to the paper pulp. On the other hand, when both rosin size and rubber latex are added to the paper, while the strength of the paper is increased, this increase is considerably less than where rubber latex was used alone. In other words, rubber



latex is far more suitable for increasing the strength of paper than rosin size.

When it comes to the consideration of the tearing length, another condition applies. Owing to the fact that the weight of the paper is increased by the addition of rosin and rubber latex, the tearing length is somewhat reduced by the addition of these materials. However, this decrease is less in case of the rubber latex than in that of the rosin size. This substantiates the conclusion that the strength of the paper is primarily dependent on the character of the paper fiber. It must, however, be remembered that this test is not an absolute measure of the real strength of the paper, for in arriving at the results which are given in the tabulations, consideration must be given to the weight of the paper. The increased weight, due either to rosin size or rubber latex, does not connote a correspondingly great increase in the strength of the paper as determined by this test.

As far as the elongation at the point of rupture is concerned, the addition of rosin size or rubber latex is unimportant. The results show that there is very little difference between the various papers tested. The reason for this is that this property of the paper is almost solely dependent on the character of the pulp fibers from which the paper was manufactured.

The hygroscopic properties of the papers, that is their ability to absorb moisture, are not affected in any appreciable way by the addition of the rubber latex in accordance with the results given above.

Rubber latex, on the other hand, has not so strong an effect on the sizing quality or ability of the paper to retain ink writing as rosin size. This may have been expected for rosin size is known to be the most effective of all sizing agents. However, when rubber latex is used in comparatively large amounts, which are greater than is necessary to produce good sizing properties in the paper in the case of rosin size, a sufficiently well sized paper is produced. But the increased cost of the paper will not compensate for any advantage that may be gained. Hence, it does not appear likely that rubber latex has any future as a sizing agent for paper in the place of rosin size.

Second Series of Tests

In order to substantiate the aforementioned results and also to act as a control, a second series of tests was made in the following manner.

It was thought desirable to use a paper which was stronger than the paper tested in the first series, as indicated by the folding test, as in the second case the variations of the individual results from the average value would be greater. Furthermore, in order to determine if the size had any effect on the flow of water through the wire, the degree of beating of the paper stock from which the paper was made was determined.

In making the paper the stock was beaten until it showed a beating degree of 62 on the Schopper-Rieglar scale. Four liters of the beaten chemical pulp were then diluted in each experiment with 30 liters of water and from this density of stock the sample of paper was made. This was done in the way generally employed in making handmade paper samples. The samples were transferred to a felt and dried. The air dry weight of the paper was between 70 and 110 grams per square meter.

The sizing material was added to the stock before it was diluted. Sulphate of alumina was added to the stock until the liquid just reacted acid to litmus paper. The rubber content of the stock was accordingly plus or minus three percent on the weight of the dry stock.

Four different samples of paper were made. First, an unsized paper was made containing neither rubber latex nor rosin size; then a paper with three percent rosin, another with three percent of rubber latex and finally one with both three percent rubber latex and three percent rosin size.

These papers were then examined in the same manner as has been described in the first series of experiments. The results that were obtained are given in the following tabulation:

	Number of double foldings		Tearing length (absolutely dry wt.) meters	Elongation in percent	Moisture in percent	Sizing quality	Degrees of beating
	at 70 gr. per sq. meter	at 110 gr. per sq. meter					
D. Unsized paper	31	63	6180	2.1	8.6	none	23
F. Paper with three percent rosin size	17	57	5790	2.2	7.1	decided	28
G. Paper with three percent rubber latex	51	139	571	2.3	7.8	moderate to decided	3
H. Paper with three percent rosin size and three percent rubber latex	70	509	6510	2.6	7.6	decided	29

The paper stock used in making these papers was Ia bleached sulphite pulp.

Discussion of Results

A general comparison of the results obtained by testing papers A, B and C with those of papers F, G and H shows that the conclusions which were drawn in the first instance are substantiated by the second series of experiments. The addition of rosin size and of rubber latex seemed to produce the same results in the case of the heavier papers of the second test that were observed with the lighter papers of the first test.

The conclusion that the strength of the paper is dependent for the most part on the character of the fibers of the pulp from which it is made and only to a secondary degree on the sizing or rubber latex that is added to it is emphatically substantiated by the results of the second test.

As far as the degree of beating is concerned, the addition of rosin effects an increase of from 22 to 30 percent and this increase is somewhat greater when rubber latex is used. In other words, the addition of these materials retards the flow of water through the wire.

The addition of latex to paper pulp has a marked effect on the properties of the paper that is made from this stock, even when the latex is added in the small proportion of two percent. This influence is most marked on the number of double foldings that the paper can be subjected to without tearing, on the tearing length and on the elongation at rupture. It is much more favorable in comparison with the action of rosin size on the paper. It should be mentioned that the rubber content will be smaller in air dried papers. The hygroscopicity of the paper is somewhat reduced by the addition of rubber latex. On the other hand, the sizing quality of the latex paper and its ability to hold ink are not so good as when rosin size is used.

There are, of course, quite a number of questions that remain unanswered and quite a number of problems that remain to be solved as, for example, the surface sizing of paper with latex and the results that are obtained thereby: the effect of the latex on the fastness of the color of the paper, on its fastness to light, the life of the paper, its resistance towards atmospheric influences, and on the change in the properties of paper in drying or calendering when rubber latex is added to it. All of these problems are being investigated at the present time in the Delft Institute and the results will be published later.

Determination of Latex in Paper

This piece of work was carried out in the Government Laboratories for Rubber Research in Delft, Holland, and is important in having evolved a method which can be used to good advantage in determining the proportion of rubber in paper.

Three paper samples were taken. One paper contained neither rubber latex nor rosin size, the second paper contained three percent of rubber latex calculated on the dry weight of the paper, and the third contained three percent latex and the same proportion of rosin size.

After the samples were weighed they were subjected to extraction with acetons for a period of ten hours. This was for the purpose of removing the rosin. Then the extracted paper mass, without preliminary drying, was extracted with benzol. To accomplish this the paper must be left over night in a quantity of benzol. Then the benzol solution was boiled in a flask provided with a reflux condenser for two to three hours. The benzol was then evaporated and the residue weighed. Then the paper mass was extracted again and the solution was evaporated to five cubic centimeters and mixed with one hundred cubic centimeters of alcohol. In this way no coagulation took place, but a finely divided mass was obtained, which was filtered over asbestos and then dried and weighed.

The first extraction with benzol in the second sample of paper gave a result of only 1.04 percent. As the possibility of the extraction being incomplete had not been excluded, the extraction was repeated four times. The results which were obtained by evaporation and coagulation are given in the following tabulations.

TABLE I

Benzol extraction of paper (after extraction with acetone).

	Percentage of rubber in paper found by Evaporation	Coagulation
One extraction	1.04 percent	1.04 percent
Second extraction	0.63 percent	0.24 percent
Third extraction	0.38 percent	0.03 percent
Fourth extraction	0.12 percent	0.00 percent
Total	2.17 percent	1.31 percent

From these results it will be seen that after two and even three hours' digestion the extraction is still incomplete and it is only after the fourth extraction that all of the rubber is removed from the paper fibers. This behavior of the rubber latex paper is entirely contrary to what might be expected, as the rubber is present in the paper in a very finely subdivided state and it is to be supposed that rubber in this condition would easily dissolve in the solvent.

For this reason the paper sample 3 was digested twice with benzol, the digestion lasting eight hours each time. This seemed to be sufficient, as the second digestion removed less than 0.1 percent of rubber from the paper fibers.

The results of the second test are given in table II. Three different papers were analyzed.

TABLE II

Determination of the percentage of rubber in latex paper

	Paper sample without rosin or latex	Paper sample with latex	Paper sample with rubber latex
Acetone extract in percent.	0.7	0.7	3.1
Total benzol extract (evaporated) in percent.	0.03	2.2	2.7
Total benzol extract (coagulated) in percent.	0.0	1.3	2.1

From these results it is clear that in the second case, paper made with three percent rubber latex, 2.2 percent was found by analysis, 0.8 percent being lost in the water used in beating the stock. In the paper where both rosin and rubber latex were used, 2.7 percent rubber was found, indicating a loss of 0.3 percent of latex. It is also easy to see that more accurate results are obtained by the evaporation method.

Harvey Paper Products Co. Expending

The Harvey Paper Products company has established a plant in Monroe, Wis., for the manufacture of paper baking cups, finger bowls and bon bon cups. Extension of the business is planned to include many other paper products.

The plant was removed from Waukesha, Wis., and is one of six branches making such products, three other branches being in Milwaukee.

Problems of the Paper Merchant

Western Man Discusses Business Conditions in Paper Field and Shows Necessity for Close Co-operation between Manufacturer and Merchant

By J. A. Carpenter*

President, Kansas City Paper House and Vice President, National Paper Trade Association

WHEN Lloyd George arrived in New York last week, he said in practically these words—"This is certainly God's country."

When I look around at the evidences of prosperity of the gentlemen sitting in front of me, this goes through my mind: Is this prosperity that I see the results of 1918 and 1920, or is it the results of the business of 1923? How much of this prosperity was made on paper and how much of it is money in the bank?

There are three classes of people in business in the paper line of both manufacturers and merchants:

1—Those who are handling their business in a promiscuous fashion, meeting and cutting prices of all their competitors, not knowing where they are going and where they will end.

2—Those who have a semi-cost system, a semi-business policy but that take a lot of business they know in the bottom of their hearts that they are not getting any money on.

3—The man who knows his cost, has a fixed price, a fixed quality of merchandise and a line of customers who want this class of business.

Which class are we in, each one of us?

Necessary to Get Together

The paper business as I see it today is in a good deal the same condition as almost every other business. Very few of either manufacturers or merchants are making very much money. The executives get a monthly sheet showing the amount of business done and they are rather pleased at the amount of sales. They next look at the profit column and their faces drop. Then they look at the cost of doing business and they are very much surprised, although they saw practically the same figures last month.

Gentlemen, what are we going to do to remedy this?

My idea is that the one solution is more such meetings as we are having today. Get closer together; know each other's troubles; strive to work them out in a way that will be a help to both the manufacturer and the merchant.

The situation in the East so far this year seems to have been very much more advantageous than it has been in this territory. Labor is practically all employed at high wages. The demand for a better class of goods has been fair and money has seemed to be fairly plentiful. This condition has not prevailed in the Central West for several reasons.

The Far West, I think, has fared better than the East or Central West. As I understand, statistics show that there are 5,000 people landing in California every morning, and suppose every one of these people carry only $100 with them to spend; it means a half million dollars a day. Is it any wonder they can sell butcher's manila and fine papers at prices which seem very high compared with eastern prices? We would all be inclined to think this would be a wonderful place to be, but I understand that they have their troubles as well as we do in our localities.

So let's see if we cannot work closer together, the merchant and the manufacturer, whereby we will both receive a reasonable return on our investment and a reasonable compensation for the labor put into the paper business.

I think you would all be interested in hearing the results of a questionnaire sent out to 100 representative merchants of practically all sections of the United States. These answers give a bird's-eye-view of the conditions of the paper merchant in reference to stock on hand, his ideas as to future market conditions, and the outlook for business in his particular territory. First, I will read the questions and then the answers:—

1. Have you placed your orders with the mills covering your requirements for the next—

(a) 30 days	35
(b) 60 days	48
(c) 90 days	16

2. How are your stocks as of October 1 in relation to last year of the same date—

Larger	33
Smaller	16
About the same	51

3. What is the outlook in your territory for the paper business this fall?

Fair	78
Very Good	21
Bad	1

4. What are your ideas as to the paper market for the fall months?

Declining	30
Firm	68
Advancing	2

Some of the Merchant's Troubles

It has been brought to the attention of the merchants by the Cost department of the National Paper Trade association, and this applies from coast to coast, that 35% of the orders received every day are for $5 or less and 60% of the orders that are received every day are for $10 or less. The former cannot begin to pay the expenses of handling and the latter will just about break even. When you understand the expense of doing this part of the business which is, of course, all done out of the warehouse, which represents at least 80% of our capital investment, you can readily understand that this is a serious situation.

These are some of the things that make it very essential that the national associations of both manufacturers and merchants work closer together than ever before, particularly for the reason that there does not seem to be much opportunity of reducing the expense of doing business. As we know each other's business better, we can work in more perfect harmony. In fact, that is the very object of having meetings like this one today. None of us want to go on record as going backward, so let's push ahead for better things in the future.

I would like to present briefly some of the difficulties that confront the paper merchant today, and I know our members present will be pleased to hear any suggestions from the manufacturers as to how these difficulties may be overcome.

---

*Read before Joint Conference at the Fifth Annual Fall Business Conference of the American Paper and Pulp Association, Chicago, October 8 to 11, 1923.

One of the problems confronting the wrapping paper merchant is—

(a) How are we going to take care of the 250 tons of Kraft that is coming in on us from the new mills that are just starting?

(b) How can certain manufacturers reconcile themselves to the policy of certain mills which are carrying warehouse stocks in various distributing centers? Is this not a direct usurping of the legitimate functions of the paper merchant?

Let me point out clearly that we have no quarrel with any particular mill whose policy is to sell direct to the consuming trade, but only with those who are supposed to distribute their product through the legitimate paper merchant. These are some of the things that the merchants meet today, that makes us wonder who our friends are and who we should give our car load orders to.

The improved condition of the farmer which has occurred in the past two weeks makes it look as though they were very much better off than they thought. As I understand, they will receive about 22% more for 1923 crops than in 1922. This being the case, why should not the paper manufacturers and merchants have a very much better year than 1922?

Do you know of any paper merchant or manufacturer who will make twenty-two per cent more than last year? If you do, trot him out; I don't know where he is.

There are some other things that I think look encouraging even to the paper merchant for the balance of the year. I think the demand, the amount of money the laborer (and believe me, we are all laborers, too) is going to have to spend for Christmas, is good. There is not a man in this room but will make a better Christmas present to his wife this year than last, and it is going to take some paper to wrap them up. It is going to take a lot of paper to do the advertising, and it looks as though the prospects for the paper business are in pretty fair shape.

Paper Makers' Felts*

Importance of Selecting Proper Stock and Care Required in Making Points in the Care of Felts in the Paper Mill—Some of the Causes of Felt Failures

By A. H. THEURER
Superintendent Appleton Woolen Mills

ONE of the most important phases in the manufacturing of machine clothing satisfactory for the exacting requirements of the paper industry, is the selection of our raw wool stocks.

Our problem is somewhat simplified in that we use no cotton or wool substitutes such as shoddies, noils, garnetts or waste of any description, confining ourselves to straight, virgin wool.

While wool is wool, there is a vast difference in various types grown, each having its own characteristics. It may interest you to know that different kinds of soil as well as varying climates in different parts of our country alone, affect the color, elasticity, and general working properties of the wool.

For instance, wool grown in Wyoming has a much brighter color than wools grown in many other states because of the soil and is especially desired by knitters. Wools grown on cut-over land from some sections are not as choice as they might be because the fleece becomes more or less loaded with burrs and other vegetation while the sheep ramble through the brush. Wools of another section have the characteristic spiral burr which to the felt maker is very objectionable in that each individual burr breaks into a great many small pieces during the carding process and is spun into the yarn as it cannot be satisfactorily removed. Many wools from still other sections are more stained in character, while the best domestic wools come from the central western states.

Requirements for Felt Making

The principal characteristics which a good felt wool must possess are:

1. Length of Staple—The strong, coarse yarns require the longer, coarser stapled wools such as are used in the manufacture of wet machine felts, while medium grades of felt require a shorter and finer staple and the fine super grades a still shorter and finer stapled wool.

2. Strong, healthy Staple—Sometimes defective wools are offered which have a weak spot in the staple, indicating that the wool came from sick sheep. The so called cotted fleece is another result of sickness in the sheep which causes the wool to become matted together and unfit for felt stock. It is such defective wools as these that we are careful to eliminate in the selection of our stocks, using only the strongest staple obtainable.

3. Evenness of Staple—Inasmuch as many different sorts can be made from one fleece, you may know how carefully the wool must be sorted, for to obtain a strong, even yarn, free from lumps, the wool used in that particular yarn must be of uniform length.

4. Elasticity—The earlier or lamb wools are not only somewhat kempy but have coarse tips and not enough blood or character, are not as elastic, and do not possess the proper fulling qualities essential in felt yarns, while other wools seem dead, possessing no loftiness or elasticity of any kind. To use such wools as these would be the height of folly.

5. Free Wools—That is, they must not possess spiral burrs or an undue amount of chaff as this vegetable matter can only be removed by carbonizing. This process, however, makes the wool harsh and much less desirable for felt requirements. This is a very common characteristic of Australian, South American, and some other types of foreign wools.

6. Color—Good white wools are always preferrable to stained wools as the latter do not make as presentable a felt and are also apt to be weaker in staple. Therefore, in manufacturing each different grade of felt, we must select only such wools as are best adapted for the different grades of felts. Thus, by always buying the best grades of wools grown, we never find it necessary to hold any post mortems on account of off grades of wools which we thought we might have slipped through as a cheapener.

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* *Read before Superintendents association at Papermakers' convention, Appleton, Wis., Oct. 25-27, 1923.*

Having selected and graded our wools, our next care is to remove all animal oil or grease, sand and dirt, from the wool in order that it may be properly processed. This is done by scouring in a liquor especially prepared for this purpose. Care must be used for if the bath is too strong, the wool will become tendered and if too hot, become harsh, losing much of its elesticity. This is also true if dried at too high a temperature. If the stock is agitated too much, it becomes matted together, producing most unsatisfactory results in subsequent processes.

Following the scouring, the wool must be blended, that is, certain wools must be mixed together so as to obtain the blend best suited for the particular grade of felts into which this yarn will go. In picking this blend, the mix is treated with a soluble oil so as to make the fibers more pliable and elastic, preventing the breaking of the staple in the following process.

Manufacturing Processes

The carding of wool consists of a series of combings, the purpose of which is to comb out the wool fibers in order that they may be paralleled as much as possible. It is very necessary that this work be very carefully and thoroughly done in order that the ends be all of uniform size and properly condensed. Each set is carefully weighed and must not vary over three grains on each fifty yards tested. Unless the stock is properly carded, it would be practically impossible for the spinning department to obtain the required effect in the yarn. As the ends come off the card they are wound on jack spools and then ready to be spun.

In spinning, the work is done on machines containing 360 bobbins, each bobbin taking care of one end from the spool, winding the yarn onto itself, immediately upon each draw receiving the required amount of twist. The twist of yarn is of the utmost importance, determining to a large extent the amount of stretch in the felts as well as the finish to be obtained. To secure a hard, strong yarn such as certain kinds of felt require, the yarn must be twisted all it can but not beyond the point of cracking. On the other hand, if a good soft, heavy cushion nap is needed, less twist must be put in, in order that we may properly raise the required amount of nap. The yarns are also tested for elasticity and breaking test, as each yarn must come up to a certain standard test which we have determined as most satisfactory for each size of yarn made.

Following this process, the yarn is prepared for the weaving, being spooled onto large spools from which it is wound off onto the beamer in warp lengths and then transferred to the beams. Great care must be used to maintain proper tension in beaming in order to avoid any slack or tight ends, either of which would cause defects in the finished felt. After the ends are drawn through the heddles, mounted on harness frames which control the pattern or weave and through the reed which maintains the proper position of the threads while weaving, the job is mounted in the loom, ready for weaving.

The weaving of the felt requires the very closest kind of attention, in order to insure the proper texture at all times. Some irregularities may not show up until the felt is finished, causing the felt to be rejected on its final inspection. In such cases we always assume the felt will make better blankets than paper. The operator must be constantly on the alert for irregularities which might result in slack edges, cockles, variations in width, etc. This is true whether we weave them endless or otherwise.

The felts when woven go to the splicing and burring departments. The splicing of felts is a most exacting process and can only be done by skilled workers. The fabric is then carefully inspected so that every misweave, broken thread, or other irregularities may be corrected before fulling.

The fulling or felting of felts is far more exacting than one might think. When you know that felts are woven double the finished width or better, you will appreciate something of the exactness with which this work must be done. Notwithstanding this enormous shrinkage, of approximately fifty per cent, the felt manufacturer is required to finish down to ordered width, being allowed a three inch variation over this size. If the felt is under the size specified, it will not fit the machine for which it was intended and if more than three inches over width, it is necessary to refinish, getting the felt down to the proper width. Therefore, when we are requested to finish a felt one inch wider or narrower, you may know that you are not giving the felt maker the easiest kind of a problem.

In fulling, the felts must be wet up a certain amount and run at regular speed under as near a certain estimated temperature as possible in order to get best results. After being properly washed to remove the oil and dirt, thoroughly rinsed to remove all trace of soap, and extracted, the felt is ready for the finishing process.

The finishing consists of stretching and drying the felts on a steam heated cylinder under a required tension so as to properly finish to the exact width and length. It is here that any imperfections show up, as the felts are given a most thorough inspection during this process. If the felts are to be singed or napped, this is done and they are then carefully wrapped and sent to the stock room.

Each felt is covered by a complete record, showing not only the exact lots of wool used but also all operators working on the felt as well as time required and condition of felt in each stage of processing. This record is indispensable in case any changes are desired at any future time.

Care of Felts at the Mill

At the request of your Mr. McBain, let us take up a few points on the care of felts after delivery to the mill.

Felts as you know, should be kept in a clean, dry place. Clean because the moths and even rats attack soiled felts quicker than clean ones, and dry to prevent mildew. Even although securely wrapped, mildew will destroy the felt if placed against a stone or brick wall for a period of time. An experiment proved to us that felts securely wrapped and kept in a clean, dry, well lighted room, collected no moths over a period of many months even though they had no naphthaline flakes in them. The flakes, however, if changed from time to time, are a good preventive. In some store rooms, felt bundles are slipped into canvas bags and tied, affording double security against moths.

Even in the felt mill, great care must be used to see that the felts are not torn by catching on rough objects in being taken to and from the stock room.

Grease from journals and bearings cause spots which may give trouble later by crushing at this spot as the stock will collect here, causing the felt to fill up.

The cause of felt troubles may be classified under two heads: 1—Chemical. 2—Mechanical.

Under the first, we find deterioration most rapid at high temperatures. This is especially true when washing felts. Should the change of temperature be too great shrinkage results or, if too strong a chemical or soap be used, the felt will be injured.

It has been proven that a felt run straight through will produce a greater tonnage than one run at irregular intervals, as the slow drying out and standing of the felt on the machine shortens the life to a greater or lesser degree, especially should there be any press rolls which have not been lifted from the felt. It is for this reason, therefore, that the felt maker as well as the paper mill superintendent

(*Continued on page 23*)

Lake States Forest Station

How the New Station Aims to Help Solve Reforestation Problems for the Middle West—Taxation of Land Another Question for Solution

By Raphael Zon*
Director Lake States Forest Experiment Station

I HAVE no set paper, and I am somewhat sorry that my friend Porter drafted me to speak to you about the Lake States Experiment Station so early in the game.

The station came into existence last July, legally, that is the fiscal year, but it started really about September 1st, so you can see that it is nothing but just a baby. It is just learning to walk. I would have liked to come to you a little later to speak about the experiment station. So many enterprises start out with a great sounding of trumpets and they then peter out and you never hear of them again.

I would have preferred to talk to you about what we had done rather than what we are going to do, yet I cannot help it, and as long as I am here, I think I will tell you something about hopes, aspirations, and probably the difficulties which we are going to face, and probably have to come to you to help us out of in many ways.

How It Came Into Being

As a matter of fact, the people here in the lake states have the right to know about the experimental station, for they were instrumental in bringing it about. We in Washington knew what it would mean to the timber interests, but at the present time there is a wave of economy, and the director of the budget is a despotic gentlemen and does not want to add a cent to the appropriation. The Secretary of Agriculture is sympathetic, and thought it was not the right time to ask for an increase in the appropriation, and so it was not recommended to him, but the people in the lake states were so persistent they have bombarded the Senate and Congress and an additional appropriation has been passed on the floor of the house, so it is your station, and you have a right to know about it.

You know what agricultural experiment stations are and what they have done for agricultural practice. Forestry experiment stations have to do for forest practice what agricultural experiment stations have done for agriculture. After all, forest crops and agricultural crops both are products of the soil. The only difference is that the agricultural crops can grow, most of them, in one year, but forest crops, even if you take the measley jack-pine and poplar, take at least thirty-five or forty years.

We have come to look upon forests as a crop; we are just about reaching the stage where forests as a mine have passed. We have been mining now for quite a number of years, and you know the results. I personally believe forestry is coming and coming soon, especially now in the lake states. It may not come as the result of a shortage of timber, but it must come as a physical proposition simply as a problem of agriculture. After all, if you analyze, wealth is produced by the soil. You can add labor, ingenuity to the raw products and add value to it, but the raw materials are produced by the soil.

There was a time when the people of the United States thought that the ultimate use, the final use, of all the land, was agriculture, that the real development began only when you cleared the land and put it under agriculture. We have done that for quite a number of years and what has been the result? We have in the lake states probably fifty or sixty million acres of idle land, producing nothing in the market for settlement. There are probably one hundred and fifty million acres of such cut-over land in the southern states, producing nothing on the market for settlement. Some of that land is pretty good agricultural land. The fact is there are no settlers to take up the claims.

The Secretary of Agriculture wanted to find out how much land would be needed for different purposes in about thirty years from now when the population of the United States will be about one hundred and fifty million people. That will be in 1953. A representative from the Forestry Service, and other bureaus trying to size up the situation figured it out, and all that we could figure up was that in 1953, when the population of the United States will be about one hundred and fifty million people the country will need only thirty-five million acres additional land. That is all that will be needed. You know what you have in the lake states alone more than that now in the market for settlement, to say nothing about the southern states, etc.

It stands to reason those lands will not be absorbed in agriculture. At the rate at which Northern Minnesota is now being cleared and settled, it will take a century to absorb only the best part of the land, and you know that thousands of acres are added every year to that vast area of cut-over land, and so the lake states have now accumulated a large domain of idle waste land producing nothing.

Waste Land Fatal to Nation

There is no state, no nation, that can really last very long which has enormous areas of waste land. It is not taxable property, no wealth is produced, and what is happening is that the burden of taxation is gradually shifting to the cities, because that country does not produce anything worth while.

I was much interested in the controversy going on in Michigan not long ago between Wayne county, which is Detroit, and the rest of Michigan. Wayne county saw they needed a greater representation in the legislature. The rest of the country thought they did not need it and Wayne county, Detroit, refused to pay taxes, and Michigan was up against it. Detroit forced a special meeting of the legislature to reconsider and get a fair representation. That country does not produce any wealth that is not taxable property, the cities assume greater burden of taxation, and the cities begin to dominate the country. It is the old story that he who pays the fiddler can order the dance.

So, as I say, for simple physical reasons, each state will have to do something with that idle land. Now, I do not want to say what a senate committee may or may not do, but I have a hunch that after the hearings of the senate committee which were held throughout the country, there may come a recommendation for a federal appropriation, probably a considerable federal appropriation, for reforestation.

The government may come to the state of Michigan, for instance, and say, "Here is a hundred thousand dollars. Are you going to duplicate it?" and let us use that money for reforestation purposes. There will be probably a big reforestation program in the lake states, and that is one of the tasks of the forest experiment station, to prepare the ground for it.

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* *Address before Woodlands section at Fall Business Conference, Chicago, October 8 to 11, 1923.*

Now, with an appropriation, we cannot plant more than say twenty-five or thirty thousand acres in the lake states. That will make only a small impression on an area of several million acres that have to be planted.

We have to decide what the plan will be. Second, to make it as a business proposition, we want to know what kind of land to plant to certain species, and what you can expect from that land in trees of growth of wood per acre per year. One of the first things we are doing now is to make a study of what we call the yield of such species as jack-pine, poplar, birch and some other species in the lake states. We ought to be able to say that on such-and-such land the jack-pine will produce so much a year, it will cost so much to put it on the land. You can figure out whether it is justifiable or not. The first thing we are planning to do is to make yield studies of several of the species in the lake states.

Another problem confronting us is the question of slashes. In the past the question of slashing has been approached entirely from a legal, legislative standpoint. In Minnesota they have passed a state-wide brush disposal law which was interpreted as pertaining to slashing. That law has not worked out very well. Often the way you carry out a law determines whether it is a failure or a success, and it happened to be a failure.

In order to burn brush, we know perfectly well, in our national forests, you have to be right on the spot at the right time and have a large supervisory force to see that it is done properly. If you don't have those provisions it is better not to burn the brush. What happened in Minnesota was this: there was a mandatory provision that all brush should be disposed of and chiefly by fire. After slashings, a foreman, sometimes early in the spring, would stick a match into the slashing and it would not burn. It would be a little too wet. He would let it go. It would get dry. Then he would stick another match in and it would be too dry. It killed the second growth and caused serious fires because the state authorities didn't have the force to supervise proper burning of the slashes.

We want to approach the question of slashes not so much from the legislative standpoint, not as a measure to enforce because it is required by law, but from the standpoint of utilization.

We are approaching the point where our chemical plants, the pulp plants can utilize the slashes, and we want to incorporate that in the forest production.

Problem of Taxing Forest Land

Now, there is another problem in which we are interested. I don't know whether you know it or not, but the state of Michigan has practically passed a law of forest land taxation. It passed both the lower and the upper house, and I understand that in Minnesota there is now a provision also, a change, in forest taxation which has passed the upper and lower house and is ready now for the people. I think in a few years both of those taxation laws, making it possible for the owners to hold cut-over land for second crops will become an established fact.

With Michigan on one side and Minnesota on the other, how long will Wisconsin hold out? I believe that a revision in the tax laws with regard to our forest land will be an accomplished fact within the next few years.

Michigan last year appropriated something like two hundred and twenty-five thousand dollars for fire protection. The timber man will be really confronted with the plausible and perfectly economical problem of what to do with his land so as to provide for future crops. It does not concern so much you pulp men, but here in the Northern penninsula of Michigan they have some of the hard wood forests, the birch, beech, maple, the basis of all the furniture industry of the lake states. Those hardwoods, maple, birch, beech, are probably two or three hundred years old. If cut clean, those people will never be able to grow again the same size of trees.

That means certain kinds of timber will go out of existence entirely, and then you may all feel that cutting certain trees below a certain diameter is a losing proposition, but they are afraid of the tax assessor, for fear if they leave some timber on the ground the tax assessor will tax it as virgin timber, and there you are. Therefore, they prefer to cut it clean, slash it and burn it than let it lay idle, revert to the state for taxes, or some other way.

It becomes very interesting as to whether clear cutting of those hardwoods is really the best thing. I personally believe that by cutting only partially, leaving for instance, ten or twenty per cent, it will prove to be a much better paying proposition, for in this way they can maintain that old growth which is so valuable and the prices for which will go up probably in the next few years.

It will be possible to maintain a supply of that old timber, and so the question of how to cut the timber into hardwoods will be a problem we must try to solve.

The people in the upper peninsula of Michigan were so much interested that they are locating now a tract of timber for use, about three thousand acres in extent, and are willing for us to take a portion and cut it over according to out plans. Some of it will be cut over clean and some will be cut so as to leave twenty or ten per cent of it standing.

I personally believe that the lake states are better off than the northeastern states from the standpoint of pulp. Here in the lake states there are two species which will be the redemption of the lake states, jack-pine and poplar. I wonder if you know that somewhere about thirty or forty miles from Duluth there is a company, a pulp company, that has a jack-pine forest of thirty thousand acres, and is buying young growth just about two or three feet in height. They have a forester, and they are spending thirteen cents per acre for fire protection, more than the government is spending for the finst fir on the coast.

The jack-pine and poplar provide ample raw material right here in the lake states.

I myself am very skeptical as to the private timber owners cutting this year and then planting and waiting for any returns. As an economic proposition it is too long. It is almost too expensive a thing for the state to do, but here is the poplar and the jack-pine, two species. Let them be grown for about thirty to forty years. They can be drawn on at the rate of about a cord per acre per year. That is something feasible, something that the timber owners can afford to do, especially if they have a large timber tract to begin with.

Here is a tremendous source of raw material for the pulp. And I wonder if Dr. Rue is here. I think he can tell you a lot about this. I think the pulp proposition will revolutionize the forest problems in this country.

I sometimes dream that in about fifteen or twenty years from now the old method of taking a log and ripping it up into sawboards will be considered a very crude method. Every bit of wood will go into the grinder or digester and come out as a fiber and then be made into any product you want—a board as light as the cork, or as heavy as stick, or it may be made into any other pulp, paper or artificial silk that you desire. I am somewhat rambling, but I often think that really the age of woods is not behind us but ahead of us. We are all too prone to think that wood is something relative to a more primitive civilization. Now is the age of concrete, steel, electricity; I think we are just entering the age of wood, the age of cellulose. I was interested to see how the chemists are just discovering what a wonderful, unexplored field the chemistry of cellulose is, and not long ago the papers were full of information about a professor from Columbia, I believe it was, who was at a meeting of chemists and said he had discovered or developed a very practical method of converting the sulphite liquor of the the pulp mills into alcohol and using the residue for some fuel which would run the pulp plants. The possibilities of cellulose are tremendous.

Possibly with the exhaustion of gasoline and coal we do not need to worry as long as we have cellulose. We have our wood which we could use for the future.

Here we have tremendous areas of idle, cut-over land that cannot be absorbed in agriculture for several generations, and here the chemistry of the pulp comes in which can utilize the fiber for many different purposes, and it seems to me that the outlook for forestry and growing wood is very healthful.

I have been interested in analyzing and looking over the timber situation in the world as a whole. There are something like fifty-six billion cubic feet of wood used in the world; more than half of it is used by the United States. The consumption of wood within the last fifty years has doubled. It is increasing. Now, with the United States using more than half of all the wood in the world, there can be no chance for us, if we run out of wood, to get any from outside. We must grow the wood right here, we have the land to grow it on, it is economically possible to do it. I personally believe that the prospects for growing wood profitably, especially the faster growing species, is a perfectly economical and possible thing for the private owner.

May I end with this request? The Lake States Experiment Station is very new; we are merely getting our bearings; we are trying to formulate our problems. I could sit down and probably make out a long list of problems which ought to be investigated, but I am afraid they would be a little too academic. We want to devote our energies to problems worth while that are urgent, the things the industry needs, and I would like very much, Mr. Chairman, if the Woodlands section would appoint a committee that would help us to formulate those practical problems upon which we could work, and upon which they would like the Lake States Experiment Station to work, and we would meet with the committee and go a long ways with our funds, which are limited, to meet those requirements and help out our people and other wood using industries in the solution of their problems.

Paper Exchange to Have Market Service

By **John R. Mauff**
Executive Vice President

IN keeping with the modus operandi of all regularly established and leading exchanges and Boards of Trade, the paper Industries Exchange of Chicago and New York will, on November 1, take over and conduct its own market service department and statistical bureau. It will be maintained for the exclusive benefit of its membership, but considerable of the information will be made available for public use through the daily press and trade magazines, because it is the intention of this exchange to broadcast whatever it may possess bearing on the industry itself and the future welfare of those engaged therein that can in any way be a source of enlightenment to the trade and the public it serves. Suggestion and recommendations will always be accepted in good faith and acted upon whenever practical and helpful in the direction of improving the service.

An exchange is the eye of all true business.

It sees in its operation, stabilization, through legal price determination, with equalization of territory and fair opportunity to all.

It replaces the blindness of the old system, of trading in the dark, which created demoralization of thought and consequent speculation as to final results.

Other Associations Asked to Join

It is cooperation—the opportunity for a public service, without trespassing upon the restraint of trade law. We have seen a wonderful demonstration of this coöperative spirit in the conduct of the business of one of the prominent members of this exchange acting as host recently for the Folding Box Manufacturers' National association at Kalamazoo, Michigan.

It visualized and exemplified perfect cooperation in association and community work, and in the getting together on common ground of both capital and labor, in social work and service. Why should not this same spirit and opportunity prevail in the conduct of the business itself as between the various members of the industry?

In order to correct some erroneous ideas that have been set afloat by the uninformed, we may be permitted to say that this exchange does not come in conflict nor dispense with the established trade associations. The largest grain exchange in the world, in Chicago, has been in operation many years; nevertheless in its membership we find the millers' association, the feed dealers' association, the feed manufacturers' association and many others.

It is unfortunate perhaps that such associations may not legally avail themselves in any way of what is commonly known as "price information." This can only be accomplished through an association where buyers and sellers have equal opportunity of representation and where such price information may be obtained only through the exchange system of trading by public outcry, thereby establishing prices that correctly represent market values.

With this thought in mind it is our suggestion that the members of the various associations join this exchange, and bring in their entire association work and their secretaries, combining this valuable work with what the exchange exclusively has to offer.

In conjunction with this there is also the suggestion of incorporating a research department. No one will say there will not be developed various other uses to which paper products may be put and there will be more practicability in this suggestion in conjunction with the paper industry than in various other research departments of other industries where an endeavor of this kind comes face to face with antagonism and uneconomic principles which are difficult to overcome. In the wake of the use of paper products there is always economy and efficiency and entire practicability. Therefore, a research department would develop progress along proper lines unhampered by any thought of probable natural difficulties to be overcome, following discovery of new ideas for the economic utilization of such paper board products.

There has also been false propaganda to the effect that this exchange will dispose of the necessity for salesmen in the industry. There can be no doubt about an exchange such as this changing most decidedly the principles of salesmanship as at present understood and conducted, because price determination on an exchange does away with the necessity on the part of the salesman to either engage in the cutting of prices or the guessing of values.

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Michigan Superintendents Meet

The Michigan Division of the American Pulp and Paper Mill Superintendents held their regular meeting on Wednesday evening October the 24th at the Park-American hotel, Kalamazoo Mich.

F. A. Smith of the Sorg Paper Co. of Middletown, Ohio, spoke on "What I Saw in the Paper Mills of Europe." He stated that the tendency was to have small beaters and lots of them in Europe. The average beater was 300 pounds. Very few mills had Jordans, this work being done by beaters. Their equipment was old, and had practically no speed, but they made their money by watching small things. Labor is very cheap, so they can employ men to pick over stock which in this country, would run the cost up to an enormous figure.

Those present were: C. G. McClellan, Kalamazoo Veg. Parchment Co.; A. G. Wightman, Hawthorne Paper Co.; S. W. Simpson, Otsego, Michigan; C. O. Thorne and LaVern Hotelling, Watervliet Paper Co.; Elmer East, Arthur Camp, Michigan Paper Co.; O. E. Kiaer, Buck Kiarer & Co.; J. A. Aull, Sorg Paper Co.; Jacob Kuss, Frank Johnson, George Pountain, Albert Lidner, Allied Mills; Theo. W. Dunn, Detroit, Mich.; W. A. Yule, F. C. Huyck Sons Co.; Alfred Bryant, E. H. Gilman, Felix Pagenstecher, O. F. Fisher, Bryant Paper Co.; A. W. MacVie, Kalamazoo, Michigan; F. W. Vickery, London, England; Jacob Parent, Western Board & Paper Co.; Michael Redmond, Kalamazoo Paper Co.; C. L. Harter, Rex Paper Co.

Supply Firm Expands

The business of A. De Angelis, Inc., of Brooklyn, consolidated with the Marquardt-Hewitt Corporation of 250 Front Street, New York. Ben De Angelis and Andrew De Angelis, heretofore of the former concern, will join the latter organization and all business of the De Angelis firm will be conducted from the offices and warehouse of the Marquardt-Hewitt Corporation.

A. De Angelis, Inc., is one of the oldest paper mills supplies concerns in the New York trade. Founded more than 35 years ago, it has been at the forefront in the paper stock trade, and has operated one of the largest warehouses in this line in Brooklyn.

The Marquardt-Hewitt Corporation was organized about a year ago, and has made rapid strides since it started in business. It operates a large warehouse at 250 Front street, running through to Water street, and with the addition of the Messrs. De Angelis and their experience and business clientele to its organization, the company's facilities and staff have been increased to enable it to greatly expand its operations.

Nine Months' Paper Exports

While paper exports from the United States during 1923 have not consistently increased from month to month, says the paper division of the Department of Commerce, it is interesting to note that on comparing the total value of the exports for the first nine months of 1923 with a similar period during 1922, this years' shipments are approximately $1,500,000 in excess of those for last year. Increased shipments of paper board and strawboard account for about one-third of the gain made during 1923, shipments of these products having increased $514,921 in value over 1922.

Exports of playing cards, which rose from $413,174 in 1922 to $903,143 in 1923, and of book paper, which rose from $2,065,249 to $2,380,811, also show notable gains although in the case of the latter item the increase was due to better prices rather than to a larger volume of shipments.

Exports of wrapping papers also exceed slightly in value those of 1922, but as in the case of book paper, this is a result of better prices, the amounts shipped having actually fallen off.

Exports of newsprint and writing papers have declined both in quantity and value during 1923.

Among the lesser items on the paper schedule, the following gains have been made during 1923 as compared with 1922: greaseproof paper, $61,290; surface-coated paper, $57,645; toilet paper, $47,366; towels and napkins, $38,327; wall board, $129,103; hangings, $126,229; carbon paper, $101,495; envelopes; $36,277; papeteries, $35,096.

Exports of photographic paper have declined $21,115 in value as compared with last years' shipments, although the amount shipped is somewhat larger.

Aside from the items mentioned above paper bags are about the only product to show any great decrease during 1923 as compared with 1922, shipments of this article having fallen off $145,238. Exports of cover paper, bristols and bristol boards, sheathing and building papers, and cigarette paper and books were also less in 1923 than in 1922.

Belgo Construction Achieves Record

Belgo-Canadian Paper company's new groundwood unit is in operation in Quebec province, something like a record having been achieved in the speed of its construction.

The contract was not let until the middle of August, and now forty tons of groundwood pulp daily is being ground by the new machine.

The pulp is now being marketed as surplus, but will be all used when the second of the new newsprint machines gets into operation about the end of November.

One of the two new machines is running and is turning out about 96 tons of paper daily. As the machine was rated at only 75 tons a day the extra production is a factor of real importance from the standpoint of profits.

The company has also completed a spur track to bring in logs by rail. The logs are dumped into the river at the plant and carried through the mill in the same manner as the logs floated down the St. Maurice.

Hubert Biermans, vice-president and general manager of Belgo, arrived from a trip to the continent last week. He went over on personal business but while in Belgium cleaned up the final details of the transfer of the company to Canadian control.

Paper Mills For Pacific Coast

Colorado interests have sent engineers into the Shrimp bay regions, near Ketchikan for the purpose of selecting a water power site for a paper mill, while California capital has sent engineers to the Thomas bay district near Petersburg, Alaska.

In addition to this, the California people have an option on a site within the city of Seattle for the erection of a paper mill, and if the plans mature, it is said that they are ready to expend $10,000,000 for a modern mill.

Other capitalists are looking into the feasibility of erecting a paper mill on the south fork of the Stillagumish river, Snohominish county, Washington.

It is expected that out of the four ventures, one or more will be carried to a finish.

The engineers who have gone to Alaska expect to have their report ready sometime during November.

The American Tissue Mills at South Hadley, Mass., will soon take over the plant of the B. F. Perkins & Son, Inc., located at Holyoke, Mass., as a step towards the plans for expansion by the former concern. The American Tissue Mills have also awarded a contract for another plant to be built in Willimansett, Mass., work on which has already been started.

Harold B. Wadsworth

What promised to be a joyous family reunion at the home of Harold B. Wadsworth, the well known paper maker and engineer, in conclusion of an extensive trip abroad, proved a very sad affair.

Mr. Wadsworth sailed from Tokio, Japan, on the S. S. Empress of Russia and reached New York Monday, October 22, apparently in the best of health. In a few days he developed a severe attack of some puzzling ailment and was rushed to the Willard Parker hospital of this city where he passed away on Saturday, November 3. Mr. Wadsworth's sickness is attributed to the poor food and water conditions in Tokio, due to the recent disaster in that country. In making his connections on his trip home he was obliged to stay over for three weeks at Tokio to await the sailing of the steamship to the United States.

Harold B. Wadsworth

Mr. Wadsworth left the United States for Japan on July 21 last to supervise changes in different paper mills in Japan. He was credited with installing the first high speed news mill at the Tomakomai mill on the island of Hokkaido. At the time of the earthquake in Japan he was superintending the work at his plant. His further mission in Japan was to book future orders for machinery and look after interests which had been established there for over seven years.

Born at Harrisville, N. Y., Mr. Wadsworth began his career as a paper maker at three dollars a week at the age of 13 in the C. R. mill of the International Paper company at Glen Park, N. Y. By strict attention to business he worked his way to prominence. At the age of 26 he was connected with the St. Regis Paper company at its Deferit mill.

About this time he was sent to France by the Bagley & Sewall Co., of Watertown. He remained in France for one and one-half years and in 1909 Bagley & Sewall Co., sent him to a new mill in England where he remained until 1911, when he went to Japan. Mr. Wadsworth was at one time superintendent for the Warren Parchment Co. mill at Dexter, N. Y.

In the many years spent in the paper industry in the United States, Canada and abroad, Mr. Wadsworth gained a host of friends and acquaintances who will mourn his loss. He was greatly honored in the trade for the efficient manner in which he conducted his business.

Mr. Wadsworth is survived by his wife, Jessie B. Wadsworth, a son, Leo. J. Wadsworth, and daughter, Elizabeth Joan Wadsworth. It has been announced from his New York headquarters that his business will be carried on as usual by his wife, who is well acquainted with his business methods and is well able to look after his interests. The paper mill supply end of his business will be carried on under the supervision of a brother, Charles A. Wadsworth, who has been handling this department for several years. There will be no change in the business policy of the firm, it being the aim of the successors to carry on the business in the same efficient manner.

Oppose Canadian Embargo

Numerous Maine pulp and paper manufacturers appeared before the Royal commission at St. John, N. B., recently to protest the placing of a proposed embargo on pulpwood with a view to forest preservation, and vigorously opposed an embargo. These manufacturers hold concessions in the province.

Gray B. N. Keith of the Atlantic Pulpwood company opposed, declaring it would mean the loss of substantial revenue to farmers owning timberlands and that it would prevent American capital from operating in New Brunswick. He declared it was not the pulpwood crews, but careless fishermen and lumbermen who were logging that caused the forest fires.

Edgar Rickard, president of the Pejepscot Paper Co. said that his company, which manufactured sulphite pulp and paper, obtained its chief supply from Canada, owning 600,000 cords in New Brunswick and 300,000 more cords elsewhere in Canada. An embargo would cut off 30,000 cords from Canada annually. The tracts were located where it was impossible to develop water power to operate a plant. The wood is shipped to Bath, Me. and the cost is from $4 to $5 per cord for shipping.

Development of Oregon Mill

The saw mill unit of the Columbia River Paper Mills corporation's plant at Lebanon, Ore., has begun sawing lumber and is now employing a crew of 100 men.

The mill is modern in all respects; the machinery, which will cut 125,000 feet in eight hours, is driven by electricity.

The management will not use the best wood materials brought to the mill for the manufacture of woodpulp, but a good grade of lumber will be manufactured. Also later a box factory will be added to the plant and boxes manufactured. On account of the large fruit industry of the Pacific coast the demand for boxes the last few years has far exceeded the supply. Only the poorer grade of logs will be ground into pulp.

Work on the main paper building foundations is being rushed so that there will be no delay when the structural steel begins to come in from the East. The plant when completed will furnish employment for not less than 600 men.

George Kerr, Downington, Pa., an official of the Kerr Paper Mills Co., of that place, died, Oct. 18, as a result of injuries sustained when he was attacked by a bull at his farm two days previous. Mr. Kerr was a breeder of fancy Holstein cattle, and was just opening a stall for the animal when it turned on him. Several ribs were broken and one lung punctured.

The Smith-Goesling Paper Box Mfg. Co., has been incorporated in St. Louis, Mo., by August Goesling, 22 Benton Place, R. F. Smith, 5177 Vernon Avenue, and others.

Construction News

Deferiet, N. Y.—The St. Regis Paper Co., Watertown, N. Y., has preliminary plans in preparation for the construction of a new plant at Deferiet. It will consist of five individual mill units, with power house and auxiliary buildings, and is estimated to cost approximately $500,000, with equipment. It is expected to ask for bids in the near future.

Elsas, Ont.—The Continental Wood Products Co., has tentative plans under advisement for the construction of a new pulp mill in this vicinity. The reported cost is placed in excess of $150,000.

Grand Rapids, Mich.—The Grand Rapids Calendar Co., has filed plans for the erection of a two-story addition to its plant, 80x116 ft., estimated to cost about $22,000.

Kalamazoo, Mich.—The Valley Paper Co., Press building, is planning for the installation of equipment at its plant, including paper machine, beaters, and kindred apparatus. Tools will also be purchased for a machine shop at the at the plant.

Chicago, Ill.—The South Side Paper Stock Co., 5838 Throop street, has tentative plans in progress for the rebuilding of its two-story and basement works, 50x100 ft., recently partially destroyed by fire. The reconstruction is estimated to cost $22,000. A. Epstein, 2001 West Pershing road, is architect. Robert Colbus is president.

Seattle, Wash.—The Industrial committee of the Seattle Chamber of Commerce is in contact with a paper manufacturing company in California, whose name is temporarily withheld, relative to the construction of a large paper mill on site near the city. The project is expected to mature at an early date.

Biron, Wis.—The Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., has preliminary plans in preparation for the construction of a new machine shop at its works at Biron, estimated to cost close to $45,000, including equipment.

High Falls, N. Y.—The International Paper Co., 100 East Forty-second street, New York, is perfecting plans for the construction of a new hydro-electric generating plant on the Saranac river, near High Falls, reported to cost close to $45,000. The plant will be used for power service at the company mills in this section, as well as for commercial light and power supply. A dam 100 feet, high will be constructed for the water head.

Quebec, Que.—The Saint Regis Pulp & Paper Co., has acquired property at Cap Rouge, near Quebec,, heretofore held by the Canadian National railways, and plans to use the site for the erection of a new pulp and paper mill. The proposed plant will consist of a number of units, estimated to cost to $3,500,000 including equipment.

Plattsburg, N. Y.—The Saranac Pulp & Paper Co., has taken over the former local plant of the Lozier Automobile Co., and will remodel and improve the structure for a new mill. It is expected to install machinery and operating equipment at an early date. H. P. G. Nostrand, formerly connected with the Stevens & Thompson Paper Co., Greenwich, N. Y., is general manager of the new company.

Piqua, Ohio—The Orr Felt & Blanket Co., has tentative plans for the rebuilding of the portion of its works recently destroyed by fire with loss reported at $200,000, including equipment and building, the latter being leased from the Pioneer Pole & Shaft Co.

New Companies

Brooklyn, N. Y.—The Protex Products Co., has been incorporated with a capital of $25,000, to manufacture and deal in paper products. The incorporators are A. Stone, M. Frost and S. Friedman. The company is represented by Konnoson & Konnoson, 170 Broadway, New York.

New York, N. Y.—The Schimek-Walsh Paper Co., has been incorporated with a capital of $50,000, to manufacture and deal in paper products. The incorporators are F. M. Walsh, and I. R. Elman. The company is represented by P. G. Burroughs, 30 Church street, New York.

Norristown, Pa.—The Burnett-Reese Paper Co. has been incorporated with a capital of $30,000, to manufacture and deal in paper goods. J. Harding Reese, Norristown, is treasurer.

Financial

Springfield, Ill.—The Springfield Paper Co., has filed notice of dissolution under state laws.

Brooklyn, N. Y.—The Active Paper Co., 1141 De Kalb avenue, has filed notice of increase in capital from $14,000 to $21,000.

Buffalo, N. Y.—The Arrow Paper Box Co., has filed notice of change of name to the Paprus Products Co.

Nipigon Mill to Be Operated

The Nipigon Pulp and Fibre Mill at Nipigon, Ont., will re-open with a twenty-four hour shift on Dec. 1, it was announced last week by officials of the company which is to operate it.

The mill will produce ground wood only, and will employ upwards of fifty men throughout the winter.

Engineers have been on the job for the last two weeks making a complete overhauling of the machinery and buildings.

So far as known the mill will be operated under the name of the Nipigon pulp and fibre mills, until a new company, if any, is formed. It was stated by one of the officials of the St. Lawrence Pulp and Paper company that the mill was not being taken over by that organization but rather by a combination of interests associated with the St. Lawrence company and the Guaranty Investment Corporation of Montreal.

New York Trade Notes

Ralph Bretzner, formerly with the Perkins-Goodwin company in the wood pulp department, and more recently with J. F. Patton & Company, of New York, of which company he was secretary and sales manager, is now sales manager of the Becker Woodpulp Company of America, Inc., importers and dealers in wood pulp of 501 Fifth avenue, New York. Mr. Bretzner succeeds Frank E. Dunaway, who recently resigned from the Becker organization.

Ira S. Reynolds, formerly sales manager of the Claremont Paper company and the Groveton Paper company, has joined the organization of Mead, Patton & Company, Inc., of 342 Madison avenue, New York, as sales manager for the Deerfield Valley Paper company's output of kraft paper. This mill has been in operation since the first of this year and is bringing a second machine into production in the near future.

Josephson & Jacobson, Inc., is the name of a new concern just organized and incorporated under New York State laws, with office and warehouse at 19 Howard street, New York, to pack and deal in all grades of cotton cuttings used by paper manufacturers. The corporation's capital is $10,000, and J. Jacobson is president and S. Josephson is secretary and treasurer.

The Lion Boxboard company, jobbers in paper box boards, has moved from 507 Broome street to 455 West Broadway, New York, where it is carrying a complete stock of boards, featuring news and chip grades. The new quarters of the company are appreciably larger than the former location.

PAPER

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Support the Good Work

THE duty of carrying on an energetic campaign to rouse the people of the United States to a realization of the necessity for a definite and aggressive forest policy seems to devolve largely upon the paper industry.

There is a popular superstition that paper manufacturers are largely responsible for the denuding of our forests, especially in the East. A sufficient answer to this charge is the bald fact that the paper industry consumes less than 4 per cent of the total amount of wood cut each year.

In spite of its position near the bottom of the list of wood consumers the paper industry is at the top of the list of organizations carrying out a definite program of forest preservation and restoration.

Not only is it carrying on a program of its own but it is active in arousing the entire country.

Naturally, this work centers in the largest organization of papermakers, the American Paper and Pulp association. It is fortunate indeed that the executive secretary of this association is himself a trained forester.

By appearing before the committee appointed by the U. S. Senate to investigate the forestry question and by talks on forestry before numerous organizations in different parts of the country, Dr. Hugh P. Baker is spreading greatly needed knowledge of the seriousness of the situation and the means that must be adopted to remedy the difficulty before it is too late.

In a bulletin recently issued by the association Dr. Baker reviews the situation from the standpoint of the whole nation, citing not only the great increase in the cost of lumber, pulpwood and cordwood but the inevitable danger that the supply will soon reach the vanishing point.

He summarizes under four heads the steps that must be taken in order that definite results may be attained.

He says, "The first and most important step to be taken in protecting, preserving and increasing our forests is to stop forest fires. Several of our States have made fine progress in applying methods of protection of the forest from fire.

"The second step is to change present wrong methods of taxing forests and forest lands. Our forests have been wrongly taxed down through the years, with the results that more forests have been wasted in this country through bad methods of taxation than have been used by the entire furniture industry, for example.

"Instead of taxing the forest crop annually, forest lands should be taxed on the basis of yield; that is, there should be a low general tax on the land as there is on agricultural land, and then when the forest is cut, there should be a tax on the yield of wood.

"A third step necessary in bringing back our forests and making them productive is to begin reforestation upon lands which have been so denuded that they will not come back to forests even if they are protected from fire.

"Finally the public should demand that Congress adopt a sensible national forestry policy. We haven't as yet the interest and support of a sufficiently large part of the public to secure action by the Congress."

In the language of the legal profession, "the issue is joined." In other words the summary of Dr. Baker shows clearly what must be done if the entire nation are to be protected in a sane and reasonable way.

Reforestation and preservation is no longer a question of sentiment—it is an imperative necessity. The happy-go-lucky attitude of the American nation must be changed and we must follow in the footsteps of the nations of Europe in conserving our forest resources.

There is much to be done. Not only must several states be induced to adopt needed legislation to make the restoration of our forests possible and practical, but Congress must be aroused and a national policy must be adopted that will encourage in every way the conservation of our most important national asset.

It is the duty of public spirited men, whether in the business of making paper or in any other business, to do everything in their power to support the action of the American Paper and Pulp association in arousing public sentiment until definite action is secured on this important question.

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

Activity In Pulp Wood Market

Increased contracts for pulpwood from all sections of the country are the feature of the report of the Woodlands section of the American Paper and Pulp association on current pulpwood conditions.

On Sept. 1, Dec. 1, and Feb. 1 of each year this section tabulates the figures on pulpwood under contract in the chief paper-making sections of the country, and the 1923 figures show a larger number of mills reporting than ever before. An increase in the price is found in all grades of pulpwood and in all the districts reporting.

Stocks on hand in the New England and New York regions are smaller than a year ago, accounting possibly for the larger contracts placed. Eight New England mills, with stocks on hand of about 185,000 cords less than last year, have under contract 399,000 cords, as against 363,800 cords at the same time last year. The same is true of the New York mills, thirty-four of which report a total of 464,900 cords under contract as compared with 345,000 cords at the same time last year. These mills have stocks on hand of 505,700 cords as against 706,170 cords at the same time last year.

These figures are significant in view of the charges of Canadians that there has been a rush to import wood since the threat of an embargo was made. In each case the total of stocks on hand and under contract are less than at the same time last year. In the lake states, where the wood is closer to the mills and where stocks are not carried so long a time in advance, the percentage of wood in stock or under contract to the total consumption is smaller than in the northeast. Increased stocks and contracts in the lake states are accounted for by a larger consumption in 1923 than in 1922.

Prices for the wood are in every case higher than a year ago. In New England, for instance, the price of rough wood averaged $14.80 this year, as against $14.25 a year ago; and the most notable increase in cost is for the rossed wood bought by New York mills, for which the price is $23.70 this year as against $22.14 a year ago.

Wisconsin Protective Association

Officers of the new Wisconsin Forest Protective association are pushing ahead the detail of perfecting the organization, and it is probable that every paper and pulp manufacturer in the state will soon be enrolled in the membership. While those present at the recent organization meeting are interesting mills not represented at that time, Secretary B. T. McBain is at work on the formulation of a constitution and by-laws which may in a large measure be based upon the form already so successful in the regional fire-preventive associations of the Pacific Northwest.

In connection with the purpose of the new organization the following statement by one of the officers will be of interest:

"Most of the mills in the State of Wisconsin are represented in this association, and the plan is not only to protect what forests still remain but to aid in the planting and growing of new forests on the cut over lands. Wisconsin now has only about ten years timber ahead, and while it will take from thirty to fifty years to produce a new crop, if the present growing trees are protected from forest fire there is a possibility of making the present supply not only last longer but also close the gap where, at present outlook, there will be no timber available."

A most significant feature of this conference was that it was held with prominent state officials present, all of whom believed that the proposals for future activity were essential to the permanence of the industry in the state. The campaign for forest protection and for legislation to aid in perpetuation of the forests will be with the full sympathy and encouragement of the state officials in charge of the related administrative activities, so that Wisconsin, noted for its political progressivism may be one of the states to take an early stand for forestry laws which will keep the paper mills within the state indefinitely, instead of allowing them to be driven out by the decline of timber resources.

Another important phase of the new association's activities may be the organization of similar state associations of pulp users in other important paper-making states, to put the paper and pulp industry on record in each of these states in favor of definite forestry legislation and policies.

D. C. Everest, of the Marathon Paper Mills Company of Rothschild, president of the organization, is especially enthusiastic over the possibility that the Wisconsin movement will spread and achieve results in other states.

In addition to the officers elected as previously reported in PAPER, the following have been added as directors, forming, with President Everest, Vice-President Delbridge and Secretary McBain an Executive Committee: Guy Waldo, Flambeau Paper Co., Park Falls, Wis.; O. Bache Wiig, Wausau Sulphite Fibre Company, Mosinee, Wis.; F. E. Sensenbrenner, Kimberly-Clark Company, Neenah, Wis.; C. L. Cecil, Cornell Wood Products Company, Cornell, Wis.

Gipsy Moth Barrier Zone

There is probably not a timberland owner in the eastern section of the United States who has not at some time given serious consideration to the question whether state and national effort to wipe out the gipsy moth would eventually succeed. In view of the fact that the gipsy moth caterpillar when full grown can feed on pine as well as hardwood, owners of softwood have not considered themselves immune from danger. Yet if all our forests in the northeast were coniferous forests, the gipsy would quickly die out. In the infant stage he is dependent upon easily digested food.

The total area now infested by gipsy moth has reached the rather startling figure of 30,000 square miles. New England is fairly well covered with this obnoxious pest, and he is gradually making his way in from the seacoast in a westerly direction.

There has recently been established a "Hindenburg Line" or barrier zone from Long Island sound to the Canadian border along Lake Champlain, and along this line of defense the battle against the gipsy will be waged by every means at the command of the state and national governments.

H. L. McIntyre, state supervisor of gipsy moth control along the new defense line on land lying within the State of New York has established five temporary weather stations to determine how far and in what directions the recently hatched caterpillars may be carried on the gentler air currents. Other experimental work is going forward at a rapid pace.

A heavy infestation has recently been discovered on the eastern border of Lake Champlain and some anxiety is felt for the safety of the forests on the northern end of the defense line. It is to be expected that the gipsy will launch his attacks on the wings as well as along the center of the line. If he goes through New Jersey he will find plenty of food trees on which to live in the early stages of his development; and if he gets into the Adirondack forest, where an abundance of hardwood as well as softwood exists, he will be equally dangerous, and the fight will be severe.

Coolidge Interested In Forestry

President Coolidge has manifested his interest in the forestry problem by asking Senator Moses of New Hampshire to confer with him on this subject. They had a detailed talk on the forestry situation Oct. 20, and Senator Moses told the President of the interest manifested in the different states during the tour of the Senate committee of which Senator Moses is a member.

The President declared to visitors that he has reports indicating that more trees are destroyed each year by fire than by the axe, and he feels personally that the whole reforestation problem is a matter of the greatest importance.

Some of us will recall those crisp remarks which Mr. Coolidge used to make before the annual forestry conferences in Massachusetts when he served as lieutenant governor and later as governor in the Bay State. There is encouragement in the fact that the President comes from a state where considerable progress is being made along the lines of equitable forest taxation. Massachusetts is trying out a forest taxation law based on the yield at time of cutting.

New Booklet On National Forests

"National Forests of the Southern Appalachians" is the title of a new booklet just published by the U. S. Department of Agriculture, calling attention to the rapid development of forestry in West Virginia, Tennessee, North Carolina, and Georgia.

There are seven national forests in the Southern Appalachian region embracing about 1,500,000 acres. Most of this acreage is either now forested with both virgin and second-growth timber or is capable of growing new timber crops.

All of the Appalachian national forests have been built up under the provision of the Weeks law passed by Congress in 1911. The primary purpose of this law is to protect the headwaters of the great navigable streams east of the Mississippi river by maintaining forests on their watersheds. Acquisition of land suitable for national forest purposes has proceeded steadily under annual appropriations by Congress, though such appropriations have been seriously curtailed since the beginning of the World War.

Copies of the new booklet may be had free upon request to the District Forester, U. S. Forest Service, Washington, D. C.

Western Office For The A. P. P. A.

A movement has been started by middle western paper and pulp mills to have a western office established by the Woodlands section of the American Paper and Pulp association. The subject was discussed at the recent Chicago meeting of the section, when it was pointed out that the placing of the Woodlands section office in the west, with Secretary O. M. Porter in charge, would constitute the branch office of the American Paper and Pulp Association which so many of the western mills are desirous of having near at hand. Active interest in forestry on the part of the western mills was urged as a reason for adoption of such a policy.

Bagging The Forest Fire

The New York State Forestry association, Albany, N. Y., tried out a unique method for fire prevention this year by distributing 200,000 paper lunch bags, bearing on one side a fire notice printed in bold type. Distribution of the bags started in the spring of the year among campers and fishermen, who were requested to "carry your lunch in this bag the next time you go into the open to fish, camp, hike, or hunt." During the summer the distribution reached the hotels and lunch rooms in the mountains. The lumbering companies then took it up and supplied bags to the men in the woods, and when the hunting season opened this fall the campaign was extended to reach the sportsmen.

The association announces that it still has several thousand bags on hand and these can be had in packages of 500 for postage only, on the understanding that they will be distributed among men who work in the woods. These bags are five pound size, and were made up and printed by the Union Bag & Paper Co. The first two hundred-thousand were provided by the Utica Duxbak Corp., a corporation member of the forestry association.

While H. D. Cochran, assistant chief of public relations in the Denver office of the United States forest service, addressed the Colorado Agricultural College at Fort Collins, Mrs. Margaret Wallace Chipley of the Denver office was in Pueblo talking forestry to the school children.

Up to November 1, there were only 57 fires in the national forest of Colorado, as compared with 105 for the corresponding period of 1922. The acreage burned decreased from 271 to 62, the damage from $31,125 to $744. Human agency fires decreased from 73 to 25.

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New Developments in Paper Making

Bleaching Cellulose

The process of bleaching cellulose which is patented in United States patent No. 1,470,566, and which is assigned to the Brown Company, is described as one in which the material is super-bleached by subjecting the bleached material to the action of chlorine to increase the whiteness without any substantial change in the strength or beating qualities of the material.

* * *

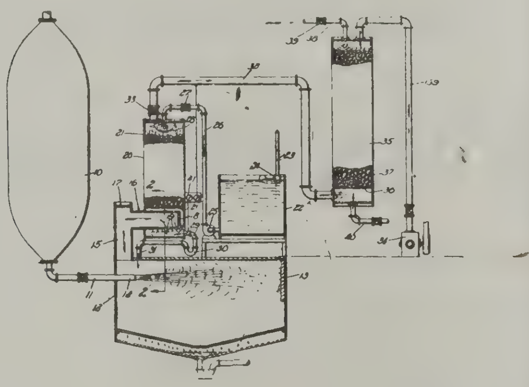
Treatment of Paper Pulp

The invention which is patented in British patent No. 202,575 refers to a method of treating wood pulp, waste papers and similar fibrous paper-making materials in which the material is subjected to a sawing action followed by a kneading action; also a method of treating wood pulp and the like in which the material, after a combined sawing and kneading treatment, is conveyed pneumatically to beaters and other machines. The apparatus which is used for sawing the wood consists of a number of oblique rotary saws engaging with stationary bars or teeth and disintegrating bars revolving in a housing carrying stationary bars which engage with the revolving bars.

* * *

Recovering Waste Sulphur Gases

United States patent No. 1,469,958 is concerned with an apparatus and process for recovering the waste sulphur gases (sulphur dioxide) from blow-pit vapors and gases. These are conducted through a mass of interstitial surface material in counter-current flow with cold water. The gases are cooled and the vapors are condensed by direct contact with the water. The free unabsorbed sulphur dioxide is recovered as well as that absorbed in the heated water.



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Adhesives From Cellulose Waste

A review of the various processes whose purpose it is to convert sulphite cellulose waste liquors into adhesives is given in the British publication, Chemical Trade Journal.

In one process it is pointed out that the strongly acid liquors deposit adhesive solids on exposure to the air. The mixture may be partly neutralized with lime or calcium carbonate and evaporated down. This is patented in United States patents Nos. 1,311,215 and 1,311,222.

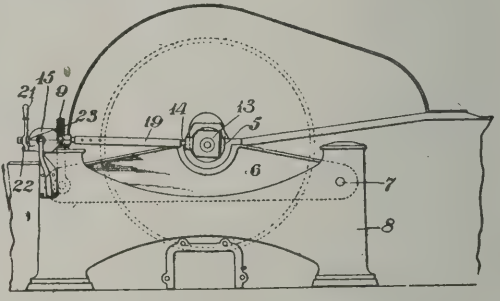
In order to improve the color and adhesive power of the substances derived from the sulphite cellulose waste liquors the liquors can be evaporated under reduced pressure with the addition of acetate of lead, sodium hydrosulphite or sodium phenolate. The evaporation may also be carried out in the presence of organic bases, acids or aldehydes. This is patented in German patent No. 334,870 of 1918.

Water resistant qualities can be imparted by incorporating casein or resinates. Thus, cellulose pitch (five parts) is treated with magnesium oxide (two parts) and the product is incorporated with casein (2.5 parts) and sodium fluorid (one part). This process is patented in German patent No. 353,570 of 1919.

* * *

Raising and Lowering Beater Rolls

A pair of levers are attached to the beater roll and shaft, as seen in the accompanying figure. These levers are provided with screws, which carry worm gear nuts for engaging these levers with a worm shaft.



A telescopic shaft is connected to the worm shaft and is driven by the beater roll shaft. The rotation of the beater thus serves to raise or lower the beater roll. This apparatus is patented in United States patent No. 1,471,480.

* * *

Metal Coated Paper

British patent No. 183,143 is concerned with a process of manufacturing metal coated paper. In making this paper bituminous substances are used as binding agents instead of glue, casein or starch.

The new binding material has the great advantage that it increases rather than detracts from the luster of the coating. The bitumin can be used with solvents which do not evolve oxygen so that the coating may thereby be protected against oxidation.

* * *

Lignin by Hydrochloric Acid Process

A method of preparing lignin by the hydrochloric acid process is described in the journal, Naturprodukte, 1923, pages 24 to 35.

Lignin prepared according to Willstaetter's method by treating pine wood with highly concentrated (45 percent) hydrochloric acid, yields furfural when subsequently distilled with hydrochloric acid. Experiments indicate that the carbohydrate from which the furfural is derived forms an integral part of the lignin molecule. This carbohydrate is removed only by the prolonged action of cold 45 percent hydrochloric acid or by hot dilute acid. The carbohydrate is identified as arabinose, and is present to the extent of approximately 4.5 percent of the lignin.

Among the products of fusion of lignin with alkali, catechol and formic acid were identified. The lignin prepared from pine wood contained 14.68 percent of CH_3O; after freeing it from the carbohydrate the methoxyl content was 15.2 percent. The content of carbohydrate-free lignin in pine wood is 27.5 percent.

Paper Exchange Market Service

(*Continued from page* 13)

Under this new order of things salesmen will be obliged to consider the psychology of time and place, personality, geographical location, square dealing and service. It takes no genius to sell goods on the basis of price cutting unless we are to dignify that system of clairvoyance by calling mind reading, business.

The exchange is the weather vane, the needle of the compass, denoting the direction of values, regardless of the storms, calms, or the unexpected that so frequently arise without notice or warning. It is the barometer to guide the industry to a sane destination. Each group is an entity in itself and it elects its chairman and secretary and formulates, for the purposes of the exchange system of trading and market service, the exact requirements for the betterment of each particular group.

The exchange itself has but two things to consider in connection with group recommendations—the first is legal status and the second is practicability. So far the groups have met with no difficulties in this direction.

Daily Market Reports in Newspapers

A membership in this exchange permits trading in either New York or Chicago, or both, and where members find it inexpedient or difficult to have personal representation orders for execution may be transmitted to either the secretary in Chicago or the manager in New York, without additional expense. In this way the exchanges are available to the use of members regardless of their geographical location; and in addition to all this, arrangements have been made whereby a special column, properly edited, is now a part of the daily routine of the Chicago Journal of Commerce. Through this medium arrangements will also be made to have these quotations and operations on 'change, both for Chicago and New York, appear in the metropolitan morning press with the same assurance of consideration and publicity as that obtainable by any other exchange.

By bringing in the associations to this exchange together with their membership and the formation of a combination of service, including price determination and the research work, there will be welded together for the benefit of this industry the strongest possible chain of valuable service that could possibly be obtainable; and it is the only legal means whereby this entire service may be offered to the industry, including price determination and distribution of price information.

This latter does not indicate a distribution of prices on information received from the members of the exchange, but on the actual transactions, bids and offers that must manifest to our members and to the public and to the buyers and the sellers equally alike the determination of actual values, about the correctness of which there can be no doubt. This is the only vehicle in which the industry can ride with full legal assurance of safety, and the establishment of the principle of cooperation, which in itself means the direct application of the Golden Rule.

Scott Co. Buys a Brand Name

The Scott Paper Company of Chester, Pa., has taken over the exclusive right title and interest in the "Walton" trade mark label formerly owned and controlled by the Peerless Manufacturing company of Norristown, Pa., and used by them on toilet paper rolls.

The assignment of this "Walton" trade mark to the Scott Paper company was made under date of October 16th, 1923."

The Dixie Paper Mill Corporation has been chartered in Norfolk, Va., with a capital stock of $25,000, by C. A. Long, president; E. R. Wilcox, secretary, and others.

GREEN-BAY WIRE WORKS

Green Bay
Fourdrinier
Wires

Can't Be Beat

MADE OF

**BRASS
AND PHOSPHOR
BRONZE**

You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

Write us for prices and samples

GREEN BAY
WIRE WORKS
GREEN BAY
WISCONSIN

Doings in Canadian Paper Field

Labor Shortage in Mills

After visiting all the pulp and paper mills in Northern Ontario, Hon. J. W. Lyons, minister of lands and forests, and party have returned to Toronto with the information that all of the plants are suffering from a labor shortage. The department, moreover, has applications from companies for the erection of ten or eleven new pulp mills or enlargements to existing plants. "If these requests are granted," said Mr. Lyons, "I do not know what will become of the pulp supply of the province."

In a speech at Fort William the minister, pledging the Ontario government to a policy of development in Northern Ontario, said that the greatest menace was from fire and that his department was going to use more efficient methods of protection. Better protection would be given at less cost. Ontario had lost a million acres of forest in three years, sufficient to make a strip of timberland one mile wide from Halifax to Winnipeg.

In Ontario there were now $140,000,000 invested in pulp and paper plants and by 1925 this will have grown to at least $190,000,000. It was hoped by the government that it would be able to link up the establishment of the new pulp mills with new settlement areas, each industry serving as a nucleus for an agricultural settlement. The government had propositions from ten or eleven firms seeking help for pulp limits, but the minister was of the opinion that no pulp or paper company should receive any special privileges from municipalities and should be able to stand on its own without help from the cities. The government did not want to be mixed up with any family feuds between municipalities.

Aftermath of Becker Failure

The unexpected failure of Becker & Co., the well known British pulp and paper firm, has had a disquieting effect in Canadian pulp and paper circles, for not only was Sir Frederick Becker interested in at least one important Canadian company, but his firm had important connections as agents for others.

The Saguenay Pulp and Power Co. has a claim of about $1,000,000 against Becker's; but it is understood that by far the larger part of this will be recovered without loss. Fifty per cent of this claim goes back to 1921 when 18,000 tons of pulp under contract was not taken.

In a statement on the affairs of the Saguenay Co. Senator Beique says that Becker & Co. had been acting for several years as selling agents for the Chicoutimi Pulp Co., the main subsidiary of the Saguenay Co. Last year Chicoutimi, through the Beckers, entered into a contract with a number of English paper mills for a supply of pulp to be taken over a period of ten years on the basis of cost plus a reasonable profit. These contracts, however, cover only a portion of the out-put of the Chicoutimi mills, and there is now keen demand for their products. It seems that a committee of management was arranged to see that the product was up to standard, and on this the Beckers had representation. Differences of opinion arose between the directors and Sir Frederick Becker, and termination of the contract with the Beckers as selling agents had been contemplated some time ago. Action on this matter was hastened by the failure.

The statement concludes: "The president and board of directors of the Chicoutimi Pulp company do not consider that the cancellation of the agency affects the contracts entered into by the company with responsible paper mills of England, and they look on the severance of their relations with Becker & Co., Limited, as having some advantages, among which will be the saving of the larger part of commissions amounting to about $160,000 per annum."

It is also announced that control of the Bay Sulphite company, in which Sir Frederick Becker was interested, passed to Canadian hands some time ago.

American Interests Get Clarke Holdings

The first mortgage bondholders of Clarke Brothers, Limited, of Bear River, N. S., have voted to accept the offer of Chicago and Milwaukee interests for the purchase of the company's properties. By this arrangement the present first mortgage bondholders are to receive second mortgage refunding bonds of a new company to be organized, equivalent to their holdings in Clarke Brothers, Limited, and in addition for each bond held a $50 share of 7 per cent cumulative preferred stock of the new company. The bonds bear interest at 7 per cent, and mature in 20 years.

The new company will operate under a Canadian charter and will proceed at once with operations. It is understood that they are very strong financially.

"Forest Fires Burn Pay Envelopes"

The question of reduction of the fire menace insofar as it affects pulp and paper manufacturing in Canada is receiving the attention at last of Canadian labor leaders.

Tom Moore, who is president of the Canadian Trades and Labor Congress, is calling attention to the loss to workers in unemployment in the mills and in the woods operations of the pulp and paper interests through the forest fires.

Among other pithy statements he makes is this one: "We burn down forests and think we are only destroying some corporation's timber. The more vital fact is that a burning forest burns up pay envelopes."

He points out that the workers should protect the forests, as by so doing they are protecting their jobs, and asserts most of the fires are started through carelessness, such as lighted matches, tobacco, and camp fires. He asks each worker to think the matter of forest conservation over very carefully, as it is a matter of vital importance.

The plant of the Mattagami Pulp and Paper company at Smooth Rock Falls, Ont., has undertaken several improvements of late and is now running to capacity in the production of unbleached sulphite pulp. Several economies have been effected and production costs brought down to a reasonable figure, so that the organization has been able to show some profit on their operations of late notwithstanding the fact that the market price for pulp has dropped from $5 to $10 a ton during the past few months. The Mattagami company has built up a good sales organization which has kept them well supplied with orders. The company has practically no pulp on hand unsold at the present time.

It is reported that the Saint Regis Pulp and Paper company has obtained certain lands from the Canadian National Railways at Cap Rouge, west of Quebec, and that it will erect a pulp mill at a cost of $4,000,000 where 800 men will be employed. The Saint Regis company has important limits on the north shore and at other points of the province.

Paper Makers' Felts

(*Continued from page* 10)

is interested in the actual tonnage produced rather than the time required to put on and take off, for it is the tonnage cost which determines the actual cost of the felt to you.

An example of injury to felts from chemical action came to our attention some time ago when we were called to see a felt which had gone to pieces. When we saw it, there was no mistake as to whether or not it had, for it was literally in shreds. At our request, two other makes of felts were put on with like results, proving the trouble to be local, either chemical or mechanical. To make the story short, it was found that the stock had not been properly neutralized with the attendent result that the acid in the furnish caused the felt to go to pieces within a few days after being put on.

It is a well known fact that deterioration is much quicker in summer not only because of warm water being used, but also because of vegetation in the water which decomposes, rotting the wool fiber in the threads, this being all the more rapid where unfiltered water is used, for under such conditions, the felt will fill up much more quickly.

Mechanical sources of trouble are many and may be classified under two heads: 1.—Excessive tension. 2. —Abrasion.

Were it possible to record the actual tension on felts, we feel certain that they would last longer, for this test would show when the tension was becoming excessive, making it possible for you to relieve the condition. The more rolls a felt travels over, the greater the tension as the felt must act as a belt. Therefore, the necessity of seeing that all bearings are operating as smoothly as possible. This is very apparent on boxboard machines where as many as five, six, and seven cylinders are in operation, all of which are propelled by the felt.

The added stress of the whipper is an additional strain to contend with as is also the case with suction boxes which act as a brake upon the travel of the felt.

The wear due to abrasion is an equally important factor. The whipper should it become worn or roughened in spots as is the case with wooden ones or from loose screws or nails, has its apparent results. Rough spots on rolls soon cut or chaff the thread while the tops of suction boxes shear the nap on such portions of the felt as travels over the roughened part of the boxes. Occasionally we see a used felt which has a light streak worn clear around the felt, running in a straight line, indicating that undue pressure or wear was brought to bear against the felt at that point. These annoying troubles appear so suddenly at times that it requires the most constant vigilance in order to avoid any serious loss of production or damage to machine clothing.

The proper crowning of rolls, which is a very familiar subject to you all, has its affect upon the successful operation of the felt. A complaint received at one time was of a felt being satisfactory on one side of the center of the felt but not so on the other. An examination showed the pressure on the back side of the felt to be greater than on the front. Equalizing this removed the difficulty.

In conclusion, let it be said that while the history of felt manufacturing is one of progress, the industry is very anxious for greater accomplishments so that we may serve you even more effectively. This is being made possible through the splendid cooperation extended to us, not only by the individual superintendents but through the concerted action of the different associations.

That this pays good dividends is proven by the fact that the best results in the paper industry are obtained in mills where the best cooperation is received, for it is in this way that the felt manufacturer can best determine the exacting requirements of each individual mill.

It's the
Paper That Counts
When Planning
That Particular Job

White Unglazed Onion Skin

Runs well on the press and turns
out work above the average. Samples
will convince you. Ask for them.

Manufacturers of
"Quality Papers at Quantity Prices"

WOLVERINE
PAPER COMPANY
OTSEGO, MICHIGAN

Doings in Canadian Paper Field

Timber Lessee Must Erect Mill

The Quebec government is opposed to the placing of an embargo on exports of pulpwood cut on privately owned lands in Canada, but realizing the necessity of making provision as far as possible that the timber shall be manufactured in Canada, it has so drafted the terms of a lease of valuable timber limits to be auctioned near the end of November as to ensure this development. The limits are situated in the basin of the Minicouagan river and located next to those leased some time ago to the Ontario Paper Co.; they also contain very valuable water powers.

It is provided that the successful tenderer within the next five years must erect a mill within a distance of eight miles of one of the 22 cities or towns in Quebec. The mill is to save a daily production capacity of at least 200 tons of pulp and 100 tons of paper, and within seven years after the signing of the contract the daily capacity must be 200 tons of paper. By this means, it is hoped that much work may be provided and capital attracted to Quebec.

Test of Exemption Order

As there is much interest in the order in council passed by the Canadian government exempting for ten years from any embargo, exports of pulpwood under contract dated not later than June 1st, 1923, it is herewith reproduced:

"His excellency the governor-general-in-council on the recommendation of the Right Hon. W. L. Mackensie King, the prime minister, and under and in virtue of the powers conferred by the Export act as amended, is pleased to order and doth hereby order and declare, with reference to the provisions of an act to amend the Export act, chapter 46 of the statues passed at the recent session of parliament, that whatever regulations may be made thereunder regarding the export of pulpwood from Canada, such regulations shall not be made applicable to or effect the exportation of pulpwood exported in fulfillment and in pursuance of bona fide written contracts duly executed and delivered previous to June 1, 1923; provided, however, that in the case of contracts calling for deliveries over a period of more than ten years from the date hereof the exemption hereby granted shall not extend beyond the period of ten years from the date hereor."

Frank Harris Anson

The Canadian pulp and paper industry has sustained a severe loss through the death of F. H. Anson, president of the Abitibi Power and Paper company, who succumbed after a short illness in Montreal on November 1st.

He was born in the United States and after having spent some time in business in Minneapolis came to Canada, and thus was numbered among the many Americans who have made good in the Dominion. For some years he was with the Ogilvie Milling Co., after which he went to the Atlantic Sugar Refineries, Limited.

His most important work was done in connection with the upbuilding of the Abitibi Company of which he became president in 1914. From the time of his first connection with this organization he was untiring in his efforts to promote its success, and had the satisfaction of seeing it grow into one of the largest paper producing plants in Canada and thus in the world.

He began with nothing but a general knowledge of the industry, but the principles that made for success in other lines were applied with equally good results, and he soon become recognized both in Canada and in the United States as one of the dominating personalities in the industry. The late Mr. Anson was a man of varied activities, his work in promoting good roads being well known.

Commission Raps Barnjum

The sessions held by the Canadian Pulpwood commission continue to be characterized by a preponderance of anti-embargo sentiment. At the session held in Bathurst, N. B., a petition was filed signed by ninety farmers, protesting strongly against an embargo, and stating that if the embargo were imposed they would be left at the mercy of the Canadian companies, which meant much lower prices than they have been receiving from the United States companies.

Chairman Joseph Picard of the commission condemned F. J. D. Barnjum of Annapolis Royal, N. S., for failing to appear before the commission although the commission had endeavored to have him appear and testify. He asserted it was useless for Mr. Barnjum to continue writing letters to the newspapers and to the commission. Mr. Picard had that day received a letter from Mr. Barnjum in which the latter accused the commission of being on a joy ride at the expense of the Canadian tax-payers and suggested that the commission cease holding sessions and act on the information which he claims is already in hand in Ottawa.

Mr. Barnjum refuses absolutely to give evidence, stating the investigation is a farce. He reiterated that his interest was solely for Canadian pulpwood and declared the United States pulp and paper companies had organized a fund to combat the threatened embargo and were spending much money to influence public opinion in Canada at present. He says he will continue to fight for an embargo, terming it the proper means for pulpwood conservation.

H. F. G. Kent, Toronto, president of the Canadian Pulp and Paper Trade association, had as a guest last week a prominent figure in British pulp and paper circles, in the person of C. R. Seddon, managing director of the East Lancashire Paper Mill company, Limited, Radcliffe, near Manchester. Mr. Seddon is president of the Paper Makers' association of Great Britain and Ireland, and is also president of the Employers Federation of Paper Makers of the United Kingdom. While in Canada Mr. Seddon met many of the leading pulp and paper men and exchanged ideas with them. Another British visitor was Thomas Armstead, a director in the firm of Thomas Owen & Co., Ltd., Ely Paper Works, Cardiff.

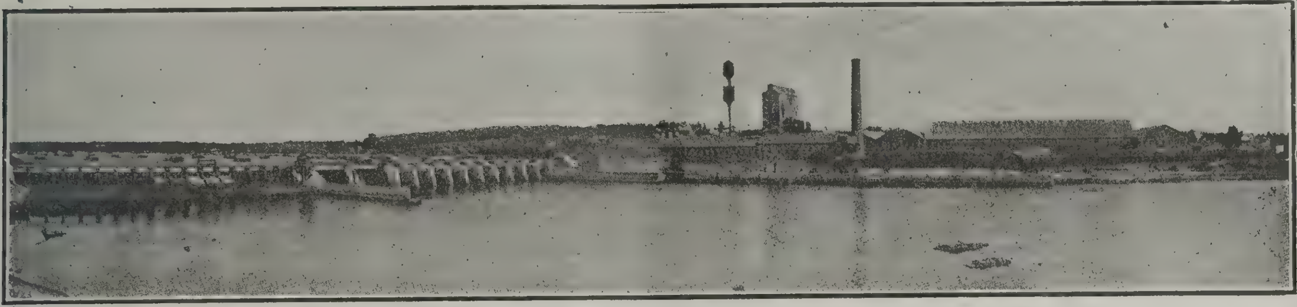
The Rudd Paper Box company, Toronto, gave their employees a couple of hours' holiday during the visit of Lloyd George to the city, rigged up a radio set, had the factory people gather in the recreation room and gave them the Welshman's speech over the wireless, together with songs by Clara Butt, who was singing at Massey hall platform following Lloyd George's address. As thousands were unable to gain admittance to the hall the employees appreciated the efforts of the Rudd management to entertain them.

The St. Jerome mill of the Rolland Paper company in Quebec has been closed down for several weeks while a new water wheel is being installed. It will be several weeks before the work is completed.

Marathon Paper Mills Company

CYRUS C. YAWKEY, President
WALTER ALEXANDER, Vice-Pres.
B. F. WILSON, Treasurer
C. S. GILBERT, Director
C. J. WINTON, Director
W. H. BISSELL, Director
D. C. EVEREST, Secy. and Gen'l Mgr.
P. M. WILSON, Ass't Secretary
J. R. RUSSELL, Mgr. of Sales

SULPHITE BOND, LACE PAPER, WAXING, SPECIAL WATERMARKED WRAPPINGS, M. G. DESIGN PAPERS, M. G. PLAIN PAPERS



Specialties in Bleached Sulphite Papers of all Grades. Quality and Appearance Combined in all Grades

**SOLID AND BLEACHED LINED BOARDS FOR CARTON MANUFACTURERS
PAPERS FOR REMANUFACTURE**

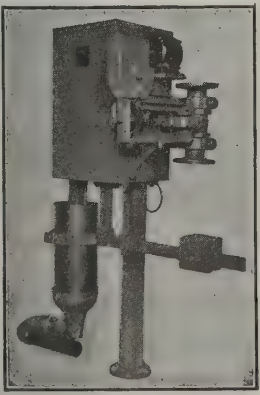
EQUIPMENT	
1 Cylinder Machine, Trim	100"
1 Fourdrinier Machine, Trim	120"
2 M. G. Yankee Fourdriniers, Trim	120"
2 Super Calenders	60"

DAILY CAPACITY	
Unbleached Sulphite Pulp	200,000 lbs.
Bleached Sulphite Pulp	150,000 lbs.
Ground Wood Pulp	60,000 lbs.
Paper	200,000 lbs.

Mills and General Office:
Rothschild, Wisconsin

Sales Office:
1126 Conway Bldg., Chicago, Ill.

EASTWOOD
WIRE M'F'G CO.
FOURDRINIER WIRES
BELLEVILLE, NEW JERSEY, U.S.A.



Is Your Stock Jordanned Uniformly?

It WOULD be—and your WEIGHTS would run better IF—
You used the TRIMBEY AUTOMATIC CONSISTENCY REGULATOR

More than 210 in use - - - Ask us about it

Also "Made in Canada"

TRIMBEY MACHINE WORKS, Glens Falls, N. Y.

CURRENT MARKET REPORTS

BASIC MARKET QUOATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.50 @ 7.25
M. F.	6.25 @ 7.00
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.75 @ .85
WRAPPING	
No. 1 Domestic Kraft	7.00 @ 7.50
No. 1 Jute	8.25 @ 8.75
No. 1 Wood	4.00 @ 4.25
Butchers	4.00 @ 4.25
BOARD	
News	52.50 @ 55.00
Chip	50.00 @ 55.00

Paper and Board

New York, November 13—Firmness is the outstanding characteristic of some branches of the paper market, irregularity of others. Viewing the industry in its entirety, there is no question but that normal activity exists; if anything, the present scope of business is slightly above normal, yet there are some divisions of the market which are featured by conditions far from the liking of manufacturers and jobbers.

There is no doubting that the pre-holiday demand for certain kinds of paper, which ordinarily is in full swing at about this time, has not developed this year in the volume anticipated by members of the trade. Consumers are still pursuing a most careful policy in the purchasing of paper. Instead of stocking up as is the customary procedure at this season, the tendency today is to keep stocks down to as low as requirements will permit, so that current demand for many kinds of paper is strictly of hand-to-mouth character and lacking the volume which manufacturers had hoped for at about this time.

Newsprint is the shining exception to these market conditions. There is a heavy movement of print paper into consuming channels; publishers, from all indications, cannot secure all the paper they want despite the fact that mills are working at a record-breaking pace and are producing by far a greater tonnage of newsprint than ever in their history. The big demand for print paper is due to the record amount of advertising in the daily press. It would seem as if there is no limit to the volume of display advertisements. Notwithstanding that publishers are putting out larger issues than ever before they are compelled to omit many columns of advertisements, and this holds true with those newspapers which are gradually adding more and more pages to their issues.

One of the afternoon dailies in New York on the day prior to Election Day published 242 columns of "spontaneous" advertisements the largest amount of advertising this newspaper ever printed in a single issue. The issue was 44 pages. Another afternoon paper published an issue of the same number of pages on the same day. The morning newspapers are equally as crowded with advertisements, and are publishing as large issues as their mechanical facilities will allow. The same situation prevails in all of the large cities of the country, thus explaining the tremendous consumption of newsprint.

The market for box board has developed additional easiness. Prices of plain boards have sagged badly in the East, and while most eastern mills are quoting news and chip board at $55 per ton f. o. b. New York, they are shading this price frequently. In fact, it is apparent that consumers are securing some supply of board down to $50 a ton New York and if waste paper—the principal raw material of board mills—continues to go lower in cost it seems likely board prices also will move off further. Demand for box boards thus far this season has been disappointing. Paper box manufacturers have not bought in their customary tonnage and mills in a majority of cases are in want of orders. In the West producers are reported granting even sharper price concessions on board than in the East notwithstanding that statistics would show that relatively better buying is being engaged in there than in the East.

Book paper prices are merely holding their own and no changes of consequence have occurred. Mills are moderately busy but desire additional business and are not hesitat-

SCANDINAVIAN PULP AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement & Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

ing to cut under competitors' quotations to land orders. Fine papers are in fair demand. There was quite a flurry of buying in the New York market during the middle of last week but it lasted only for several days, which is characteristic of the prevailing situation, demand being very spasmodic.

Less activity is noted in building papers, which is due to the season, but bag papers are moving in large amounts and at firming prices. An official of one of the largest sack paper producing companies reports the mills of his company very busy, and sold well ahead. Wrapping papers are fairly active, and so are tissues but the markets for such paper lack feature.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	7.00	@	7.55
No. 2 Domestic	6.25	@	7.00
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.15	@	7.75
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.75	@	7.50
M. F.	6.50	@	7.25
Lithograph	9.00	@	14.00
Coated & Enameled	9.25	@	15.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	3.75	@	4.00
Boards, per ton, f. o. b. N. Y.—			
News	52.50	@	55.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	50.00	@	55.00
Manila Lined Chip	70.00	@	75.00
Woodpulp	75.00	@	80.00

Mechanical Pulp

Ground wood is in a firm market position, and some of the reports from Canada state that grinders across the border are securing new high prices for their pulp. Domestic ground wood is quoted at an approximate average of $42 per ton f. o. b. producing plants, prices depending on the air dry basis and the freight rates from grinding plants to consuming points, while in Canada it is said producers are getting in excess of $50 a ton at pulp mills for ground wood for prompt shipment, up to $55 a ton having been mentioned. One thing about the market seems sure and that is a ready sale exists for virtually all the mechanical pulp being produced at present. Stocks are low and the statistical position is quite bullish especially with the winter approaching, when manufacturers usually have to curtail their output because of frozen mill streams.

Foreign and Domestic Chemical Pulp

Prices of chemical wood pulp are so irregular and uncertain that it is a question what figures really constitute market levels. Consumers say they do not know how cheaply they can buy, and sellers admit they are not aware what they can secure for pulp in current sales. Prices differ on nearly every lot of pulp on the market. Some importers and producers are anxious to dispose of stocks and are sacrificing pulp at prices under those at which they can replace the stocks sold; on the other hand, there are many firm holders who are maintaining quoted rates

The

St. Regis Paper Company

and the

Hanna Paper Corporation

Daily Capacity
425 Tons

Newsprint
Catalog
Butchers Manila
Packers Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite

Manufacturers of

TARZAN

Fibre Shipping Cases

General Sales Office
30 East 42nd St.
New York

Western Sales Office
620-621 McCormick Bldg.
Chicago, Ill.

BLEACHED
Sulphite Fibre

THE extent of our production *(daily capacity of 600 air-dry tons)* insures uniform quality, prompt shipments and market prices

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

CURRENT MARKETS—Continued

and who contend they will be able to obtain the prices asked in the not distant future. In a market such as now exists quotations mean little for the reason that they can scarcely be accurate unless on such a wide range that they lose their value. No. 1 unbleached sulphite is said to have been sold down to 2.75 cents a pound f. o. b. domestic pulp mills, and ex dock New York. Kraft pulp is particularly weak and is reported available at 2.75 cents on the dock New York and less for No. 1 foreign kraft. Quotations ex dock New York and f. o. b. pulp mills are nominally as follows:

Sulphite foreign—			
Bleached No. 1..	4.00	@	4.50
Unbleached No. 1.	2.85	@	3.25
Unbleached No. 2	2.70	@	2.85
Easy Bleaching	3.35	@	3.50
Sulphite, domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No 1.	2.90	@	3.25
Unbleached news grade	2.75	@	3.00
Easy Bleaching	3.25	@	3.50
Mitscherlich, unbleached	3.25	@	3.50
Soda, domestic, bleached	3.75	@	4.00
Kraft, foreign	2.75	@	3.00
Kraft, domestic	2.90	@	3.25
Sulphite screenings, refined	1.75	@	2.00

Domestic Rags

Quoted prices of most grades of papermaking rags have moved off a little. Roofing stock has declined about $2 a ton to around 1.45 cents per pound for No. 1 packing and 1.25 cents for No. 2 quality f. o. b. New York, and probably some transactions have been at even lower rates. Thirds and blues display a sagging trend, with repacked quoted at 3 cents per pound or slightly less at dealers' shipping points and miscellaneous packing at around 250 cents. Old white rags are quotably steady but demand has diminished and there is not the upward tendency in values that recently was noticeable. New cuttings are quiet and buyers are securing most grades at slight concessions at least. F. o. b. New York quotations are:

New Shirt Cuttings,			
No. 1	12.50	@	13.00
No. 2	6.00	@	6.25
Fancy Shirt Cuttings	6.00	@	6.25
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.50
White Lawns	11.00	@	11.25
New Muslins, unbleached	11.00	@	11.25
Light Silesias	8.00	@	8.25
Black Silesias	4.75	@	5.00
Overall Cuttings, Blue	8.00	@	8.25
Washables	5.00	@	5.25
New Black Mixed .	4.50	@	4.75
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.75	@	2.90
Thirds & Blues, repacked	2.85	@	3.00
Thirds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags, No. 1	1.40	@	1.50
Roofing Rags, No. 2	1.25	@	1.30

Imported Rags

Foreign papermaking rags also evince a disposition to slide in price, and some grades are available at reduced figures. Dark colored cottons have sold at 1.35 cents a pound ex dock New York, and most felt paper mills are refusing to pay above this price, while some have retired altogether as buyers. Linens are comparatively steady. Quotations on an ex dock New York basis are:

Lins.,White, No. 1	12.00	@	13.00
Ger. Blue Cottons..	2.50	@	2.75
French Light Blues.	2.75	@	3.00
New Light Prints ..	5.50	@	5.75
New Unbleached ...	9.50	@	9.75
German Linen, blue.	4.00	@	4.50
German Linen, grey.	6.00	@	6.50
German S. P. F.'s.	6.00	@	9.00
German Light Prints	2.50	@	2.75
Dk. Colored Cottons	1.35	@	1.40

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Rosin Size — Foam Killer
Felt Soap
ALBANY, N. Y.

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CURRENT MARKETS—Continued

Bagging, Rope, Etc.

Old manila rope is one item in the papermaking raw material list which is decidedly firm in price. Mills using this article are buying in a consistent manner, and there are indications that not much old rope is in the hands of domestic dealers while rope prices abroad are strong and inclining upward. No. 1 domestic manila rope is quoted at 6.50 cents a pound or higher f. o. b. New York, and foreign No. 1 manila rope at about 6.25cents ex dock at this port. Old bagging is in slack demand and rather nominal in price at about 1.25 cents New York for No. 1 scrap bagging and 90 cents to $1 a hundred pounds for roofing bagging. F. o. b. New York prices follow:

Gunny, No. 1	1.30	@	1.40	Wool Tares, heavy .	1.40	@	1.60
Foreign	1.20	@	1.30	For. Manila Rope .	6.00	@	6.25
Wool Tares, light ..	1.30	@	1.40	Domestic Rope	6.25	@	6.50
Scrap Bagg., No. 1.	1.15	@	1.25	Mixed Strings	1.00	@	1.25
Roofing Bagging ..	.90	@	1.00				

Old Paper

Sharp declines have occurred in prices of old paper. The price position is so weak it would appear as if there is no bottom to values, and little hope for improvement is entertained until demand picks up from board manufacturers, who at the moment are buying in very limited volume. Old folded newspapers are down to 85 cents a hundred pounds f. o. b. New York, and No. 1 mixed paper is selling at 60 cents per hundred pounds NewYork. Flat magazines have declined in price to 1.65 cents a pound f. o. b. New York, and both hard and soft white shavings are lower, the former being offered at 3.80 cents per pound New York and the latter at 3 cents. Overissue newspapers have sold at 1.15 cents per pound New York, and No. 1 old kraft at 2.15 cents. F. o. b. New York quotations are:

No. 1 Hard White Shavings	3.80	@	4.00	Kraft No. 1	2.10	@	2.20
No. 2 Hard White Shavings	3.25	@	3.50	New Manilla Cuttings	2.00	@	2.25
No. 1 Soft White Shavings	2.90	@	3.10	New Manila Env. Cuttings	2.75	@	3.00
Box Board Chips ..	.70	@	.75	Bogus and Mill Wrappers	.80	@	.90
No. 1 Colored Shavings	2.00	@	2.25	News, strictly overissue	1.10	@	1.20
Magazine flat stock.	1.60	@	1.70	Folded News	.85	@	.90
No. 1 Crumpled ...	1.25	@	1.30	No. 1 Mixed Papers	.60	@	.65
Solid Ledger Books	2.15	@	2.25	White Blank News.	2.15	@	2.25
Ledger Stock	1.90	@	2.10	Common Paper	.40	@	.45

Twines

Advances of about 2 cents a pound have been recorded in cotton twines, due to the sharp rise in raw cotton. Jute and hemp twines hold steady without appreciable change. Demand is fair though buyers continue to operate on a reserved scale, placing orders chiefly against immediate needs. Quotations are as follows:

Sisal Hay, pure ...	12.25	@	13.25	Jute Wrapping twine, A grade	19.00	@	
Manila Hay, pure..	16.25	@	17.25	Papermakers Twine.	10.50	@	
Sisal Lath Yarn ..	11.25	@	12.25	B. C. Hemp, 18 ...	.39	@	.40
Manila Rope, pure, ¾ inch diameter.	14.25	@	15.25	B. C. Hemp, 24 ...	.38	@	.39
Hardware Rope	11.25	@	12.25	B C. Hemp, 36 ...	.37	@	.38
Jute rope, ¼ diam. and over, coils ..	12.00	@	14.00	American Light India— No. 6	14.50	@	
Sail twine, A grade.	19.00	@		No. 7	13.50	@	

Chemicals

A moderately good demand prevails for papermaking chemicals, with the principal movement on contracts. Quoted prices are generally maintained without alterations of consequence.

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and

Twenty-three years of continuous growth is your assurance that our shots have not gone astray.

Wisconsin Wires

Wisconsin Wire Works
Appleton Wisconsin

CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of November 5-10

Paper

Str. Litunia, Libau—H. Reeve Angel & Co., 4,100 rolls wrapping.

Str. Stavangerfjord, Christiania—American Exchange National Bank, 104 rolls newsprint; Irving Bank-Columbia Trust Company, 111 rolls newsprint.

Str. Berengaria, Southampton—A. C. Dodman Jr. & Co., 34 bls. hanging; G. W. Sheldon & Co., 17 cs. writing; Whiting-Patterson Company, 9 cs.; Thomas & Pierson, 1 cse. hanging; A. Murphy & Co., 2 cs. writing.

Str. Belgenland, Antwerp—Borden & Riley Paper Company, 11 cs.; Geveart Company of America, 51 cs. photo; P. Puttmann, 25 cs. printing; C. W. Williams & Co., 9 cs.; P. C. Zuhlke, 54 cs. printing

Str. Bristol City, Bristol—B. A. T. Company, 68 bls. cigarette.

Str. Carmania, Liverpool—F. C. Strype, 22 cs. tissue.

Str. Seydlitz, Bremen—Globe Shipping Company, 88 cs. and 4 cs. drawing; Hensel, Bruckman & Lorbacher, 3 cs. drawing; Friedman & Co., 14 cs. cardboard.

Str. Asia, Marseilles—F. C. Strype, 13 cs. writing; E. Dietzgen & Co., 7 cs. writing; Sternberg & Co., 44 cs. writing; from Lisbon—Zorro Tobacco Company, 24 cs, cigarette.

Str. Minnewaska, London—W. J. Byrnes & Co., 1 cse.; W. H. S. Lloyd & Co., 9 bls. hanging; H. Reeve Angel & Co., 8 cs. drawing.

Str. Nevisian, London—F. L. Kraemer & Co., 4 cs. writing.

Str. Chicago, Havre—H. Reeve Angel & Co., 1 cse.; H. B. Lloyd, 1 cse.; Southern Pacific Company, 3 cs.; M. Spiegel & Sons, 3 cs. cigarette; A. Murphy & Co., 2 bls. hanging; Dupont Cellophane Company, 22 cs.

Str. Derfflinger, Bremen—Toronto Terminal Warehouse Company, 4 cs. drawing; E. Weiss, 8 bls.; Order, 1,876 rolls wrapping.

Str. Kungsholm, Gothenburg—American Express Company, 2, 851 rolls and 6 bls. wrapping; Chatham — Phenix National Bank, 132 rolls wrapping; Arkell Safety Bag Company, 22 rolls wrapping; Japan Paper Company, 15 cs.; O. M. Baxter, 40 bls. wall board; Irving Bank-Columbia Trust Company, 124 rolls wrapping; Bernard, Judae & Co., 6 cs. filter; American Trading Company, 1 cse.; Order, 2,582 rolls and 134 bls. wrapping and 1,006 rolls newsprint.

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CURRENT IMPORTS—Continued

Str. West Maximus, Kotka—Order, 387 rolls newsprint.

Str. Grete, HamburgP—Guaranty Trust Company, 53 bls. printing; F. B. Vandegrift & Co., 13 cs. cardboard; Baldwin Universal Company, 31 bls. wrapping; Order, 58 rolls wrapping.

Str. George Washington, Bremen—Irving Bank-Columbia Trust Company, 1,030 rolls wrapping.

Str. Oscar II, Copenhagen—Wilkinson Bros. & Co., 4 bls. wrapping.

Str. Westphalia, Hamburg—M. J. Corbett & Co., 3 cs. hanging; Ladenburg, Thalman & Co., 172 rolls wrapping.

Wood Pulp

Str. Stavangerfjord, Christiania—J. Anderson & Co., 750 bls. bleached sulphite.

Str. Seydlitz, Bremen—North German Lloyd, 261 bls.; Hollesen, 2,361 bls.

Str. Kungsholm, Gothenburg—E. M. Sergeant & Co., 254 bls. sulphite; Order, 625 bls. sulphite.

Str. West Maximus, Kotka—Lagerloef Trading Company, 5,220 bls. ground wood and 1,232 bls.

Old Rope

Str. Francisco, Newcastle—Brown Bros. & Co., 204 coils.; Order, 194 coils.; from Hull—Brown Bros. & Co., 136 coils.

Str. President Polk, London—Ellerman-Wilson S. S. Line, 58 coils.

Str. Belgenland, Antwerp—Brown Bros. & Co., 64 coils and 67 bls.

Str. Bristol City, Bristol—Brown Bros. & Co., 695 coils.

Str. Chickahominy, London—Brown Bros. & Co., 127 coils.

Str. Minnewaska, London—Brown Bros. & Co., 355 coils; Ellerman-Wilson S. S. Line, 31 coils.

Str. Nevisian, London—Brown Bros. & Co., 115 coils and 21 bls.

Str. Sixaolo, Cristobal—United Fruit Company, 8 bls.

Old Bagging

Str. Chicago, Havre—New York Trust Company, 45 bls.; International Acceptance Bank, 65 bls.

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Wire Works

"The Fourdrinier that took the Ire out of Wire"

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Str. Francisco, Newcastle—Order, 5 bls.

Str. Primero, Leghorn—New York Trust Company, 121 bls.;Order, 184 bls.

Str. President Polk, London—Order, 10 bls.

Str. Bristol City, Bristol—Guaranty Trust Company, 279 bls.; International Acceptance Bank, 58 bls.

Str. Dunstaffnage, Leghorn—New York Trust Company, 83 bls.; Order, 106 bls.

Str. Pastores, Havana—M. Wolfer & Co., 35 bls.

Str. Chickahominy, London—Guaranty Trust Company, 178 bls.; A. W. Fenton, Inc., 45 bls.; Order, 26 bls.

Str. Daytonian, Manchester—International Acceptance Bank, 215 bls.; R. F. Downing & Co., 37 bls.; Irving Bank-Columbia Trust Company, 61 bls.; Order, 260 bls.

Str. Nevisian, London—Patterson National Bank, 119 bls.; Mechanics & Metals National Bank, 212 bls.

Str. Chicago, Havre—Mechanics & Metals National Bank, 75 bls.; Cie Generale Trans, 2,595 bls.

Str. Grete, Hamburg—Equitable Trust Company, 13 bls.

Paper Stock

Str. Herhonkson, Belfast—Order, 165 bls.

Str. Tuscania, Glasgow—Brown Bros. & Co., 47 bls.

Str. Belgenland, Antwerp—Equitable Trust Company, 188 bls .

Talc

Str. Primero, Genoa—L. A. Salomon & Bros., 100 bags.

Str. Havre Maru, Genoa—Bankers Trust Company, 300 bags.

China Clay

Str. Bristol City, Bristol—Bankers Trust Company, 325 bags; Lunham & Moore, 100 tons.

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AIR COMPRESSORS

Nash Engineering Co., South Norwalk, Conn.

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Bachmeier & Co., Inc., New York.
Heller & Merz Co., New York.
National Aniline & Chemical Co., New York.

ARCHITECTS AND ENGINEERS

Carey, James L., Chicago, Ill.
Ferguson, Hardy S., New York.
Hardy, George F., New York.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

BEARINGS

Link-Belt Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BEATING ENGINES

Black-Clawson Co., Hamilton, O.
Dayton Beater & Hoist Co., Dayton, O.

BELT CONVEYORS

Link-Belt Co., Chicago, Ill.

BLEACH

Penn. Salt Mfg. Co., Philadelphia, Pa.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOX BOARDS

Standard Paper Co., Kalamazoo, Mich

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Black-Clawson Co., Hamilton, O.

BOND PAPER

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

BRASS WIRE CLOTH

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, O.

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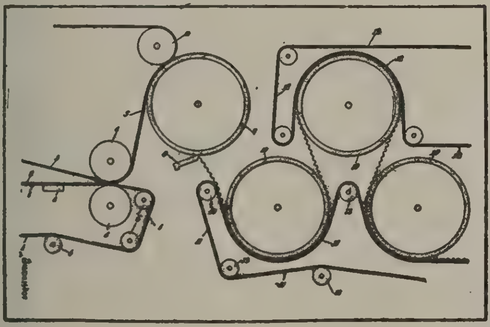

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COGS

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Tompkins-Hawley Fuller Co., Valatie, N. Y.

CUTTERS

Appleton Wire Works, Appleton, Wis
Black-Clawson Co., Hamilton, O.
Cameron Machine Co., Brooklyn, N. Y.

CYLINDER COVERS

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Hardy, Geo. F., New York.
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Waterbury Felt Co., Skaneateles Falls, N. Y.

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Eastwood Wire Mfg. Co., Belleville, N. J.
International Wire Works, Menasha, Wis.
Lindsay Wire Weaving Co., Cleveland, O.
Wisconsin Wire Works, Appleton, Wis.

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PAPER CUTTING MACHINERY

Cameron Machine Co., Brooklyn, N. Y.

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PAPER EXPORTERS

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Appleton Wire Works, Appleton, Wis.

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Eaton-Dikeman Co., Lee, Mass.
Hammermill Paper Co., Erie, Pa.
Hanna Paper Corp., Watertown, N. Y.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.
Sherman Paper Co., Watertown, N. Y.
Standard Paper Co., Kalamazoo, Mich.
West Virginia Pulp & Paper Co., New York.

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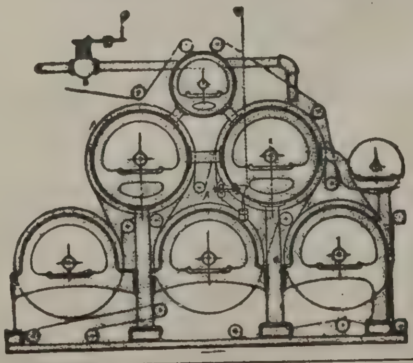

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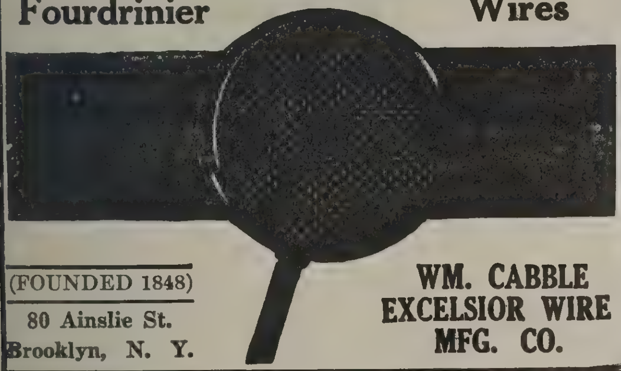

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Vol. XXXIII NOVEMBER 22, 1923 No. 5

Graphical Control Combustion Gases

Rapid and Convenient Method for Determining Relation Between Gases Formed in Sulphur Burning and for Finding Dioxide Content of the Gas

By **Rudolph Sieber**, *Kramfors, Sweden*

THE method of controlling the operation of sulphur burners described in this article is the same in principle as the method used in regulating the operation of boilers with a few modifications to render the same applicable to the combustion of sulphur and pyrites. This is a subject of interest to every paper mill in which sulphite pulp is made.

The combustion gases which are evolved by a sulphur burner contain nothing but sulphur dioxide in the ideal, theoretical case. This gas is mixed with nitrogen and traces of other gases commonly found in air. The maximum sulphur dioxide content of such combustion gases is 20.8 percent or, in round figures, approximately 21 per cent, writes Dr. Sieber in Zellstoff und Papier, May, 1923.

However, when air is present in excess the following equation holds good:

$SO_2+O_2=21.$ (1)

Then, again, when sulphur is burned to sulphur dioxide there is always a certain proportion of sulphur trioxide present in the combustion gases. The question now arises, what is the relation between these three gases, sulphur dioxide, sulphur trioxide and oxygen?

Relation Between the Three Gases

It is quite immaterial for the purpose of this study whether the trioxide is formed directly during the combustion process in accordance with equation 2 or in the first instance by oxidation of sulphur dioxide after combustion has taken place in accordance with equation 3. The two equations, representing the formation of sulphur trioxide, are as follows:

$2S+3O_2=2SO_3$ (2)

$2SO_2+O_2=2SO_3$ (3)

It may be assumed that sulphur burns only with the formation of trioxide along with dioxide. This takes place in air containing one part of oxygen by volume to 3.8 parts of nitrogen by volume. If this calculation is carried out on the basis of unit weight of one kilogram, then the relation indicated in equation 1 holds good.

As the maximum sulphur trioxide content becomes equal to 14.9 percent under these conditions it is possible to write the following equation representing the combustion gas diagram of a sulphur burner:

$SO_2+SO_3\ (1+0.40)=O_2\ \ 21$(4)

Graphical Form

From this equation it is easily seen that the graph will take the form of a triangle with equal legs, as both sulphur dioxide and oxygen have the same maximum values. The hypothenuses of the right triangle are found in exactly the same manner by drawing parallel lines with equal sulphur trioxide values.

In order to introduce the air factor into the triangle which is obtained in this manner, the following equation is used:

$\text{Air Factor}=1-\frac{3.8O_2}{N_2}$ (5)

In this case this equation takes the simple form

$\text{Air Factor}=1-0.0476\ O_2$ (6)

For the nitrogen content in the gas must always equal 79 percent when the sulphur is completely burned to sulphur dioxide. By inserting different values of the air factor in equation (6) it is easy to find the scales for the air factor line on the hypothenuse of the right triangle, in other words, the lines of complete combustion. However, inasmuch as the divisions are equal over the entire length of the line both the mathematical and graphical work is much simplified.

The following equation serves for the horizontal leg of the right triangle, the line of selective combustion to sulphur trioxide:

$$\text{Air Factor} = 1 - \frac{3.8(O_2 - 1.5SO_3)}{N_2} \quad (7)$$

Inasmuch as equation (4) holds good for this line under the special cases where sulphur dioxide is equal to zero and, furthermore, as the sum of sulphur trioxide, oxygen and nitrogen is equal to 100, it is also possible in this case to find the individual values of the oxygen or sulphur trioxide corresponding to the air factor. Then, because the divisions on this line are all equal to one another, as may be determined by making a few calculations, the calculation or the graphical determination of any point in question is considerably simplified. In the case where air factor equals unity, O_2 must be equal to $1.5SO_3$ and from this, with the aid of equation (4), it is calculated that the value of O_2 is 10.4. Hence the point in question lies almost in the exact middle of the horizontal arm of the right triangle and all that remains is to scale the two halves of the line in equal division.

Figure 1 shows the triangle drawn for the case of the combustion of sulphur. The following tabulation shows the manner in which the calculation is carried out:

Combustion of one kg. of sulphur to SO_3	Combustion takes place in accordance with following equation	Amount of oxygen required for one molecule of Sulphur	Total Oxygen molecular	Nitrogen mixed with it	Composition of gas	Molecules	%
1 kg. S	$2S\ 3(O_2\ 3.8N_2)$	1.5 mol.	46.9	178.3	SO_3	31.3	14.9
31.25	$2\ SO_3\ 11.4N_2$				N_2	178.2	85.1
mol.	2 volumes					209.5	100.0

(Dr. Sieber discusses in detail the combustion of iron pyrites and the determination of the right triangular diagrams and the divisions on the arms and hypothenuses, but this part of the article is not of any special interest to the American paper industry, which uses sulphur exclusively and accordingly it is omitted.—Translator).

Determination of Sulphur Dioxide

In the determination of the sulphur dioxide content of gas obtained by the combustion of sulphur, it is generally customary to reduce the results to normal conditions, that is to a temperature of zero degrees C and a pressure of 760 millimeters. But this may give a rather false impression of the exact status of affairs under certain conditions. Very often the gases that are drawn from the burners for analysis possess temperatures as high as 25 degrees and over and a false deduction, converting the gas to the standard volume and pressure, may show the result that is really obtained in the burners in quite different form. In the cases where larger samples of the gas are taken for analysis the gas is apt to cool off considerably before the analysis is completed, and even though the apparatus used in making the analyses is located in the immediate neighborhood of the sulphur burners, variations may occur in the temperature of the gas sample, although at times the temperature may remain constant.

The exact calculation of the sulphur dioxide content of the gas presupposes taking into consideration the barometric pressure. However, the effect of variations in the atmospheric pressure from the normal is far less potent than the action of temperature. For this reason pressure corrections need not be applied to the results.

When the temperature of the gas sample is taken into consideration, which temperature can be readily determined by means of a thermometer, the correct percentage of sulphur dioxide in the burner gases is found from the following equation:

$$SO_2 = \frac{10.95}{\frac{\text{water run out of apparatus} + 10.95}{(1+At)}}$$

In this equation the factor A is equal to 1-273 when ten cubic centimeters of tenth normal iodine or alkali solution are used up. Hence, it is not necessary to reduce the value 10.95 to normal conditions, but the volume of water that runs out. This corresponds to the volume of gas that is sucked in after deduction for the sulphurous acid that is contained in it. The quantity of the latter is always the same under all conditions when ten cubic centimeters of tenth normal iodine solution or of alkali are used and the gas is sucked through the same until the color is removed or the color is changed. The ten cubic centimeters of the standard liquid always oxidize or neutralize 10.95 cubic centimeters of sulphurous acid under normal conditions.

In order not to require the carrying out of a calculation according to the above equation each time an analysis is completed, a graphical method has been devised which is shown in figure 2.

Graphical Method for Simplifying Calculations

The use of the scales shown in the figure is so simple that any laboratory assistant can readily employ them after having been shown how they must be used.

The first thing is to find the observed temperature on the scale 1, then the volume of the water that flows out of the apparatus, being displaced by the gas, is found in scale 2. The line which is drawn joining these two points cuts scale 3 at a point which shows the volume of the water reduced to standard conditions or the volume of the gas directly.

It is necessary to make the correction particularly in the case where it is desirous to make a separate

(Continued on page 21)

Water Conditions for Papermaking

Difficult to Find Large Volume of Best Water—Necessity for Controlling Stream Pollution to Protect that Source of Mill Supply

By L. M. Booth
Booth Chemical Company

As a general proposition, a pure natural water supply should be sought in order to make paper economically. However, in the selection of a paper mill site, the availability of raw materials—fuel, power, labor supply—and proximity to markets usually receive consideration before the quality of water is given attention. This is not an unreasonable procedure, and because modern methods of water purification have materially simplified the papermaker's water problem, no insurmountable difficulties need be encountered in perfecting a suitable supply under almost any circumstance.

Soft Water Spring Best Source of Supply

Perhaps the best water is derived from a soft water spring. Such water is free from organic coloring matter and from hardening calcium and magnesium salts. In common with other surface supplies, public records are frequently available as a guide as to the probable volume of dry weather flow.

The next best source is a soft water well. The development of such a source is frequently disappointing. Often the manufacturer is prompted to seek a paper mill supply of water from wells for the reason that there is nearby a satisfactory well yielding a limited supply. Frequently the extent of the tributary water bearing strata is unknown. Untold millions of dollars have been spent in the hope of developing underground supplies adequate for paper mill use, merely because a small well in the vicinity yields a satisfactory water supply for limited uses.

In many instances paper mill water supplies are obtained from hard water wells. Where the volume available is adequate, as in many places in the Miami valley in Ohio, the users are reconciled to the hardness, since they have become accustomed to it for paper making. The presence of large amounts of mineral salts, especially bicarbonates of calcium and magnesium, is of course objectionable. The occurrence of these minerals necessitates periodical cleaning of the wires and felts with dilute acid to remove the incrustation which they cause. Another disadvantage of such alkaline waters is that they require more of sulphate of aluminum for sizing than do soft waters. Where the water supply is thus highly mineralized, it has become the general practice to treat the boiler feed water separately in a water softener.

Surface supplies which require purification may be classed as follows:

1. Clear water occasionally turbid.
2. Colored water occasionally turbid.
3. Habitually turbid water.
4. Water subject to industrial pollution.

The degree of purification required is dependent upon the kind of paper to be made. With building paper and the cheaper grades of board it is sometimes possible to use the water without any purification. Frequently screening through fine mesh wire is sufficient purification for news and wrappings. For other kinds of paper surface waters require filtration through sand, usually preceded by adequate coagulation. For the manufacture of either white or delicately tinted papers, where the water is derived from surface sources as listed above, coagulation and sedimentation must be resorted to in order to effect satisfactory purification. Fortunately, in the present state of the art of water purification, the paper manufacturers can, at moderate price, obtain the desired extent of purification of almost any natural water supply.

The presence of industrial wastes in the mill supply frequently presents perplexing problems. In many parts of the United States stream pollution is tolerated to an extent far beyond that permissable in Europe. The problem of water purification for a paper mill making fine white paper on the same stream and below an establishment where steel is pickled of where wool is washed, is more complicated than removing the natural impurities from the water which prevailed before the establishment of the polluting industries up-stream. Many paper manufacturers suffering from industrial water pollution are reluctant to raise vigorous objection to the practice of stream pollution by up-stream neighbors because they realize that they too contribute towards stream defilement.

Necessary to Control Pollution

In some of the states the authorities require the treatment of certain industrial wastes before these are returned to streams. The continuously increasing amount of industrial pollution, as well as the commercial development of purification processes, indicate that a marked activity in this class of work may be expected during the next few years. The hopeful aspect of the situation, however, lies in the direction of eliminating stream pollution at a profit. In many instances this has been accomplished and is standard practice for certain paper mill wastes. Other developments now in the experimental stage promise to make it possible to eliminate some of the most objectionable wastes not leaving the paper mill.

In any discussion of "The Best Water Conditions for Paper Manufacture" a word in regard to the misuse of water is in order. Perhaps the readiest means of reducing the toll which the mill sewer takes is the intelligent use of the white water. As an example of misappropriation of this valuable by-product, some mills which filter their mill supplies still use the white water for washing pulp. In any event much of the beaten fibre of the white water is lost in the washing. In addition, the use of white water carrying sulphate of aluminum for washing any alkaline stock is by no means good practice. Obviously the first thing that happens is the formation of an aluminum hydroxide precipitate. This flocculent substance gathers up the colloidal ink, clay, etc., and in this condition is not readily washed out of the stock. Where this procedure is followed the use of more water than would otherwise be ample is required for washing the stock.

The Crescent Paper Bag Co., of Covington, Ky., has increased its capital stock from $10,000 to $40,000.

Gas to be piped to West Monroe, La., for the Brown Paper Mill Co. from near Bastrop, Tex., to be used as fuel and light for the operation of entire plant.

Heat Losses in Machine Room

Review of Systems Used in Various Mills and Data Showing Results in Use of Open, Hooded and Closed Systems—Proof that Open System is Expensive

By E. P. Gleason and F. C. Stamm

Chief and Assistant Engineers, Nekoosa-Edwards Paper Co.

IT has been previously pointed out that steam power constitutes about 36% of the conversion cost in the average paper mill, and is the largest single item, exceeding labor by 10%.

The largest use of steam is in the machine room and this paper will be confined to heat losses in this department. The writer has recently had the pleasure of visiting many of the large mills in the Eastern United States and Canada and was particularly interested in this subject.

Heat Loss in Piping and Dryers

Steam in the machine room goes through engines or turbines or direct through reducing valves to the dryers and air heaters. It will surprise you to go through good mills and note: (a) Uncovered steam pipes both live and exhaust; (b) Leaky steam joints and pipe threads; (c) Exhaust blowing to atmosphere either constantly or during washing up periods; (d) Machine dryers shut off, causing increased steam pressure for drying paper. This means greater back pressure on the prime movers with loss in efficiency as well as poor speed regulation.

You can see the above losses. But you cannot see (e) Broken syphon pipes or buckets; (f) Machines that are blowing through to hotwell to get circulation; (g) Leaky valves and traps; (h) Clean condensate used for process work where it should be returned to the boilers. All of these are serious and deserve the best attention of the superintendent and engineers.

The modern mill does not allow any steam to blow through to the hotwell. All steam traps and valves are periodically checked to insure their being tight. Circulation in dryers, removal of air and the very important item of graduated temperature from the wet end to the dry end of the paper machine is obtained by a P. O. Woodsome or similar circulating system. It is not uncommon to see a machine that formerly carried 10 to 15 pounds steam pressure on all dryers doing better with a graduation of from 10 inch vacuum at the wet end to 6 pounds at the dry end with maximum quality of paper and minimum steam cost.

We predict that in the near future all machines will be equipped with separate steam flow meters measuring the steam to driving units and dryers. In the case of Yankee machines this meter should include the steam to hood air heaters. Separate meters should be used for steam used in heating, thus separating heating and process steam costs.

Air Heat Losses

Under present conditions there are three classes of machine rooms, (a) The open room; (b) The room with hoods over the machines; (c) The latest development where the dryers are entirely enclosed with the exception of the front side.

(a) The Open Room.—There are still some machines in open rooms and there are still some misguided advocates of this practice, but we believe we are safe in saying that there is no excuse for this practice in the light of modern engineering and experience.

(b) The hooded machine is accepted as standard today and except for the heat losses has been very satisfactory, especially where it is built of insulating material and where the air supply is properly laid out.

There has been a recent tendency toward open pits in which the bottom felt is cooled and aired. This practice is questionable, and recent tests have shown a decided cooling of the paper on each bottom dryer and a heating up at each top dryer where there should be a gradual increase in temperature throughout the machine. The remedy is more felt dryers and the introduction of warm air in a closed pit.

(c) The Enclosed Dryer Unit.—This has been successfully tried in several cases and its value proven. The usual practice is to build a roof over the dryers extending down to the top front frame and back to the wall. The ends are closed. The pit is closed. Air comes from the pit and from the room and all air goes through the machine from front to rear. It is then taken out through economizers where maximum heat recovery is made.

Advantages of the Closed System are:

(1) A clear dry room.
(2) Maximum comfort for machine crew.
(3) Minimum depreciation of machine building.
(4) Lower drying cost due to less volume of air required.
(5) Lower economizer cost if economizers are used.
(6) Increased production—about 10%.

Disadvantages of the Closed System are:

(1) Higher cost of hood.
(2) Space back of machine is closed in and is too hot to work in while running.
(3) The question of uniform drying across the sheet with all air passing through dryers. This does not appear to be serious in actual practice. As the air travels across the dryer fan it is heated at the same time that it is picking up moisture and with proper control the absorption can be made practically uniform.

The Yankee is another type of a closed dryer machine.

The following example will illustrate the three types of machine rooms:

A machine making thirty tons of paper in twenty-three hours will evaporate 87 pounds or 609,000 grains of water per minute with 69% moisture to dryer and 8% from dryers.

Machine Data

Item	Name	A Open	B Hooded	C Closed
1	Temperature of air leaving	105°F	120°F	140°F
2	% Saturation of air leaving	70	90	90
3	Carrying capacity of air Gr. per ℔.	248	512	965
4	Moisture in incoming air (80°F. 40% R. H.)	62	62	62
5	Air can pick up (Gr. per ℔.)	186	450	903
6	No. min. air required.	3270	1350	675
7	Total B. T. U. Per Pound.	66	112	195
8	Total B. T. U. per min. leaving machine	216,000	151,000	131,500
9	% Saving over open room		30%	39%
10	% Saving closed machine over hood			13%
11	Dollars per year saving over open room		$12,500.00	$16,400.00
12	Dollars per year saving over hooded machine			$ 3,900.00

The above figures show a 30% saving of the hooded machine over the machine in an open room and a further saving if the dryers are enclosed. Average conditions have been taken in this example. It is understood that conditions will vary somewhat in each mill. These figures are for machines only.

(Continued on page 9)

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* *Read before Superintendents association at Pulp and Papermakers convention, Appleton, Wis., Oct. 25-27, 1923.*

The Story of Fourdrinier Wires*

Origin and Growth of Wire Making Concerns in the United States—How Wires Are Made—Why Care in Handling Is Necessary

By G. E. Buchanan
Appleton Wire Works

I HAVE been asked to talk with you this afternoon regarding a product which is essential in the manufacture of paper. This is the manufacture of papermakers wires, which includes Fourdrinier wires, cylinder wires, washer wires, saveall wires, etc.

The history of the Fourdrinier wire industry in the United States covers a period of exactly three-quarters of a century. This is not a long period of time when we consider that many men now living were good sized boys when the first paper machine wire was made in this country.

Previous to 1848 the comparatively few paper machine wires used in this country were imported from Europe, largely from Great Britain. In 1847 my grandfather, Robert Buchanan, came to the United States from Scotland to work at his trade of Fourdrinier wire weaving in a weaving shop then being built at Jersey City, N. J. The plant was about ready to begin operations when one night it burned to the ground and this plant was not rebuilt.

The year 1848 marks the beginning of the Fourdrinier wire industry in this country. It was in this year that William Cabble Excelsior Wire Mfg. Co., Brooklyn, N. Y., and also the Staniar & Laffey Wire Co., of Newark, N. J., were established.

In those early days the few Fourdrinier machines in the United States required wires that were narrow and short. A wire 72 inches wide by 40 ft. long at that time was considered a large wire. The speed at which these early machines ran was also very slow compared with the speed at which paper machines are now operating. I remember when the first loom was built to weave wires 100 inches wide, and this loom was a nine day wonder.

Historic Resume'

During these 75 years the paper industry, this imperial industry, has expanded in progress by leaps and bounds. The manufacturers of Fourdrinier wires have exerted every effort to keep step with this progress and to meet these rapidly changing conditions as to speed, width, stock, etc. The old wire weaving plants have increased and enlarged their equipment, and from time to time new weaving plants have been established.

In the early fifties William Stephens and sons commenced the manufacture of paper machine wires at Belleville, N. J., this plant later becoming the De Witt Wire company. In this weaving shop Robert Buchanan worked as a wire weaver and my father, William Buchanan, learned the wire weaving trade. In 1876, Robert Buchanan with his sons moved to Holyoke, Mass., and established the Buchanan & Bolt Wire Co. In the same year my father left the employ of the De Witt Wire Co., and established the Centennial Wire Works at Bloomfield, N. J., with Charles Smith, a wire drawer. In 1878 this business was moved to Belleville, N. J., and John Eastwood was admitted to the firm. This business was conducted for several years under the name of Eastwood, Buchanan & Smith, and later incorporated as the Eastwood Wire Mfg. Co. A few years earlier the W. S. Tyler Co., plant was established at Cleveland, Ohio, and for many years the Tyler Company was the manufacturer of Fourdrinier wires the farthest west. As the years passed other Fourdrinier wire weaving plants were established in various parts of the country and at the present time there are in the United States about 20 manufacturers of Fourdrinier wires, which have practically all branched out from those I have mentioned.

Previous to 1896 there were no Fourdrinier wire weaving plants west of Ohio, the W. S. Tyler Co., being in Cleveland. In this year the Appleton Wire Works was founded at Appleton by William Buchanan, his two sons, and his brother-in-law, A. B. Weissenborn. There are now five Fourdrinier wire weaving shops in Wisconsin, the other four being the Wisconsin Wire Works at Appleton, Fox River Wire Cloth Co., Appleton, International Wire Works, Menasha, and the Green Bay Wire Works, Green Bay.

These several weaving plants were established in the order named.

The changes which have taken place in the paper industry during the life time of men actively engaged in it are almost beyond belief; the changes in width and length of machines, in speed at which they are operated, new materials used for paper making, and the new methods of preparing the paper stock, have revolutionized the industry.

The manufacturers of paper machine wires have not been asleep at the switch, but have steadily perfected their machinery and methods of drawing and weaving wire, endeavoring to keep step with the changes which have taken place in the manufacture of paper.

I have had paper mill superintendents ask me why the Fourdrinier wire manufacturers do not make as good Fourdrinier wires as we did 20 or 30 years ago. My reply has been that we are making better wires today than we did a generation ago, and if the present day wires were run under the same conditions as to speed, stock, etc., as the wires were run at that time, the peresent day wires would give better service and satisfaction than the wires to which they refer.

It is not necessary for me in this company to speak of the great increase in speed at which wires are now run, the increase in suction to get the water out of the sheet more quickly, the wood pulp made from various kinds of wood used for stock, the clay and talc used for filler, etc. These and other changed conditions have made more severe demands on a Fourdrinier wire, which we Fourdrinier wire manufacturers have strained every nerve to meet.

Composition of Wire Metal

Previous to the beginning of this century practically all wires were woven on hand looms operated by two weavers, the shuttle being thrown back and forth by hand. The hand looms have been gradually superseded by power looms that weave wires which are smoother and of more uniform weave than the wires woven on hand looms. Today there is not a Fourdrinier plant of any importance weaving wires on hand looms. These modern power looms are of various types, but are all operated mechanically and controlled by one weaver. Our power loom, invented by our president and manager, A. B. Weissenborn, is operated by compressed air, electrically controlled. Other types of looms are belt driven and operated by a cam.

There are many factors of importance entering into the manufacture of Fourdrinier wires. One of these is the quality of the wire. The two metals used almost exclusively in the manufacture of Fourdrinier wires are low brass and phosphor bronze, although monel metal and nickel alloy have been experimented with for Fourdrinier wires, and while these metals are satisfactory for use in cylinder covers they have not been found satisfactory for Fourdrinier wires. The low brass is termed "Tombac." The composition of this metal is about 80% best lake copper, 20% best horse-head brand of zinc. The composition of phosphor bronze Fourdrinier stock is in the neighborhood of 90% copper, the balance being tin, and phosphorus being added as a cleansing agent and to assist in the amalgamation of the metals.

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*Read before the Superintendents association at the Papermakers' convention, Appleton, Wis., Oct. 25-27, 1923.

Most of the mills find that wires made of all brass give the best results. Other mills prefer Fourdrinier wires made of phosphor bronze warp and a brass shute as best meeting their conditions, while occasionally a mill prefers wires made of all phosphor bronze, both warp and shute.

The wire is reduced to the proper size for weaving the various meshes by being drawn through diamond dies. These diamond dies are round discs of brass about one inch in diameter, in the center of which is set a small commercial diamond or bortz, through which a small hole is drilled which determines the size of the wire.

The drawing of the wire through the dies hardens it. Therefore it is necessary to anneal the wire before weaving that the paper machine wires may be sufficiently soft and pliable to run on the paper machines without cracking.

There are various methods of annealing wire, by gas, oil, electricity, and charcoal. We have always used charcoal for annealing our wire, as in our judgment the best results are obtained by this method of annealing wire for Fourdrinier wires.

One of the most important features of a wire is the seam. As a chain is no stronger than its weakest link, so a Fourdrinier wire is no better or more serviceable than its seam. As the speed of paper machines has been increased, and various wood pulps and fillers have been increasingly used, the paper mills have demanded a seam that is strong; one which will resist the friction and wear of the suction box covers; a seam which will not fill up, and on which the lightest sheet will form with a minimum of seam mark. Years ago when machines were run at a much slower speed, when rag or rope stock was generally used, and there was but little filler, seam trouble was rarely known; but under present conditions seam trouble is the most frequent source of trouble, and this in spite of the most strenuous efforts of the Fourdrinier wire manufacturers to put seams in their wires which will meet all of the various modern requirements.

In years gone by in the slow running machines with a smaller number of suction boxes, the shake of the machine would prevent the wire from scoring the suction boxes, but as the speed of the paper machines has been increased and additional suction boxes have been added to get the water out

(Continued on page 14)

Coloring of Paper*

Properties of Dyestuffs Used in the Paper Industry—Discussion of Troubles, Their Cause and Remedies

By KENNETH T. KING
Du Pont de Nemours Co.

VARIOUS papers on coloring have been read before this association during the past four years, the subject matter for the most part being of a general nature with respect to the selection and application of various groups of dyestuffs to different grades of paper. Very little attention has been paid in these papers to the use of individual dyestuffs.

The technical department of a dyestuff company can classify its work into three groups; namely:

First, research or development work, together with the practical application of this work in the mill.

Second, matching of shades, using the laboratory as an aid for practical matching in the mill.

Third, helping to correct difficulties with respect to the use of dyestuff in the mills.

In going over the color problems which the various mills have brought to our attention we find a marked similarity in the difficulties encountered. A great many of these differences are due to the incorrect manipulation of certain individual dyestuffs on account of characteristic properties they may have.

Rather than discuss the dyestuff question in general, this paper will be devoted to a discussion of the properties of certain dyestuffs or groups of dyestuffs which are used extensively in the paper industry and which have been the most general causes for trouble.

Handling Basic Colors

Basic colors, as a class, should never be dissolved at a temperature above the boil. If live steam is used in dissolving basic colors, there is a chance that the strength of the dyestuff may be reduced as much as 30%. If, upon allowing the dyestuff solution to stand after boiling by the use of live steam, an oily or tarry mass rises to the surface of the solution, it is proof that a certain disassociation has been produced by the steam.

This trouble can be avoided by dissolving basic dyestuffs in the following manner: Heat the water to a boil, and then sprinkle the dyestuff into this solution with constant stirring. The dyestuff will go into the solution more readily than by shooting live steam into the solution containing the dyestuff, and clotting is avoided in addition to the guarantee that the strength of the dyestuff is not decreased due to the disassociation.

There are three exceptions to the above rule in the dissolving of basic dyestuffs; Auramine, Victoria Blue and Basic Browns should never be dissolved in water over a temperature of 160°F. In fact, in the case of Auramine, the temperature should not exceed 140°F.

Theoretically, approximately 40 parts of water should be used in dissolving one part of basic dyestuff. In practice, the best general rule to follow is never to have less than 80 parts of water per part of dyestuff. In other words, approximately one pound per ten gallons.

In many mills using the basic blues and violets for tinting, the dyestuffs are found to crystalize out of solution along the sides of the tank. This may sometimes be corrected by the addition of acetic acid to the dissolving water before the dyestuff is added, but in case acetic acid will not correct this difficulty, it is a direct sign that the dyestuff is in too concentrated a solution.

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* *Presented at Superintendents association, Papermakers' convention, Appleton, Wis., Oct. 25-27, 1923.*

Basic dyestuffs should never be allowed to stand in solution for more than 24 hours, because after that length of time hydrolysis takes place to an extent of weakening the solution as high as 20%.

Auramine is hydroscopic in character, and if kept in a very damp place may absorb to as high as 15% of moisture. For this reason, Auramine, more than any other dyestuff, should be kept in storage where atmospheric conditions are normal, these being the conditions under which it is standardized.

Whenever a complaint is made concerning the standardization of Auramine, our first step is to weigh the contents of the keg or barrel, compare this weight to the gross weight marked on the barrel, and it is usually found that where pound for pound the strength of the dyestuff is supposedly reduced, the gross weight of the barrel has increased in practically the same proportion.

Chrysoidines and Basic Browns require alum to develop their shade. Due to the heat of the dryers, a sheet of paper colored with Chrysoidine will appear redder as it comes off the machine than it will be five minutes later. This point must be watched in matching a new shade, so as to not act too quickly in changing a formula in case the paper first run over the machine is a trifle red.

The chief difficulty in using any of the Basic Violets is that the paper colored with them is decidedly redder under artificial light than in a natural light. For this reason it is harder to hold a shade with Methyl Violet during the night than with any other basic dyestuff. If the mill is equipped with a daylight lamp, a good policy is to use the lamp both during the day, as well as at night. Practically no trouble is ever experienced with any of the other basic dyestuffs, provided the general directions for dissolving are followed.

Characteristics of Acid Colors

Acid colors differ from basic colors in the fact that they may be dissolved at a boil. Approximately half the water is required to dissolve them as is required by basic dyestuffs, and they are practically unaffected in shade by the heat of the dryers. More trouble is experienced however, with Metanil Yellow, belonging to this group, than with any other dyestuff used in the paper mills.

Metanil Yellow is very sensitive to excesses of acid or alum, this sensitiveness being accentuated by heat. This dyestuff is the most economical to use for the manufacture of yellow shades of container liner, but unless certain points are closely observed, it is practically impossible to hold a uniform shade on this type of stock.

It is common practice in the board mills to use excess of alum as well as to heat up the liner stock to temperatures ranging from 100° to 110°F., which is good practice, to 180°F., which is very poor practice. In having the temperature of the beater excessively over 110°F., not only is the shade of the board decidedly deadened, but the sizing is also decreased, and the strength of the stock reduced. In other words, if enough alum is used for sizing purposes and the temperature of the beater be kept at the correct degree, no trouble with Metanil Yellow should be experienced, but in case the shade of Metanil Yellow is deadened, the superintendent should look further to see the sizing qualities of his board, for the Metanil Yellow acts as an indicator on this point.

Acid colors are the most satisfactory for calender coloring, but for this type of work the most highly concentrated brands obtainable should be employed for the following reason: Reduced brands of acid dyestuffs are diluted with salt, and the salt solution when impregnated into the surface of the sheet of paper will naturally decrease the sizing qualities.

This point is also applicable to the use of concentrated brands of acid or direct dyestuffs in the beater, for here again the salt used in diluting reduced brands has a deteriorating action on the size. Practically no other trouble is experienced with the acid dyestuffs, with the exception of trouble from two sidedness and foaming.

Foaming may be decreased by the use of slight excesses of alum and by decreasing agitation of the stock to the minimum. If such methods are not satisfactory, the introduction of a small amount of Turkey Red oil or a mixture of linseed oil and ammonia will decrease the foaming. The use of kerosene is to be avoided because it acts as a solvent for free rosin in the size and will appear on the machine by gumming up the press rolls.

Two sidedness is a question too paramount to discuss in a paper of this type. Our research department is working on this problem and within the next few months we hope to have information which will be of decided advantage to all the mills.

In the coating mills acid dyestuffs face the problem of fastness to alkali. This problem resolves into a careful selection of just which dyestuffs should be used for each coating formula.

Direct dyestuffs like acid dyestuffs may be dissolved at a boil, though continued boiling is not good practice. Alum has the property of dulling all direct dyestuffs, which explains the difference in shade obtained on sized and unsized papers.

On mixed furnishes trouble is often experienced due to granite fibers appearing in the sheet. This can be avoided either by adding the dyestuff in very cold dilute solution, or by adding it dry to the beater.

As explained in the use of Chrysoidine, certain direct dyestuffs are much redder in shade due to the action of heat and alum when first they come off the machine than after the paper has assumed atmospheric conditions. Direct dyestuffs that act in this manner are very seldom recommended for use in paper mills, because other direct dyestuffs which do not act this way can be used to obtain the same shades at approximately the same cost.

Heat Losses in Machine Room

(Continued from page 6)

The proper use of the economizer manufactured by J. O. Ross Engineering Corporation and applied under Briner and Alexander patents will effect further savings as follows:

Economizer Design Data From J. O. Ross Engr. Corp.

Item	Name	A Open	B Hooded	C Closed
1	Total air to Economizer No.	3270	1350	675
2	Temp. fresh air to Economizer	30°F	30°F	30°F
3	Temp. fresh air to Economizer	85°F	90°F	90°F
4	Temp. Exh. air from Economizer	87°F	95°F	100°F
5	Total B. T. U. Economizer	216,000	151,000	131,500
6	Total B. T. U. removed from Economizer	43,100	60,700	78,900
7	% Heat recovery	20%	40%	60%
8	B. T. U. required for No. of air	13.2	14.4	14.4
9	No. min. heated air	3270	4220	5480
10	Cu. ft. per pound	13.75	13.86	13.86
11	C F M heated air	43,500	58,500	75,900
12	Equivalent steam recovered No. min	43.1	60.7	78.9
13	Boiler horse power recovered	81	114	148
14	Steam cost per ton paper dried	4.98	3.46	3.02
15	Steam saved per ton paper dried	$ 0.99	$ 1.40	$ 1.81
16	% Steam saving by Economizer over open room	20%	40%	60%
17	Combined saving $ per ton	$ 0.99	$ 1.93	$ 2.78
18	Combined saving closed machine over hood			$ 0.85
19	Combined % saving over open room		38.8%	55.8%
20	Combined % saving closed machine over hood			24.6%

Conclusion

The open machine shows large losses and the closed machine shows decided saving over the hooded machine.

The economizer savings are large and warrant its general adoption.

The combination of the closed dryer and the economizer give the lowest drying cost.

Speeding Up Cornish China Clay

Loading Dock and Electrical Conveyor Established at Frowey to Expedite Shipment of Town's Principal Product

By W. Trethewell
Of St. Austell, Cornwall

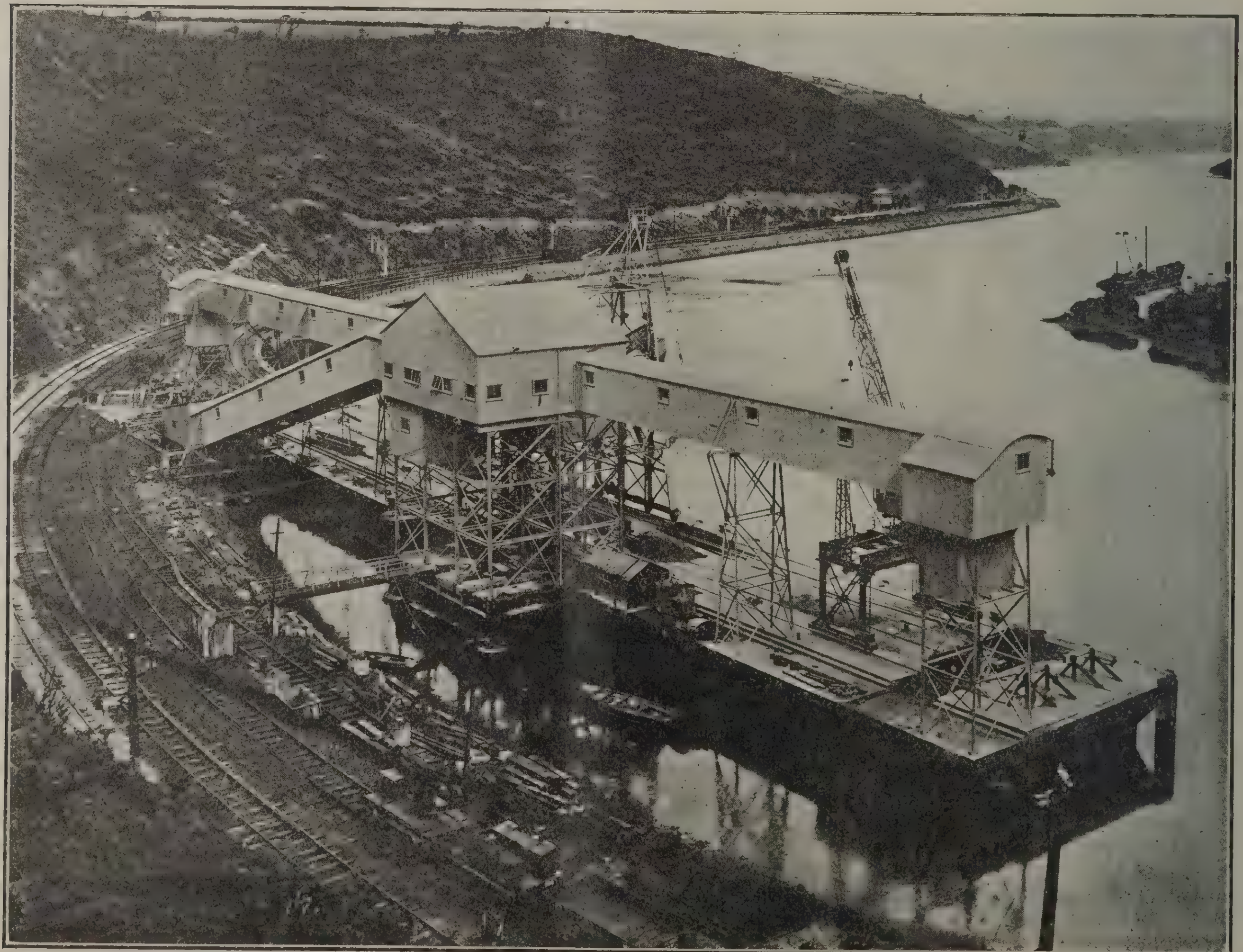
THE opening of a new jetty with its wonderful electrical transporting apparatus at Frowey, Cornwall, England, erected by the Great Western Railway company at a cost of £300,000, marks an important event in the history of the Cornish china industry and it is hoped will open up quite a new and interesting era of prosperity to all connected with the development of this world famous product.

For years the port of Frowey has been the chief exporting centre for the china clay trade and, with the increasing demand of the American markets, producers have frequently been perplexed with the problem of how to avoid delay in the despatch of big boats coming into the harbor. Although Frowey possessed seven jetties, six of them could only be regarded as tipping stages, with a small capacity of between 300 and 400 tons per day each, and the best performance on record is a shipment of 280 tons in three hours. three hours.

It was in the year 1900 that the Great Western Railway company, with characteristic foresight, equipped one of the jetties with an electrical transporter constructed upon the endless band principle, conveying the clay up to a chute connected with an adjustable tube, thence discharging the clay into the hatches of the boats. This mechanical arrangement has been capable of shipping 1000 tons per day and the best performance on record is the transference of 1500 tons in 12 hours.

The number of boats calling at Frowey for china clay for the United States of America, by what is known as the "Direct Line," have been exercising the attention of the authorities controlling the port for some years.

As far back as 1912 the Great Western Railway company decided upon a new jetty with an electrical apparatus far superceding the No. 6, and one which would meet the demands of the industry for several years. The war, however, held up the scheme until 1920 when operations were resumed, and its completion has created the liveliest satisfaction to all concerned in the prosperity of the industry.



Frowey's new jetty and electric conveyor, showing a picturesque portion of the river and haven

The harbor commissioners, with such distinguished leaders as Sir Arthur Quiller-Couch, a native of Frowey and one of England's foremost literateurs, and J. De Cressy Treffry, have been assiduously co-operating with the Great Western Railway in the development of the port by a vigorous dredging scheme, to afford a free egress of vessels of a much larger tonnage and enabling them to load at any state of the tide.

Down to the year 1870 there was very little development in the size of the ships employed in the china clay trade. The average size was 100 tons. In that same year a barque named the Belmont, homeward bound from Rangoon, came in for shelter during a heavy gale. She was 958 tons, and was probably the biggest merchant vessel that had entered Frowey down to that time.

Now the biggest ship that enters the harbor in its regular course is the American steamer "Steadfast" of 7883 tons gross, and 444 feet long. Even during the early part of October the Japanese s. s. "Venice Maru" sailed with the largest consignment on record of 8,208 tons of china clay for Philadelphia, and many large consignments ranging from 5000 tons to 7500 tons are being frequently despatched for American consumption.

It was this increasing trade and tonnage that led the Great Western Railway company to embark upon one of the most ambitious undertakings ever attempted to accelerate the despatch of shipments of china clay, and the consummation not only confers a boon upon the china clay industry, but also emphasises the forward policy of the Great Western Railway, as well as the adroitness of their engineering chiefs. The Great Western Railway company has practically the monopoly in the transmission of the china clay from the works to the port but they have, by their specially constructed branch lines and miles of sidings, co-operated with the producers in bringing the industry to the exalted position it holds to-day.

Every harbor which has a natural resource has been the subject of schemes for the attraction of great ships. This may sound merely obvious, but as Sir Arthur Quiller-

(Continued on page 21)

Will America Profit by Canada's Errors?

By **B. T. McBain***

Assistant General Manager, Nekoosa-Edwards Paper co.

News Item: "Three hundred square miles of pulpwood burned in Quebec in October, 1923."

AS trees grow in Canadian forests about as thick as hair grows on a dog's back, the loss of pulpwood in this one fire probably approximated 5 million cords.

This is not the only loss. The supply has not only been diminished but has been put just that much farther away from consumers and has greatly increased delivery cost. Besides, this was not the only fire in Canadian woodland sections in 1923; but only one of the many that are fast devastating the timbered resources of our brother country to the north of us.

American forests have been burned in the past and so have other Canadian districts borne the loss of that demon Fire; but, have they profited by these experiences and losses?

It is of record that the loss by fire in both countries each year amounts to more than the annual cut for pulp and paper mill uses. It is estimated also that at present consumption and fire loss annually, the timber supply with natural growth will not last many more years. This should not be alone of interest to paper mill owners and employes; but to consumers of paper, both large and small and all of us are in some way consumers of paper and paper products.

The press of the country is beginning to wake up and give this question some thought and space; but not one percent of what they must eventually do, to get the matter squarely before the people so they in turn will force their representatives in the various state legislatures and the national congress to give it the time and attention necessary to perpetuate our pulp wood supply.

Canada is waking up; but instead of stopping the flow of waste at the bung hole, is trying to stop that minor drip of waste at the spigot. They are burning up each year, so it has been stated and the evidence is available to bear out these statements, many times as much wood as is being exported to the United States, yet instead of taking heroic means to prevent the loss by fire, they are trying to prevent that smaller loss to Canadian pulp mills' future supply, by tagging up an embargo on exportation.

But, can we find fault with our Canadian brothers? Are we doing enough for ourselves along the lines wa lay down for them to follow? Of course, our timberlands were no older than Canadian lands; but we did start cutting them for pulp purposes many years sooner than cutting was commenced in Canada and we should have been practising forestry ever since the cutting began.

Forestry is not alone the planting of trees any more than farming is only the planting of seed. Farming is more the protection and care of the growing crop and proper preparation of the soil than it is the planting of seed. So it is with forestry, except that a crop calls for a season of 40 years rather than one. Forestry first is the protection of the natural planting and forest protection starts with means for fire prevention before fire fighting.

Canada did not profit by America's foolish experience of the past and did not arrange for proper fire prevention and protection. Will America now profit by Canada's foolish experience and devastating fire losses of the past month? Will the people of the various states of America sit idly by and allow their legislatures and the national congress to pass up this greatest of national calamaties which stares us all in the face—a wood famine? Yes, they will sit idly by, gentlemen of the pulp and paper industry and other wood using industries, unless you take immediate steps to apprise them of the facts through word of mouth, educational work in the schools, in the clubs, granges, farmers' unions and other unions, to the end that the people know the truth and order correction.

The pulp and paper manufacturers of Wisconsin are showing signs of activity. Let us hope they will not be like the volcano that boils up to the surface of the crater and then subsides into obscurity; but will be real means of starting the fires of public opinion to the desired end.

Fire prevention, fire protection and forestry and finally, a perpetual supply of pulp wood for the north American continent.

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* *Paper read before Wisconsin Fire Protective Association.*

Annual Strathmore Dance

The eighteenth annual president's dinner and dance of the Strathmore Paper company, in honor of Horace A. Moses, was given by the department heads of the company Nov. 3 at the Hotel Kimball, Springfield, Mass. Dinner was served to the officers and ladies at 6:15 and was preceded by a brief reception. President Moses was toastmaster and brief toasts were responded to by the department heads. Dancing followed until midnight.

Elaborate decorations in honor of the occasion prevailed. Favors consisted of cigars and candy and were distributed with a lavish hand. The dancers wore colored headgear made of paper while ribbon confetti and fancy balloons were used effectively.

The committee in charge consisted of Paul Griswold, chairman, assisted by Miss Gertrude Neipp, Miss Helen Downs, Miss Doris Osha, James Speed, Godfrey Porter, Fred May, Charles Higgins, Harold Bolles and George Wholean.

The guests of honor were Rev. Dr. and Mrs. Fred Winslow Adams, Mr. and Mrs. D. S. Barrus, Mrs. Lillian D. Breuninghausen, Rev. Glenn W. Douglass, Mr. and Mrs. George H. Harris, Mrs. and Mrs. E. V. Johnson, Mr. and Mrs. J. Leavenworth, Mr. and Mrs. Charles W. Moses, Miss Madeline Moses, Mr. and Mrs. Edward W. Pillsbury, Miss Mary Reid, Mr. and Mrs. Harry Riggs, Mr. and Mrs. Kenneth Robbie and Bradley Stafford.

Water Conditions in Wisconsin

Paper mills in the Wisconsin river valley are experiencing a handicap caused by the low water conditions While this condition is not extremely serious and no unusual difficulties are looked for it is a fact that curtailment of production in some departments of these mills may be looked for.

There have not been the usual heavy fall rains this year, there being only a few slight rains and these had little result.

The network of reservoirs in Northern Wisconsin where water is normally stored to maintain the river level during the winter season, which are operated by the Wisconsin Valley Improvement company, are at a lower level than they were at this time last year and unless heavy rains occur between now and the final freeze they will continue to lower.

It will, no doubt, be necessary for many mills to shut down grinders, thus curtailing groundwork production. Some have already had to do this. It is expected there will be enough water for most mills to run their electrical equipment although there are a great many who have the necessary steam auxiliaries to meet this condition and some of these have already been brought into play.

Paper Merchants Elect Officers

The annual meeting of the New England Paper Merchants' association was held Thursday, Nov. 8, at the Boston City club, when Arthur W. Blackman of D. F. Munroe Co., Boston, was elected president, succeeding Joseph D. Snell. Other officers elected are: first vice president, Hubert L. Carter, of Carter, Rice & Co., Corporation, Boston; second vice president, Charles A. Esty, C. A. Esty, Paper Co., Worcester, Mass.; treasurer, Albert M. Eaton, A. M. Eaton Paper Co., Boston; secretary, Floyd H. Blackman, D. F. Munroe Co., Boston; auditor, H. P. Robinson Co., Portland, Me.; executive committee, fine papers, Arthur E. Ham, A. E. Ham & Son, Boston and Royden Loring, Arnold Roberts Company, Boston; wrapping papers, Frank H. Merrill, Andrews Paper Company, Boston and Matthew O. Byrne of the Whitney Brothers Incorporated, Boston. Representative to National Paper Trade association, W. F. McQuillen of A. Storrs & Bement company, Boston and F. Bendel Tracy of the Fort Hill Paper company, Boston.

The election of officers followed the dinner. No other business was transacted.

Stream Pollution and Waste Problems

Problems of stream pollution and the wood waste problem on the Pacific coast have been discussed at two informal conferences in the offices of the American Paper and Pulp association.

William A. Gately of the Department of Commerce is working on the Pacific coast question, and asked the assistance of the association in securing information relative to the use of west coast woods for pulp. He has been on the coast for more than two months for Secretary Hoover, studying waste in the lumber industry, and has asked the help of the Woodlands section and the Technical association in further studies along this line, particularly with regard to the use of the wood waste from the lumber industry for paper making.

The discussion of stream pollution was with William Spraragen, secretary of the division of engineering of the National Research Council. Dr. Baker told Mr. Spraragen that the paper industry needs large quantities of good clean water and is in favor of proper methods for preventing stream pollution. Before legislation is enacted, however, it was pointed out there should be a scientific knowledge of what constitutes stream pollution and how it may be properly prevented. With such information, and not otherwise, should it be possible to take legislative steps toward solution of the question.

New Mill on Vancouver Island

Henry W. Kent, of Portland, Oregon, and B. A. Strawbridge of Seattle, Washington, officials of two investment companies, have announced plans for the cutting of from 800,000,000 to 1,000,000,000 feet of timber on Vancouver island, opposite the west coast of British Columbia, and the building of a new pulp and sulphite mill at Edmonds.

Portland interests own the timber on twenty-seven sections adjacent to Quatsino Sound, according to Mr. Brown. The investment companies propose to bond the timber, utilizing the money to build a mill at Quatsino Sound which will export the squared lumber to a finishing plant at Edmonds. Options have been procured on eleven acres at Edmonds.

A pulp and paper mill to use the waste from the Edmonds plant and from other lumber mills on Puget sound is also under consideration by these investment companies.

British Columbia has lost in her fight to curb the exportation of partly dressed logs from her vast forests, is announced by T. D. Pattullo, provincial minister of lands. Southern California has absorbed a large portion of the logs exported. A "joker" in the tariff schedules on lumber made it possible to ship this class of logs out of the country without much trouble. Mr. Pattullo said that British Columbia had gone "to the limit of our powers under dominion law."

Improvements are being made to the plant of M. Backes Sons, Inc. of Wallingford, Conn., manufacturers of paper novelties. An addition costing $20,000 is under construction.

Fighting Foreign Dumping

Abuses of the tariff act as it applies to the paper industry will be followed closely by the American Paper and Pulp association as a result of the paper import conference held at the Waldorf Astoria hotel Thursday, Nov. 15. Several hours of discussion by some of the best known leaders in the industry were followed by a request to the American Paper and Pulp association to take steps to curb the abuses which are becoming so frequent as to constitute a serious menace to the domestic industry.

President Henry W. Stokes of the association, who presided at the import conference announced after the meeting that the executive committee of the association would be asked to meet at the earliest date possible to carry out the wish of the conference. What steps will be taken can of course not be told at this time, as this will depend entirely upon the action of the committee.

The conference was one of the most important meetings of the year, and was marked by statements from various groups in the industry indicating the extent to which foreign paper is coming into the American market in contravention of the spirit of the tariff act.

In opening the conference President Stokes said that the meeting was called because of the damage being done to the American industry by foreign importations, and was followed by Dr. Hugh P. Baker, executive secretary of the association, who reviewed the work already done to combat the dumping and improper entry of foreign papers.

O. M. Porter, assistant secretary followed with an explanation of the procedure under the anti-dumping statute, and other provisions of the tariff act, and Warren B. Bullock, director of the association's Information Service gave figures showing the increase in sales of foreign paper.

John Matthews, Jr., of Washington, chief of the paper division of the Bureau of Foreign and Domestic Commerce told of the difficulties experienced by government representatives in getting information about foreign imports.

Representatives of the various groups affected were then asked to tell of the difficulties they were experiencing. How high grade tissue was being entered as wrapping paper under a low duty and then sold as tissue was told by the tissue paper men. In greaseproof and similar food protective papers it was told that these special papers were being entered as wrapping, and as in the case of tissue marketed as the high quality paper at prices which domestic manufacturers could not meet.

Newsprint and papers for publication were not discussed, the chief evil complained of being in imports from Germany and Scandinavia.

Wrapping paper, however, came in for extensive discussion, because of the manner in which imports have been suspected of coming under the dumping act, or undervaluation. It was pointed out that the quantity of the imports was not particularly large, but that the bankrupt sale prices at which paper from Germany, for instance,was offered had a bad psychological effect on the entire American market.

The sentiment expressed throughout the conference was the need for curbing the abuses becoming increasingly prevalent, and there is no doubt that the association will take steps to combat every effort of European shippers to evade the tariff act.

After an absence of a year and a half, owing to ill health, William J. Robertson has again joined the executive staff of the Heller & Merz company as assistant to the treasurer, Eugene Merz. Mr. Robertson has fully recovered and will devote his attention to the buying and selling end of the business, making his headquarters at the New York office, 503 Hudson street.

Resignations from A. W. P. Co.

Fred H. Sturtevant, a widely known figure in the paper industry, has resigned his position as general superintendant of the fine mills of the American Writing Paper Company of Holyoke, Massachusetts, with which company he has been associated since its organization in 1899.

When interviewed as to his future plans. Mr. Sturtevant stated that after 41½ years in the paper industry he thought a rest was indicated before taking up anything further.

Entering the old Massasoit Paper company at the age of 18, Mr. Sturtevant learned the paper business thoroughly in the respective departments of billings, receiving, and shipping and was on the road as a salesman for ten years.

When the American Paper company was organized in 1899 he was made manager of the Springdale Paper company division; in 1900 he was made manager of the Windsor Division and in 1903 he went to the Parsons division as manager, later being made manager of three other important divisions.

In January, 1915, Mr. Sturtevant was made general superintendent of the whole of the fine mills of the American Writing Paper company, which position he has held up to the time of his retirement.

C. Leslie Barnum, office manager of the American Writing Paper Company of Holyoke, Massachusetts since May, 1923, has resigned his position.

Mr. Barnum, who has been with the company for sometime was head of the department of Technical Service during the Gallivar regime and took up the office managership when the former department was discontinued.

Barnum made a name for himself during the war when he served as under secretary on the Hoover commission.

New Mill at Plattsburgh

H. P. G. Norstrand, who resigned as manager of the Stevens and Thompson mill in Greenwich a few months ago to take part in the organization of a new pulp and paper company in Plattsburgh, has been elected president and general manager of the new concern, which is incorporated under the name of the Saranac Pulp and Paper company. H. H. Guibord is vice president of the company and John W. Guibord is treasurer.

The new company is converting the plant formerly occupied by the Lozier company into a modern paper mill. The former boat building plant is to be occupied by the pulp mill and the main building which was used by the Lozier concern for the manufacture of automobiles, is being converted into a paper mill. It is expected that the pulp mill will be ready for operation in the spring and the paper mill will be completed in the early summer. The plant is located in the north end of the city of Plattsburgh.

The company is also developing a hydro-electric power on the Saranac river five and a half miles from Plattsburgh. This plant will have a capacity of 3,600 horse power and will furnish energy for the operation of the new paper and pulp mills.

The Western Forestry and Conservation association will meet at Seattle, Washington, December 13 and 14. Representatives from California, Oregon, Montana, Idaho, Washington and British Columbia will attend the conference. Subjects which will engage the attention of the conference will be reforestation, fire prevention, expense of holding timber lands, length of hunting seasons (these increase the danger to forests from fire) and other matters pertaining to forestry.

Activities of Association Officers

Busy times in the offices of the American Paper and Pulp association have followed the fifth fall business conference in Chicago and other meetings in the middle west, attended by different members of the association's executive staff.

Dr. Hugh P. Baker, executive secretary of the association, after the Chicago conference visited paper mills in Minnesota, addressed faculty members of the University of Minnesota interested in forestry problems on the need for cooperation between industry and the forestry schools for the better handling of the country's forest resources, and then went to Wausau for the conference which resulted in the formation of the Wisconsin Forest Protective association. On the return from Wisconsin he attented the annual convention at Chicago of the American Trade Association Executives, where he spoke on standardization in industry. On the trip back east he stopped at Lockport, N. Y., to visit mills in that region, and was a speaker at the Lockport Rotary club.

While Dr. Baker was in the west, O. M. Porter, assistant secretary of the association, attended the joint convention at Appleton of the Technical, Cost and Superintendents associations, and spoke before the convention on the need for intensive study of the raw material problem.

Immediately upon the return of Dr. Baker from the west, Henry W. Stokes, president of the association came to New York to plan the associations's program for the next six months until the April annual meeting in New York.

Mr. Stokes was asked to attend a conference of business men representing trade associations at which Mr. Hoover took up the question of trade with Japan, but was represented by D. A. Smith of the District of Columbia Manufacturing company.

Enlarging Manning Paper Mill

Construction of an addition to the John A. Manning Paper company's plant in Green Island, N. Y., that will increase its output fifty per cent has been started. The new addition will be 350 feet long and 45 feet wide. It will be of two story brick construction.

Ten years ago the Manning company purchased the plant that was used by the Gilbert car works, finding it necessary to move from Troy, because of the removal of the state dam and the need of constructing a large barge canal terminal where their former building had stood.

Officers for Indianapolis Companies

Meetings were held in Indianapolis October 11 of the Beveridge Paper company, the Toledo Paper Stock company and the National Paper Stock company for the purpose of electing officers for each of these companies.

The following were elected for each company: Samuel B. Sutphin, president and treasurer; Stuart B. Sutphin, vice president; Marshall D. Lupton, secretary.

Swedish Pulp and Paper Prices Decline

The average domestic prices of various kinds of paper in Sweden at present show a decrease all along the line, compared with those reported September 17, writes Consul D. I. Murphy from Stockholm, under date of October 5, to the Department of Commerce.

Present prices on kraft and M.G. sulphite are as follows: Kraft, 40 grams and up, 380 crowns (1 crown equals $0.26); 35 to 39 grams, 400 crowns; 30-34 grams, 430 crowns; 25 to 29 grams, 460 crowns; 20 to 24 grams, 500 crowns; 18 to 19 grams, 540 crowns; and 17 grams, 580 crowns.

Prices on M.G. sulphite were: 40 grams and up, 340 crowns; 35 to 39 crowns, 360 crowns; 30 to 34 grams, 390 crowns; 25 to 29 grams, 420 crowns; 20 to 24 grams, 460 crowns; 18 to 19 grams, 500 crowns; and 17 grams, 540 crowns.

Domestic prices of the various kinds of Swedish wood pulp have also decreased, the present prices being: Bleached sulphite pulp, 300 to 325 crowns; easy bleaching sulphite, 245 to 255 crowns; strong sulphite, 225 to 240 crowns; strong sulphate, 225 to 235 crowns; and wet mechanical pulp, 70 to 75 crowns.

E. E. Keough has returned from an extended business trip to the Pacific coast in the interest of the American Writing Paper company and will continue his work as manager of the advertising department of that company, working in close conjunction with the newly created department of sales promotion, which is in charge of Fred Webster.

The Story of Fourdrinier Wires

(Continued from page 8)

of the sheet rapidly, the wire has a tendency to hang or freeze to the last one or two suction boxes, which scores the suction box covers, and this scoring in turn gouges and cuts away the seam, causing the seam to break out before the full life is obtained from the wire.

Much thought has been given the matter of overcoming this scoring of the seams. One method has been to weave paper-machine wires slightly sinuous so that the wire will have a slight serpentine motion when running on the machine. This is to prevent the wire from tracking and scoring the suction box covers.

Another method of overcoming this trouble is to equip the paper machines with oscillating suction boxes to achieve the same result of preventing scoring as the weaving of the sinuous wires accomplishes.

All wire manufacturers have more or less seam trouble, and one of the mysteries of our industry is why several wires, one after the other, will give good satisfaction and service and the seam not break out, while the next wire run, made of the same stock, woven in the same manner, and the seam so far as we know exactly the same, will be gouged and worn away so that the seam will break out before the wire has given its full life.

Another factor of importance is the proper stretching and packing of Fourdrinier wires. The stretching rolls and beams must be large and strong that there may be no spring, and that the wires may be stretched square and flat and so run true on the machine and guide properly.

As the paper machine wires have become larger and heavier the packing of them has become a greater problem, requiring larger and stronger rolls and heavier boxes. If these heavier boxes receive rough handling or are dropped on end from freight cars or trucks, as is sometimes done, the liability of damage to the wire is vastly increased.

If the men who put on wires and who handle them in the mill could see how they are made and realize the care the wire manufacturers exercise in weaving, seaming, stretching, and boxing them, it would no doubt make them more careful to see that the wires get on the machines in good condition and free from all breaks, kinks, dents, and creases, etc., which of course tend to shorten the life of a wire on the machine.

It is always a pleasure to show visitors through our plant, that they may see how wires are made, and I extend a cordial invitation to any and all of you to visit the Appleton wire Works and see how "Good Wires" are made for, as you probably know, "Appleton Wires are Good Wires". I am sure that John Watson, manager of the Wisconsin Wire Work would also be pleased to have you visit his place.

Construction News

Winchester, Va.—The Shenandoah Boxboard Corporation, recently organized at Coshocton, Ohio, has acquired the local plant of the Old Dominion Paper Co. Plans are under way for extensions and improvements in the existing works, including remodeling and the installation of additional equipment. It is proposed to use the plant for the manufacture of cartons and kindred products. Nathan H. Carpenter is president of the new company.

Brooklyn, N. Y.—E. J. Trum, Inc., 55 Third street, manufacturer of paper boxes, containers, etc., is having plans prepared for the construction of a new three-story plant, 100x150 ft., at 764-66 Fourth avenue, Brooklyn, estimated to cost approximately $120,000, including equipment. William Higginson, 15 Park Row, New York, is architect.

Kalamazoo, Mich.—The Valley Paper Co., Press building, has plans in preparation for the construction of a new paper mill on local site, with main operating unit and auxiliary structures, estimated to cost close to $500,000, including machinery. The project calls for the erection of a power house, machine shop and water filtration plant. Billingham & Cobb, Press building, are architects and engineers.

Circleville, Ohio—The Hinde Paper Box Co., has tentative plans under consideration for the construction of a new local plant for the manufacture of fiber boxes and containers. It will be 80x350 ft., estimated to cost approximately $60.000. Equipment will be electrically-operated.

Trainer, Pa.—The Congoleum Co., with plant at Trainer, near Chester, has acquired a tract of land in the vicinity of its works, comprising about 20 acres of property, for a consideration said to be $50,000. The new owner is reported to be planning for the erection of a paper mill on the site, to cost in excess of $100,000, with machinery.

Philadelphia, Pa.—The Philadelphia Paper Mfg. Co., River road and Fountain street, has awarded a general contract to the Hughes-Foulkrod Co., 1312 Chestnut street, for extensions and improvements in its plant, to cost close to $10,000.

Halifax, N. S.—The Albany Perforated Wrapping Paper Co., operating as the A. P. W. Paper Co., has acquired a tract of about 60,000 acres of pulp and timberland property in the vicinity of Sheet Harbor, near Halifax, and has tentative plans for the construction of a new pulp mill to cost approximately $250,000, with machinery. A machine shop and electric power substation will be built. Arrangements have been made with the Nova Scotia Power Commission, it is stated, for service from the central generating plant of this organization. The initial plant will be equipped for an output of about 25,000 cords of pulp wood per month, giving employment to close to 300 operatives. It is expected to have the plant ready for service early in the spring. The property acquired heretofore has been held by the Sheet Harbor Lumber Co., formerly Rhodes & Curry.

San Francisco, Cal.—Col. Daniel C. Jackling, Hobart building, is said to be at the head of a project to construct and operate a large paper mill in the vicinity of Juneau, Alaska. The proposed mill is reported to be estimated to cost in excess of $1,500,000, with machinery, and will consist of a number of operating units.

Boonton, N. J.—The Powerville Paper Mill has negotiations under way for the sale of its hydroelectric power plant and water rights on the Rockaway river, to the city, for a consideration of $60,000. The municipality purposes to use the station for a municipal plant.

Boston, Mass.—Lyle A. Brown has leased space in the building at C and Fargo streets, South Boston, for the establishment of a new plant for the manufacture of paper products.

Philadelphia, Pa.—Fire, Nov. 3, destroyed a portion of the four-story building of the Hemingway Paper Co., 238-47 Elbow Lane, near Third and Market streets. The amount of estimated loss has not been announced. Tentative plans are under advisement for rebuilding.

North Tonawanda, N. Y.—The corner stone of the new mill on Little Island, to be erected by the Daily News Paper Corporation, a subsidiary of the Ontario Paper Co., Thorold, Ont., was laid with appropriate ceremonies on Oct. 30, and superstructure work will be pushed to completion, with expectation of having the plant ready for service early in the coming year. Carl F. Drewes, mayor of the city, officiated at the event.

New Companies

Newark, N. J.—The Union Waxed & Tissue Paper Co., Inc., has been incorporated with a capital of 6,000 shares of stock, no par value, to manufacture special paper products. The incorporators are R. Flaster and Rae W. Shapiro. The company is represented by Bilder & Bilder, 790 Broad street, Newark.

Chicago, Ill.—The William W. Noble Label & Box Co., 448 North Wells street, has been incorporated with a capital of $35,000, to manufacture paper boxes, labels, and kindred products. The incorporators are William M. Noble, M. Zahl and John M. Bryant.

Paterson, N. J.—The McCrystal-Greene Co., Inc., has been incorporated with a capital of $50,000, to manufacture and deal in paper products. The incorporators are Frank H. Greene, Martin De Luccia and Joseph McCrystal, 74 First street, Paterson. The last noted is representative.

Herkimer, N. Y.—The Waterproof Paper Products, Inc., has filed notice of increase in capital from $50,000 to $100,000, for expansion.

Plant Operations

The Eddy Paper Co., Three Rivers, Mich., is maintaining active operations at its mills and is establishing new records for reduction in cost of production. At its Mill No. 3, the second highest monthly average output was obtained in August, this being 9,350,499 pounds of material; this same month also established a record for the year's lowest average cost of converting waste paper into the finished product, being $18.17 per ton, as compared with a high cost figure obtained in June of $27.74 per ton. The previous low cost record was derived in April, with the figure standing at $19.17 per ton. This mill is the largest unit of the company plants, and includes the box and container departments.

Paper box manufacturers at Philadelphia, Pa., are advancing production and report increased orders, particularly for containers, standard and special, for holiday service. A number of plants are adding to their working forces and expect to hold to the present schedule of output for an indefinite period. Sales are said to be considerably ahead of those at this time a year ago.

Paper mills in the Fox river valley section of Wisconsin expect to increase operations in the near future, and despite the usual dull seasonal period from which the industry is now emerging, there has been an uninterrupted shipment of pulpwood to the plants. No mill hereabouts, incidentally, has been forced to close down, or to reduce its working force to any noticeable extent. The plants have been handicapped recently through a water shortage, necessitating the use of auxiliary steam power for operation.

Buck, Caier & Co., Inc., importers of pulp, have removed their New York City office from 342 Madison avenue to 9 East Fortysixth street.

New Developments in Paper Making

Moisture Indicator

In order to determine and record the humidity of paper at any given point between the wet end of the forming mechanism and the calender rolls, wet and dry bulbs mechanisms are placed against the web. These testing and recording devices may be moved continuously over the surface of the web to test it at numerous points so that it is possible to obtain a mean estimate of a moisture content. In connection with the testers devices may be provided for regulating the temperature in accordance with the records given. This apparatus is patented in British patent No. 192,401.

* * *

Making Cardboard

German patent No. 381,145 is concerned with a process and apparatus for the manufacture of cardboard from different stocks with the help of the cylinder machine. The machine serves to combine the different layers of stock into one homogeneous sheet. The new feature of this process is that the different layers of paper stuff, after being formed on either one or the other of the cylinder screens, is then transferred to a single forming roll, one layer after the other being carried over to that roll and combined into a single sheet.

* * *

Distilling Waste Sulphite Liquors

Swedish patent No. 50,740 is concerned with a screen of distilling waste sulphite cellulose liquors. The process is characterized by the fact that a part of the distilled vapor, after being heated, is returned to the mass of liquor in the still so as to maintain the temperature at the distillation point. The heat recovered from the steam that does not take part in this cycle, is used either for heating or drying purposes. The organic acids that are distilled over along with the steam are absorbed by making the latter pass through a bath of milk of lime or other similar and suitable absorbents.

* * *

Cotton Cellulose

A process for the manufacture of cotton cellulose is patented in Swedish patent No. 53,422.

The process of making a cellulose which is an imitation of cotton cellulose consists in treating ordinary sulphite cellulose in a special manner so as to render it more pliable. In this form it is advantageous to use it for rag stock in making special printing papers and the like. The process consists in subjecting the sulphite cellulose to a digestion with a solution of alkali while agitating it constantly. Pressure may or may not be employed in the digester in which the operation is carried out.

* * *

Paper With Hand Made Finish

United States patent No. 1,470,675 which is assigned to the American Writing Paper Co., is concerned with a process of manufacturing paper which has a finish that makes it resemble handmade paper.

The papermaking machine that is used for this purpose comprises a pulp vat, a rotating cylinder which is covered with a screen with imperforated strips spaced at regular intervals over it and protecting out from the surface of the screen for indenting the web of pulp formed on it in divisional lines. T machine also contains a series of pairs of press rolls, top a bottom felts engaging opposite sides of the web as it pass successively through the press rolls.

There are also breaker rolls for receiving the web after passes through the press rolls. These breaker rolls act fri tionally to pull the paper web apart into individual shee along the indented lines that are impressed as described abov

The paper then passes over one or more drying cylinde which are provided with top and bottom felts for receiving t divided sheets of pulp from the breaker rolls, after which t paper passes through a sizing bath.

* * *

Pulp Digestion Process

The process which is patented in German patent N 380,497 is concerned with the manufacture of pulp digestion under pressure and with indirect steam heatin so as to save heat.

The indirect method of digestion has often been appli by conducting superheated or saturated steam through coi located in the digester, the steam yielding its heat to t liquor. The economy of such an apparatus lies mainly the fact that the steam gives up the greater part of i heat in passing through the coils, so that a measurement the economy is afforded by noting the difference in ter perature between the incoming and outgoing steam or co densate.

In this heating process there are in reality two stage one in which the liquor is brought to the boiling point a the other in which the boiling of the same is actual carried out. In ordinary apparatus the first stage of t process has always been carried out with efficiency whi this has not been the case in the latter stage.

This is accomplished by arranging a number of stea coils in the digester which are fed with the steam that evaporated during the first stage of the heating proces This recovers the heat in the steam and enhances t economy of the entire heating process.

* * *

Waterproofing Paper

Waterproofing of paper is effected by precipitating, by mea of alum, within the beater in the usual manner, a size co sisting of an emulsion of a bitumen, fat, wax, or mineral o in a solution of rosin soap to which has been added a protecti colloid such as glue, gelatin, starch and the like, and also condensing agent or polymerizing such as formaldehyde, tann acid, chromic acid, etc. These latter substances are capab of polymerizing the rosin, partially oxidizing the mineral wa and hardening the fibers.

For example, to a size containing sodium resinate at a ten perature of 70 degrees C, there is added one third of a pi of paraffin wax which has a melting point of from 40 to 5 degrees C. The mixture is then emulsified, eight to ten percen (calculated on the weight of the rosin) of a 40 percent solutio of formaldehyde is added and the mixture is agitated until attains the desired properties. Gelatin (one to two percen calculated on the water present) may be added for the purpos of retarding the subsequent precipitation with alum.

The resulting size is added to the beater and the paper pul is maintained at a temperature of from 45 to 50 degrees until the couch roll is reached. This sizing composition patented in German patent No. 202,432.

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

Is The Profession Over Crowded?

The first forestry school established in this country was the Biltmore school in South Carolina in 1898, and the second was the Cornell school in the same year. The Biltmore school is no longer in operation. At Cornell the forestry department is now a part of the New York State College of Agriculture and is strongly organized. The Yale Forest school came into being in 1900. Then followed in the next eight years the organization of forestry schools all over the United States. In 1911 the New York State College of Forestry was established at Syracuse, and this school has now become the largest institution of its kind. There are at the present time about thirty schools teaching forestry in the United States and Canada, in which approximately 1500 students are registered.

On the basis of a five year course leading to degree of Master of Forestry, the annual output of the forestry schools is approximately 300 men—a low figure as compared with the engineering profession, the medical profession, the law, or any of the well established professions in this country. The statement is occasionally made that the forestry profession is over-crowded. This is probably due to the fact that a large number of applications are received annually by certain favored industries and because many of the foresters attempt to remain in the east where a large proportion of them have trained, rather than to seek their first few years' experience in the western field.

The more the question is studied the clearer becomes the conclusion that over-crowding is purely local and transitory. We do not know of very many foresters of ability who are out of a job; and of those who have taken the full course and entered the field we know of practically none who are not busily and productively employed. Of course, there are a few mis-fits in every line of effort and it requires an all round type of man to make a good forester.

Filibert Roth, head of the Michigan school, speaking to a group of foresters in New York in 1920, said that if a policy should be adopted requiring the application of forestry principles to all timberland holdings it would be utterly impossible to find foresters enough in the country to handle the situation. He stated that a forester qualified to hold a highly responsible position should have in addition to his technical course about ten years of practical field experience. It is quite obvious that the forest industries would encounter difficulty in finding foresters with such qualifications at the present time and in case of an emergency. It will be recalled that France. in spite of her many decades of practical forestry practice made very excellent and timely use of the little band of American foresters who went over with the American Expeditionary Forces; also that those forestry battalions took a large portion of all our trained foresters out of the coutnry including the chief U. S. foresters.

The most recent statement on the subject of supply and demand in the profession is by Gurth A. Whipple of the New York State College of Forestry. Writing in State Service he says:

"Next to reforestation, utilization is the important problem in forestry. It exists in every logging job, every sawmill, every lumber yard, every dry kiln, every wood-working industry and every papermill. The forestry problem involves one-third of the land area of the country. The lumber and wood-working industries in the United States represent an investment of twelve billion dollars and five million persons are dependent on them for support. Next to agriculture, forestry, lumber, and the wood-working industries most vitally influence our national life. There are more than thirty thousand mills in the United States making lumber, lath and shingles. There are three hundred fifty pulp and paper mills in the United States and Canada. This tremendous industry would seem to afford ample room for the absorption of all the foresters the colleges are turning out. The demand is at present greater than the supply."

Will Aid New Mexico

An agreement whereby timber on lands belonging to New Mexico, and lying within or near the national forests, will be handled according to the rules and regulations for handling timber on national forests has been made between the United States Department of Agriculture and the state commissioner of lands. Approximately 215,000 acres of land, estimated to contain 550,000,000 board feet of timber, are involved.

The state of New Mexico has no organization equipped to administer the use of timber on state owned lands so that continuous timber production may be assured, and in recent years the forest service has informally aided the state in handling sales. Under the agreement recently signed and approved the Federal government will now lend full cooperation to the state in handling the timber on its lands.

A similar agreement with the state of Arizona was entered into in 1914 and is still in full force and effect. Under its provisions forest officers of the Department of Agriculture have supervised the cutting of many millions of feet of timber from state owned lands within the Coconino and Tusayan national forests.

The agreement with Arizona and the new agreement with New Mexico both provide that the salaries and expenses of federal officers while engaged on state work shall be paid by the state concerned.

Consulting Forestry Service

A consulting forestry service for paper and pulp mills has been announced by the Woodlands section of the American Paper and Pulp association, in line with its object "to encourage the practice of forestry on the timberland holdings of the pulp and paper industry."

Returns on the timberland holdings of the paper industry can be assured only where these lands are adequately protected from fire and so logged as to provide for a second cut or a reasonable resale value. It is to meet this situation that the Woodland section is offering the consulting service to members of the American Paper and Pulp association, along the lines of timberland examination and formulation of management, fire prevention and reforestation plans.

The proper handling of timberlands, says the Woodlands section announcement, can be assured only by the service of trained and practical foresters. Many companies have not realized the necessity of employing a forester in the management of their timberland holdings; others own insufficient lands to warrant the employment of a full-time forester; and others may be contemplating the purchase of timberlands or actual management operations on those lands which they already own. It is for such companies that the new service is being offered.

The charges for the service will be nominal, as the Woodlands section would expect to be reimbursed for actual travelling expenses only, with a reasonable fee for the services of O. M. Porter, the section's secretary, himself a technically trained forester.

Fire Season About Ended

No more big fires are expected to break out in the eastern, western and northern national forests during the rest of the 1923 fire season, according to the United States Department of Agriculture. However, in the southern national forests the autumn fire season is just beginning and the menace of serious fires in those regions still confronts forest officers.

Recent snows and rains helped to control the fires which were being fought in October in many of the northern forests. Fires in several California forests have also been brought under control and no further outbreaks are expected.

Taken as a whole the 1923 fire season has been comparatively favorable on most of the national forests, although destructive fires occurred in Minnesota and southern California. Fires burned large areas outside national forests in California, the outstanding fire having been the one that caused such great damage to Berkeley, California.

In commenting on the decreased number of fires thus far this year compared with previous years, Chief Forester William B. Greeley stated:

"Fires on national forests thus far for 1923 have been fewer in number and much less destructive than for several years. Weather conditions have been more favorable than usual and, further,I believe the public has become aware to a greater extent than ever before of the terrible menace of man-caused forest fires and has been more careful with fire while enjoying the recreational advantages of wooded areas.

"It is still too early to make any definite statement on the number and extent of 1923 fires as the fire season is not yet ended in the southern national forests, but I think I am safe in predicting that the 1923 season will show a record most gratifying to the public as well as to those whose duty it is to protect the national forests."

How Forest Fires Are Caused

The following is a statement on the causes of forest fires based on figures for an average year, by the Forest Service and the National Board of Fire Underwriters.

1. Railroad locomotives are the chief offenders; they cause fully one-seventh of all forest fires. In New Hampshire, during 1920, nearly 75 per cent of the forest fires were due to this cause.

2. The careless burning of brush and trash by farmers and others, causes nearly as many fires as do the railroads. Such fires are most prevalent in the southeast and in the Mississippi Valley.

3. Incendiarism ranks third; it causes more than one-eight of all forest fires and is most prevalent in the southeast and in the Mississippi valley where the stockmen, in particular, deliberately set fire to the woods to improve grazing conditions.

4. Campers, including all pleasure seekers in the woods, hold fourth place, causing nearly one-eight of the forest fires. The principal offenders are careless smokers, particularly those using the so-called "tailor-made" cigarette.

5. Lumbering stands fifth as a fire hazard and is charged with causing one-sixteenth of the timberland fires, although in the states where lumbering is one of the chief industries it is found to be a major fire cause.

6. Miscellaneous causes such as steam rollers, tractors, blasting, burning buildings, Indians and children are also responsible for about one-sixteenth of all forest fires.

7. About one-fourth of the timberland fires are due to unknown causes. Nearly all such fires, however are believed to be caused by some human agency.

8. Lightning is held to cause about one-eleventh of all forest fires. During 1920, nearly 89 per cent of such fires occurred west of the Great Plains where rainless thunderstorms are not infrequent.

Making Idle Acres Work

Announcement has just been made that the New Haven Water company, which has had 10,000 acres of land under forest management for many years, has for the last fifteen years been able to log this land at an average rate of 310,000 board feet annually, besides 2,700 cords of fuel wood, and the planting has cost only about one cent per tree.

Another announcement of importance comes out of New York to the effect that the New York state barge canal is preparing to reforest 2000 acres of barren land, the work to be done cooperatively by the canal officials and the New York State College of Forestry. Landscaping of the area will be considered as well as the production of a heavy stand of timber to prevent erosion.

The paper and pulp industry would do well to study the efforts of the industrial and municipal groups when making plans for perpetual supplies by way of the reforestation route. It often happens that when a large enterprise in reforestation route. It often happens that when a large enterprise in reforestation is undertaken, whether by a municipality or by a business corporation, great enthusiasm develops among the people at large in the locality; and, provided the area to be planted is not too far from the centers of population, labor and trees can be provided for at a surprisingly low figure. The psychology of the enterprise appears to be somewhat like this—if the state supplies planting stock free, or at cost of production, it must be for the reason that the whole people will benefit from the building of forests, (a logical basis of reasoning) and the industry that is progressive enough to undertake reforestation and set the idle acres to work deserves every assistance and encouragement.

Forest Products Association Meeting

At the annual meeting of the Empire State Forest Products association at Utica, New York., Nov. 8th, a feature of the program was an open forum on "Forest Policy for the State of New York." This was led by Franklyn Moon, dean of the New York State College of Forestry, Ralph S. Hosmer, professor of forestry at Cornell University, and Hon. Henry M. Sage, president of the New York State Forestry association.

Resolutions adopted during the evening session, and too late for insertion in this issue of PAPER, will appear in these columns next week.

The Maryland Board of Forestry will provide winter lectures on forestry to school and various organizations all over the state. The lectures will be given by the forester and his three deputies.

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Vicious Foreign Competition

As this issue of PAPER goes to press a meeting is being held at the call of President Stokes of the American Paper and Pulp association to discuss the subject of the heavy importations of foreign paper at prices based on lower foreign labor costs.

The formal call for this meeting contains the following interesting statement:

"The competition from foreign papers is becoming increasingly difficult to meet and repeatedly during the past two months we have had calls from manufacturers of several different grades of paper for assistance. We need now a very full discussion of the whole problem and we need your special help in solving it."

Among the subjects suggested for discussion at this meeting are the refusal of the customs authorities to give relief under the anti dumping statute, the bringing in of various types of paper under improper classification, under valuation and similar subjects.

That the matter covered by this conference is a most serious one cannot be doubted by anyone who has even a cursory knowledge of recent conditions in the paper market. The kraft and wrapping paper manufacturers have been the principal victims but manufacturers in other lines have not entirely escaped.

The United States is not alone in suffering from the flood of foreign paper products which has been flowing from the continent of Europe. Conditions are fully as bad, if not worse, in England. For several months the trade publications of England have been complaining of the effect upon the paper manufacturers of that country. Editorial comment in the World's Paper Trade Review for November 2 includes the following gloomy view of the situation:

"The wrapping and coarse paper section of the papermaking industry is in a bad way and the outlook has no bright spot in it. As we observed last week, some merchants are unloading stocks of sulphite and kraft at clearance prices. Importers are offering heavy stocks at figures with which our mills cannot hope to compete. Even the Scandinavian mills, whose present conditions are more favourable than our own, find themselves up against an impossibility when facing continental quotations. The question of quality plays a very small part in current wrapping paper trading and loyalty to, or even an indication of sympathy for, the home mills is entirely lacking. Even the merchants whose feelings formerly prompted them to push British paper find it impossible to take it in open competition under the conditions that prevail. Short of a tariff, it is difficult to see how the situation can be changed. If we wait for it to resume its ordinary aspect by the slow process of natural restoration of normal relationship, there will be no British wrapping section left worth speaking of."

American Industry Is Standardizing

That practically every American industry is making some effort toward standardization as a means of eliminating waste is shown in a study of the general subject made for the American Trade Association Executives by Dr. Hugh P. Baker, executive Secretary of the American Paper and Pulp association.

No less than sixty-six associations representing basic industries gave Dr. Baker data as to the extent of standardization in those industries in replies to his questionnaire, which embraced seven questions. Practically all of the associations report some steps toward standardization. Thirty-five associations have committees at work on the subject, and 75 per cent of the sixty-six associations have standardized or simplified their products at least in part. The paving brick manufacturers, for instance, have reduced the number of varieties from sixty-six to six, and the Portland Cement association has achieved a single standard of specifications. The Refractories association has reduced 100 varieties to 25. The milk dealers have gone a long ways forward in standardizing sanitary fittings in milk, ice cream and butter factories. The metal lath manufacturers have reduced 150 styles and finishes to 10 weights with comparatively few finishes.

A wide variety of answers was received to the question "To what extent do you consider it advisable to carry standardization?" "Until business is lost because essentials are not supplied," is a typical answer. The question of originality of design appears in this phase of the question, and again in the replies to the query as to possible harmful results. Seventy-five percent of the replies see no harmful results possible. At least half of the associations are cooperating with government agencies to this end and the last question, as to whether standardization should come through private or governmental efforts was almost unanimously answered in favor of private initiative.

"The accomplishment of waste prevention and of thrift must come," says Dr. Baker in his summary, "as the result of organized effort and this organized effort in industry means the effort of the trade association."

Short Ends from the Paper Field

The Milwaukee Lace Paper Co., Milwaukee, Wis., has leased the third floor in the building at 9-11 West Broadway, New York, for local headquarters.

The Bureau of Foreign and Domestic Commerce,, Washington, D. C., has received an inquiry from a company at Stockholm, Sweden, desiring to purchase American reinforced waterproof papers and waterproof boxes. (References 8016 and 8017.)

President S. L. Willson of the American Writing Paper company of Holyoke, Mass., denies a story which has been prevalent to the effect that the company had disposed of a part of its holdings located in a city outside of Holyoke. He declared that the company had disposed of none of its holdings.

As the result of death of the son of Michael J. Carty of Pittsfield, in an accident in which a truck of the Smith Paper company of Lee, Mass., figured, Mr. Carty was awarded a verdict of $4500 from the paper company. Counsel for the paper company have filed a motion for a new trial in the case claiming the verdict was against the weight of evidence. The jury awarded a verdict of $3500 for liability and $1000 for conscious suffering.

The Eaton, Crane & Pike company of Pittsfield, Mass., recently purchased the plant formerly occupied by the Pittsfield Machine & Tool company. Machinery in the building has been sold to the Simmons Machine Tool Corporation of Albany, N. Y., and the paper company is now making improvements in the plant and installing machinery for its own work. The first floor of the building will be used for refinishing and plating paper and the second floor will be used as a printing shop.

At a recent banquet given two Linn county, Oregon, Commercial clubs at Mother's Inn, Tangent, Oregon, James O'Hara, superintendent of the Crown Williamette Paper company's Lebanon paper mill, said that his plant, which is one of several operated by the company, is now making the strongest wrapping paper with the exception of one paper mill, that is manufactured in the United States.

A Swiss paper mill in Zurich recently purchased fifteen tons of German marks for the purpose of converting the paper into pulp. The customs authorities however, refused entrance of the shipment under the law prohibiting the importation of large sums of "foreign currency."

The Stenno Carbon Paper Manufacturing company, of Portland, Oregon, employs thirty traveling salesmen. C. K. Bland, who has been with the company for five years, is sales manager of this force. This company is rapidly increasing its sales. Many of the new orders are coming from China and Japan.

The Gulf Paper Co., of Mobile, Ala., has increased its capital stock from $12,000 to $25,000.

Sheldon E. Wardwell, representing the St. Croix Paper company and a resident of Brookline, Mass., says that it employs from 500 to 2,000 men and owns 176,000 acres of timberland in New Brunswick. The company operates its own timberlands and last year spent $546,000 in Canada besides paying freight rates amounting to $100,000 additional. He opposed the embargo.

W. B. Wentworth, Old Town, Me., of the Chemical Fibre Co., said his company purchased about 8,000 cords a year in New Brunswick, that it had a contract to purchase 25,000 cords in the next five years and an obligation in stumpage of $50,000 to be paid. Since 1915 the company had spent $1,100,000 in the province for wood, $500,000 or more in labor and $250,000 in freight.

The Pratt Paper company of 159 Devonshire street, Boston, Mass., has succeeded to the business of the Denison Pratt Paper Company of the same address.

P. H. Graham & Son Co., of Boston, have purchased a building at 104-126 Ward street, Boston, adjacent to the New Haven and Boston & Albany railroads as a warehouse. The company's warehouse on East Dedham street was recently damaged by fire. They will occupy the new building in about a week.

Excavations have been started for the foundation for a warehouse for the Judd Paper company, 116 Race street, Holyoke, Mass., from plans prepared by P. B. Alderman & Co., of Holyoke. The building will be of brick, three stories and basement, mill construction, 90x100 feet, and will cost approximately $75,000. The general contract has been awarded the Casper Ranger Construction Co.

The Union Bag & Paper Corp., Woolworth Bldg., New York City, will erect a bag factory in Bogalusa, La., to cost about $500,000.

The Nashville Paper Stock Co., Second Avenue and church street, Nashville, Tenn., has let the contract for erection of a $40,000 building. D. L. Ledbetter is secretary.

The National Paper Stock Co., Nashville, Tenn., will erect a four-story brick building on the corner of First avenue and Church street.

Charles E. Vautrain of the American Writing Paper Company of Holyoke, Massachusetts has been appointed the first president of the newly organized Publicity Club of Holyoke, which will be run by the local Chamber of Commerce. Mr. Vautrain in returning thanks to the members for his nomination said that the club plans to bring men of nation wide advertising reputation to the Paper City with a view to benefiting local advertising men.

The Portland Label company, in its plant at Milwaukie, Oregon, a town near Portland, employs girls for the shaping, moulding, and coloring of the tiny and delicate boxes which carry pills and capsules all over the world. This branch of the paper industry is said to be so delicate that no machinery has yet been invented to do the work for which girls are employed. The plant at Milwaukie is the only one of its kind west of Chicago. It is growing rapidly. Recently movie pictures of the girls at their work of pill box making were shown in several of the theaters of Portland.

Speeding Up Cornish China Clay

(Continued from page 11)

Couch remarked to Sir Herbert Russell, another great writer, on one occasion, "the policy of the harbor commissioners at Frowey was to develop to the full limits of their natural capacity." It must be gratifying to all admirers of this attractive little Cornish harbor that works of such magnitude have been carried out without inflicting the slightest ruffle on the amenities of the residents or the town's innumerable visitors. The clay enters the town almost unnoticed and the shipping is all done higher up the haven, that the great charm of Frowey as a harbor is that its prosperity leaves its natural glories undisturbed.

The new jetty was opened on Thursday, September 27th, in the presence of a large company of distinguished railway officials, harbor commissioners, china clay producers, the mayor, aldermen and councillors of Frowey Borough council. The Associated China Clays Ltd. was represented by T. Medland Stocker, J. P.; J. W. Higman, J. P.; and J. S. Lovering, managing directors; Reginald Martin, Vice Chairman; W. Sessions, H. Stocker, J. Lovering, J. P.; F. Lovering, F. Parkyn, J. Perry, S. J. Dyer, J. Hooper, H. Nicholls, A. Courtenay, D. G. Collins, E. J. Hancock, J. Hoyle, W. Rose, J. P.; W. E. S. Taylor, S. Benson, secretary and manager.

Situated just above the No. 7 jetty there is a depth of 18 feet of water at low tide. The new jetty is 500 feet long from shore to end, about 300 feet straight and 50 feet wide and capable of accommodating two vessels simultaneously; is of steel work and masonry super-structure, on steel cylinders sunk into solid rock. The conveyor is electrically operated from the existing generating station which has been enlarged and in which additional machinery has been installed.

The operation of working is as interesting as it is expeditious. Trucks are taken on to a table and electrically tipped and the clay is deposited into a chamber or silo, from which an endless band conveys it to an elevated platform where the clay is transferred to a horizontal band working to a portable tower and thence through a chute nto the hold of the ship.

This portable tower traverses the greater part of the whole length of the jetty, and can be moved from hatchway to hatchway to avoid vessels having to be shifted when once they are moored to the jetty. Time lost in moving ship to bring hatchway under chute is thus obviated and loading expedited. The chute can be regulated according to height of vessel out of the water and it can be raised to sufficient height to clear any ship's side when ight and on top of the tide. At the end of the chute is an adjustable trimming nose to enable the discharge of clay into the hold to be made over a wider area and thus save a great deal of hand trimming.

The rate of travel of the inclined belt is about 125 feet per minute; the horizontal belt is rather faster, to avoid a possible congestion of clay at the point of transfer. The rate of loading is from 200 to 240 tons per hour.

The silo has a double steel casing with concrete filling, this being provided on account of a portion of the silo being several feet below the water level. The silo is also constructed on steel cylinders sunk into the solid rock.

A movable three ton electric crane is installed to enable cask or bag clay to be loaded simultaneously with the loading of the bulk clay by conveyor, the trucks being passed underneath the legs of the crane as required. The working of the trucks is done by electric capstans and reels in lieu of the old system of horse shunting.

Additional land has been purchased contiguous to the jetties and the sidings increased so as to hold several hundred loaded trucks of clay to make the feeding of conveyor as continuous as possible. Any ship capable of being dealt with in the harbor can be handled at this jetty at all tides.

Graphical Control of Gases

(Continued from page 4)

determination of the oxygen content of the gas by means of an Orsat apparatus. The value for the oxygen content of the gas which is found in this manner need naturally not be reduced, as we are concerned in this case with an entirely different method. However, if this value and the uncorrected value of the sulphur dioxide content of the burner gases are used in the gas diagram, then incorrect determinations will be found for the most part of the excess of air required for combustion of the sulphur.

It may be mentioned that there are also line diagrams which allow the reduction of the gaseous volume to standard conditions both from the standpoint of pressure as well as temperature. This can be done when the barometric pressure is known. However, as it often happens that a barometer is not available, the line diagrams which have been discussed above are sufficient for all general purposes in the paper mill which burns sulphur.

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Doings in Canadian Paper Field

Clarke Mill to Resume

The paper mill at Bear River, N. S., founded by Clarke Brothers and which, owing to financial tangles has not been operated for the past year, will resume operations before Christmas, judging from present indications.

For some time past efforts have been made to reopen the mill, and following some periods of uncertainty, arrangements have been made that will result in the resumption of operations. United States capital has been instrumental in perfecting arrangements. Holders of first mortgage bonds of the original company have agreed to accept an offer from representatives of United States capital.

The organization of the new company will continue, the board of directors to consist of three representatives of the bond holders of the original company, three representatives of the purchasers, and another man who is not to be connected with either of these factions. A first mortgage bond issue of $140,000 has been floated, the proceeds to furnish enough capital to make repairs and place the mill in good condition.

Under the agreement between the bond holders and the purchasing interests, the first mortgage bond holders are to receive second mortgage refunding of the new company. In addition each of the bond holders is to receive a fifty dollar share in the new company in seven per cent cumulative preferred stock for each bond. The bonds are to bear seven per cent interest, with maturity in twenty years. New York, Chicago, Dayton, and Milwaukee capital have been interested in the proposal to re-establish the Bear River mill.

For many years the Clarke Brothers maintained, in addition to the paper mill, a corrugated paper and paper box factory in St. John, N. B., and another in Bear River and three saw mills in the Bear River section of the Bay of Fundy. They also operated a steamer service between Bear River and St. John.

Progress in Reforestation

George Carruthers, head of the Interlake Tissue Mills at Merritton, Ont., has returned to Toronto after a trip through Simcoe country and reports the gratifying movement of reforestation in progress in that Ontario district.

With an ultimate aim of planting 100 acres in trees annually, 600,000 yearling seedlings are now being transferred from tree nurseries while thirty acres of the Simcoe county are is being planted in three-year-old seedlings.

Mr. Carruthers has been campaigning against the needless waste of trees at the Christmas season and points out that many of the trees sacrificed from the farmer's wood lot for Christmas festivity might be retained and replanted to beautify the farm house surroundings.

Labor Shortage Will Reduce Wood Cut

Indications now are that less pulpwood will be cut in eastern Canada during the Winter season of 1923-1924, than expected. This is attributed to the increased wages demanded by the workers in the woods operations.

It was predicted during the early Fall that more pulpwood would be cut during the current season than for any previous Winter season. However, owing to an exodus of men to New England and western Canada, the operators found a dearth of available men, the scarcity being much greater than in any previous year, even during some of the war years.

In the province of New Brunswick, $60 per month and board are being offered for men to cut pulpwood. And according to some of the operators it would be no surprise to them if the price ascended. Last Winter plenty of men were available at $40 per month and board. It is thought that the scarcity would not have been as keenly felt but for the efforts made during the past few weeks of labor agents to secure men for railrod construction work. A large number of men, who would ordinarily go into the woods, have gone to work on the railroad construction.

More Embargo Testimony

That the matter of an embargo on exports of Canadian pulpwood is not the most important question before the Royal Commission investigating the pulp and paper industry, was the statement made by Elwood Wilson, chief forester of the Laurentide Paper Company, Quebec, at an Ottawa sitting of the commission. He believed that forest management, with conservation, was the most important pending question.

The statement of the Canadian Pulp and Paper association on the present condition of the industry, as laid before the commission by the secretary Edward Beck, was made the subject of a series of questions by Aime Geoffrion, K. C., of Montreal, who is appearing before the commission in the interests of United State manufacturers. Mr. Beck had stated that at the present time his association did not favor an embargo on pulp exports, to which Mr. Geoffrion retorted that the association was in favor of an export embargo on what is bought, but not on what it was in business to sell.

Timber Area Leases

The Ontario government has recently disposed of a number of timber areas. Among them are two burned-over areas, one situated in the township of Rennie and the other in the township of Sheddon. The Rennie limit was acquired by Austin & Nicholson, of Chapleau, Ont., who will pay $1. a cord for spruce pulp, while Graham & Wilkinson, of Spanish Station secured the Sheddon limit at $1.05 for spruce pulp.

Eighteen square miles of timber area in Bond township, located in the vicinity of the T. & N. O. and Transcontinental railway, was disposed of by the Department of Lands and Forests to the Hawk Lumber company, of Monteith, Ont. The company will pay fifteen cents plus eighty cents for spruce pulpwood and ninety cents, plus forty cents for other pulpwood.

Reports are current that control of the Belge Canadian Paper company is now vested in Canadian and United States capital. The majority ownership in this company was previously in the hands of Belgian capital, by whom it was founded. Hubert Biermans, president of the Belge Canadian Paper Company, went to Europe recently, and it is undestood his mission was to effect the transfer in control. United States capital has invested heavily in this organization, through the Canadian stock and bond issues.

Canadian Briefs

Arrangements have been made by the engineer branch of the forestry department of the Abitibi Power & Paper Co., Iroquois Falls, Ont., for the use of a seaplane during the coming season. The plane will be used principally for photography and reconnoissance work over the timber limits of the company. For the next few weeks the use of the plane will also demonstrate pretty thoroughly whether it is of practical value in pulp operations under northern conditions.

The woods department of the Abitibi Power & Paper Co. has begun operations in three districts around Iroquois Falls. Eighteen camps have already been arranged for. Three will be camps conducted by the company, the others being those of contractors. The cut in the camps will be 150,000 cords while an additional 50,000 cords will be purchased from settlers.

D. McLeod, resident vice-president of the Backus-Brooks Co., Kenora, Ont., reports that the new paper mill which is being erected by the company will be in operation in January next. The building is being constructed to take care of two machines although only one is being installed at the present time and the width of the machine is 234 inches. The 80-ton groundwood pulp mill of the company has been in operation for some months.

R. D. Jago, M. Sc. F., who is a graduate of the University of New Brunswick Forest School, has been appointed regional forester in charge of the Saguenay river district by Price Bros. of Quebec. Mr. Jago has been engaged with the forest service in New Brunswick and will shortly assume his new duties.

An unusual case came up in the appellate court in Toronto recently when the appeal of Fred Little from the judgment at the trial awarding him $1,612.26 for pulpwood supplied under contract to the St. Maurice Lumber Co. was dismissed with costs. The unusual feature is that before judgment was given at the trial the defendants had agreed to settle the case for $2,000. and costs.

A large timber limit and lumber transaction affecting a local company was executed in Quebec recently when the holdings of Messrs. W. and H. Kennedy, known as the Lake St. Joseph limits, including sawmills, property, etc., were sold to the Laurentide Co., Limited. The limits consist of about 350 square miles, comprising almost all the land surrounding Lake St. Joseph, which has not already been sold for summer residences. Fifty miles of the limits are fee simple land, the balance under government lease.

The Backus-Brooks Co. expect to have the first unit of their newsprint mill at Kenora, Ont. in operation very soon. This will produce a 236 inch roll and will probably be the largest machine in existence. It is being built by the dominion Engineering Co. It is the intention to build a sulphite mill soon after the paper plant is producing. At present the mill has a capacity of 80 tons of groundwood pulp, which is sufficient for the 100 tons of newsprint that will be turned out by the machine. Sulphite will be shipped in until this mill is completed.

American pulp and paper interests are contemplating a further development of the pulp and paper plant at Hartville, N. S., the intention being, if present plans materialize, to produce between 4,000 and 5,000 tons of newsprint a year, a market for which could be obtained both in the Maritime provinces and in the eastern states.

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Doings in Canadian Paper Field

Favors Embargo on Pulpwood

Canadian P. & P. Association Urges It as Means of Forcing U. S. Concessions

The sittings of the Canadian Pulp Wood Commission held at Ottawa have been by far the most important so far. A great deal of evidence for and against the proposed embargo of pulp wood cut on privately owned lands was taken. The opponents greatly predominated though, at the same time, the lengthy statement made on behalf of the Canadian Pulp and Paper association in favor of the embargo must be considered as representing the majority portion of that industry, since it claims to represent 80 per cent of the mills. Secretary Beck of the Pulp and Paper association read the statement.

It began with the contention that, through the wholesale destruction of wood the forest wealth of Canada was being so rapidly depleted that a crisis in this department was not far distant. It was then held that: "The rate of depletion cannot effectively be reduced by an action that can economically be taken by the lessees of the Canadian pulpwood lands, or even by the private owners who possess in fee simple some small portion of the total amount of these lands. From this it follows without further argument, that the stop of depletion must originate in government action, by the provincial or federal authorities or by both. This does not necessarily mean that the whole management of the conservation process must be entrusted to government officials or to politicians."

Touching on the estimated stand of merchantable soft timber of every kind in Canada, the publication "The Forests of Canada," prepared by the Department of the Interior, was then quoted and the argument proceeded: "In this document the total stand of merchantable timber of every kind of soft wood is given as 871,720,000 cords for the whole of Canada. But of this amount only 65 per cent, or less than two-thirds, consists of good pulp wood namely, balsam and spruce, the great bulk of the remainder being jack pine, which at present is utilized to a very limited extent. This gives us a total of about 580,000,000 cords of merchandisable spruce and balsam in the whole of Canada." Attention was then called to the fact that 80,000,000 cards of this was inaccessible, leaving the total available at 500,000,000 cords.

Respecting consumption and destruction of wood it was remarked that the annual cut of pulpwood had not hitherto greatly exceeded 4,000,000 cords, but that with the present rate of consumption in Canada and of export to the United States a cut of 5,000,000 cords should henceforth be considered the minimum as long as the timber lands held out.

The growth of the pulp and paper industry, the capital investment in which has increased from $186,000,000 in 1917 to approximately $400,000,000 in 1922, had greatly increased the demand for pulp wood. In 1908 the annual consumption by mills in Canada was 500,000 cords, while 900,000 cords were exported. In 1922 the home consumption had reached 2,900,000 cords, while the exports were a little over 1,000,000 cords.

During the first eight months of the current year exports of pulp wood to the United States were 1,046,000 cords, or as much as they were for the whole of 1922. The growth in the home consumption was made strikingly apparent by the fact that in 1913 the newsprint production was 350,000 tons; last year it was 1,086,000 tons. During the last fourteen years the average annual increase in the consumption of pulp wood by the Canadian mills was 15.4 per cent, and it was estimated that if this rate of increase were maintained the home consumption at the end of the next fifteen years would be a little over 16,000,000 cords a year.

It was admitted that the proposed embargo "would cause for a time a sharp reduction in the Canadian cut, for the Canadian mills would be unable to absorb immediately so large an amount of additional wood as one and one-half million cords a year. It is generally conceded, however, that another consequence would be that American concerns, now more or less dependent on Canada for their pulpwood and who control forest areas here either under license or in fee, in addition to being forced into making greater use of their American resources would immediately proceed to build pulp mills in Canada in order to grind their wood here and export it in the form of pulp."

After referring to the expansion of the pulp and paper industry that has followed the placing by the provinces of embargos on the export of pulp wood cut on Crown lands, the conclusion was drawn: "Similar restrictions placed upon wood cut from private lands, it is logical to suppose, would stimulate still further the development of the industry and thereby prove of the utmost economical advantage to Canada. To the extent that this industrial expansion resulted in increased consumption of pulp wood, such a measure could perhaps not properly be classed as assisting conservation, but it would take a considerable number of years of even the most rapid expansion conceivable to overtake the inroads at present being made into our supplies by the system of unrestricted exportation now permitted."

"Timber can be cut and exported from Canada with practically no capital investment whatever except the original price of the limit; but the timber exported from Canada would, if kept in Canada until manufactured and then exported, bring about (and amply remunerate) a capital investment in this country amounting to $150,000,000. It is sufficient to keep 33 pulp and paper mills, each producing 100 tons a day, in operation throughout the year and to give employment to 8,250 operatives earning $11,140,500 in wages. If these mills could all be erected in a single municipality they, and the subsidiary trades and industries which would be needed in connection with them, would alone constitute a city larger than any in Canada except Montreal, Toronto, Winnipeg and Vancouver." It was further claimed that every man thus brought to Canada would be an increased factor working gor conservation, since the new American interests would thus be as much interested as Canadians in this work.

Two possible alternatives were discussed. One the placing of an export tax in place of an absolute prohibition. "This," it was claimed, "if made high enough would reduce, if it did not completely abolish, the drain on Canadian forests by American pulp mills, and insofar as exportation still continued, the resultant revenue could be spent on conservation. It is open to the objection that an export trade however undesirable, which has once become a source of revenue to the government is likely thereafter to be encouraged rather than repressed; while the revenue could under no circumstances be great enough to provide an adequate conservation fund."

The second alternative, which is very important to the American pulp and paper industry(is as follows:

"The second alternative is the use of the embargo proposals in negotiations for a further tariff concession by the United States, in the shape of a free admission of papers other than newsprint into the United States, such as book, writing, wrapping, tissues, kraft, and blotting papers. These now bear a duty of 25 per cent and upwards, and are nearly all affected by the same condition (shortage of raw materials) as led to the removal of the newsprint duty; so that the placing of them on the free list would not be contrary to any general American interest. It would lead to a sharp increase in the amount of capital invested in paper manufacturing in Canada, with the same result in the shape of an increased interest in conservation; and it would possibly effect the removal to Canada of some mills now using Canadian pulpwood and thus cut down our unmanufactured export. This history of the Canadian newsprint industry since 1910 shows that free access to the United State for the manufactured product is all that is required to bring about a very large transfer of the manufacturing industry to this country, especially when combined with a prohibition of unmanufactured export from Crown lands."

Shortage of Woodsmen

George B. Nicholson, ex.-M. P. for Algoma and head of the Austin-Nicholson Lumber company, Chaplau, Ont., large dealers in lumber and pulpwood, was in Toronto a few days ago in search of men for the company's camps.

He reports a shortage of labor in the district north of Georgian Bay where as high as $50 a month and board is being paid. If men care to work piece work, he says, as high as $100 a month can be earned. He reports that from five to eight thousand men are required in the lumber and pulp camps at the present time.

Mr. Nicholson's company took out 10,000 cords of pulpwood last year and will this season take out 15,000 cords for the Spanish River Pulp and Paper Mills, Limited, at Sault Ste. Marie, Ont.

John F. Ellis, the venerable honorary president of the Canadian Paper Trade association and head of Barber & Ellis, envelope and stationer manufacturers, Toronto, celebrated his78th birthday last week and received the congratulations of many friends. Mr. Ellis is a member of the Canadian Manufacturers association, the Toronto Board of Trade and still takes an active interest in their activities, while he is still vigorous in the personal oversight of his own big business.

Control of the Bay Sulphite company, which was formerly in the hands of Sir Frederick Becker, of England, has been taken over by Canadian capital. Becker and Canpany of England, paper manufacturers separating mills in England, went recently into receivership on application of one of the London banks. Sir Frederick Becker was one of the guiding spirits of the defunct organization. He is now in eastern Canada inspecting his various pulp and paper holdings.

Lawson Paper Products, Limited, is the name of a new London, Ont., company, which has been granted an Ontario charter empowering them to do business as manufacturers and distributors of paper. The authorized capital is $250,000 and the provisional directors are J. C. Elliot, R. G. Ivey and J. G. Gillanders.

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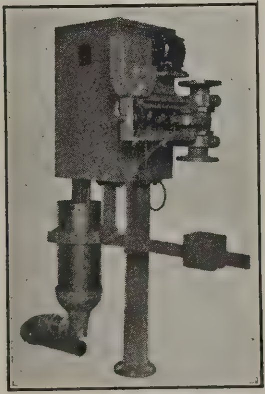

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CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE			
Bond	8.00	@	40.00
NEWS			
Contract Basis	3.75	@	
BOOK			
S. & S. C.	6.50	@	7.25
M. F.	**6.25**	**@**	**7.00**
Coated and Enameled	8.00	@	12.00
TISSUE			
White	.85	@	.90
Manlia No. 1	.80	@	.90
WRAPPING			
No. 1 Domestic	6.75	@	7.25
No. 1 Jute	8.25	@	8.75
No. 1 Wood	4.75	@	5.25
Butchers	4.00	@	4.25
BOARD			
News	45.00	@	50.00
Chip	45.00	@	50.00

Paper and Board

New York, November 20—The International Paper Company has fixed a price of $75 per ton f.o.b. mills for standard newsprint to be delivered under contract during the first half of 1924. This price is unchanged from that which has been in force during this year, and means that there will be no change in newsprint prices over the first part of next year because if the leading producer continues its basis the same as has prevailed all of 1923 other companies will obviously quote a similar price.

The I. P. announcement sets at rest all of the speculation regarding an advance in print paper prices. Many in the trade had fully expected a rise of at least a quarter of a cent per pound on standard newsprint would be put into effect as a result of the big demand for print paper and the increased cost of production, but manufacturers apparently are very desirous of maintaining the stability of the market and therefore are hesitant to make any move in the direction of price changing that might upset the firmness that now prevails.

The I. P. Company last spring announced an increase in wages of its mil operatives but in spit of this the price of newsprint is to be left unaltered. President Dodge of the company at that time stated that the company hoped to offset the increased wages by larger production and increased efficiency and that the I. P. would continue to sell its output at the lowest price possible. There is no question that the company has materially increased its production since then, which probably has offset the higher cost of manufacture occasioned by the advance in wages.

The paper market continues in an irregular state. Demand for some kinds of paper is exceedingly active and prices of such grades are firm and tending to stiffen; in other grades an easy condition exists with demand insufficient to give mills enough work to warrant anything like full production. No broad changes in quotations have occurred during the week. Some prices have slid off slightly further, notably on box board, but it cannot be said that demand has diminished to any great extent in the recent past.

The board market is deplorably weak. This is due first to the fact that consumption of board is not large enough to keep mills busy, and there is consequently keen competition among manufacturers to secure business even at price concessions, and second to a sharp decline in raw material, which has enabled manufacturers to reduce prices on their product and still have the same margin of profit as before when prices were higher but when waste paper cost almost double current prices.

Plain chip board is freely offered in New York at $45 a ton f.o.b. this city, and in some cases mills have quoted the same price on news board though in most instances slightly higher is quoted on the latter description of box board, between $47.50 and $50 a ton f.o.b. New York. Demand for boards has not developed in the volume manufacturers had a right to expect for about this time of the year. Evidently pre-holiday business in paper boxes has not measured up to normal this season and board consumption therefore has been comparatively light. Moreover, mills are working on the theory that they must operate at maximum capacity to realize a fair return of profit, and they are leaving nothing undone in an effort to secure as large a part of the business available as they can get. This in itself makes for uneasiness in price as manufacturers are conceding something to buyers to corral their orders.

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AGENCY, INC.

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of every description
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for Papermakers

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Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

Book papers are moderately active. The movement into consuming channels is steady but manufacturers are competing with each other for business, and prices are none too firm. Machine finished book is quoted at around 6.50 cents per pound f.o.b. New York for an average grade, while coated book is quoted at 8 cents upward, depending on quality and tonnage.

Fine papers are holding their own in price and are marked by fair demand. Coarse papers are still suffering from foreign competition, and quotations are quite irregular and uncertain. Tissues are moderately active and holding steady at a basis of about 90 cents per ream for No. 1 white tissue f.o.b. New York.

Quotations are as follows:

Bond	.08	@	.40
Ledger	.09	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superior	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.75	@	
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.75	@	7.25
No. 2 Domestic	6.00	@	6.75
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.25	@	7.75
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50

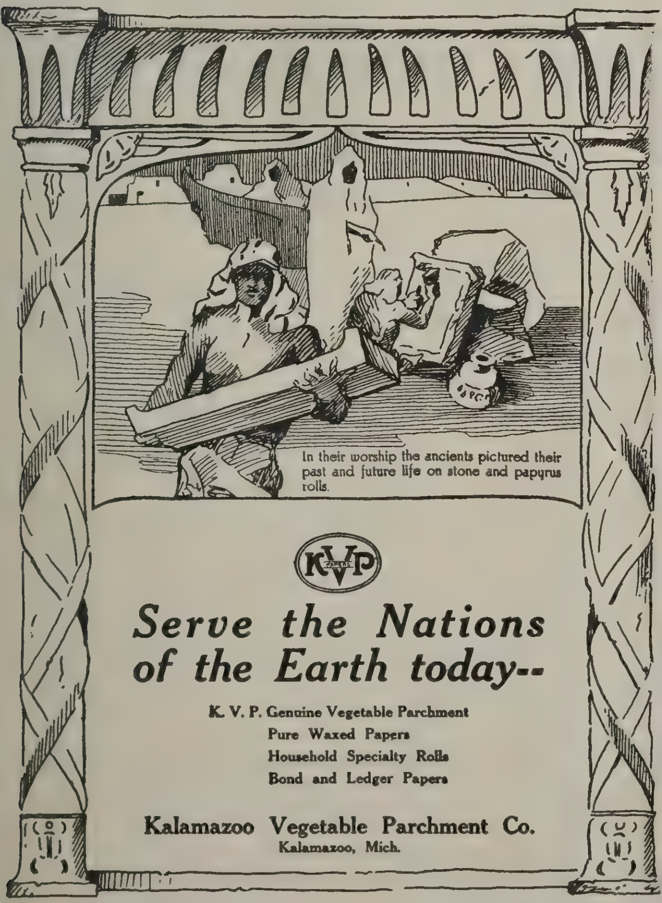
Book—f. o. b. N. Y.—			
S. & S. Co	6.50	@	7.25
M. F.	6.25	@	7.00
Lithograph	9.00	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	3.75	@	4.00
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	50.00	@	55.00
Binder Board	75.00	@	80.00
Chip	45.00	@	50.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

The quotations on mechanical pulp named in different parts of the trade indicate that prices are on a wide range. Some dealers in New York state they are selling ground wood at as low as $37 a ton f.o.b. grinding mills, while reports have been received, chiefly of Canadian origin, of transactions at as much as $50 a ton at pulp mills. It would appear as though prices depend entirely on the tonnage and quality of the pulp involved, the air dry test and the distance of the producing mill from the consuming point and the consequent freight on the pulp. Demand is reported holding up well, and grinders with very few exceptions are said to have but light stocks on hand. In some districts cold weather has set in and hampered production operations, while consumption is on a large scale, newsprint mills using ground wood at a rate which would leave but little surplus in the market for other consumers. An average price for domestic ground wood is believed to be about $40 per ton f.o.b. pulp plants.

Foreign and Domestic Chemical Pulp

The chemical wood pulp market continues soft in tone and yet with the winter drawing near and the time for last open water shipments from Sweden only a short space ahead there seems to be a tendency toward steadiness in at least certain parts of the market. Importers do not appear to be pressing sales as much as they were. Apparently they are more willing to hold any pulp they have unsold in expectation that a late season flurry of demand will send prices


In their worship the ancients pictured their past and future life on stone and papyrus rolls.

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K. V. P. Genuine Vegetable Parchment
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Household Specialty Rolls
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Daily Capacity of 600 Air-Dry Tons

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CURRENT MARKETS—Continued

up, and it is a fact that bids from paper manufacturers on pulp have been frequently refused because the prices named were too low to satisfy sellers. Strong foreign unbleached sulphite has sold at 2.90 to 3 cents per pound ex dock New York, and foreign bleached sulphite at around 3.90 cents on the dock at this port. Swedish kraft is quoted at about 2.75 cents or slightly higher ex dock New York, and yet sales at less have been reported, one large sale to a board mill at substantially below this level having been made recently. Domestic pulps are moving slowly and principally on contract, and quotations are very irregular. Prices on an ex dock in New York and f.o.b. pulp mill basis are:

Sulphite, foreign—			
Bleached No. 1	3.90	@	4.25
Unbleached No. 1	2.80	@	3.25
Unbleached No. 2	2.70	@	3.00
Easy Bleaching	3.25	@	3.50
Sulphite domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.85	@	3.15
Unbleached news grade	2.75	@	3.00
Easy Bleaching	3.15	@	3.30
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.75	@	3.00
Kraft, domestic	2.75	@	3.00
Sulphite screenings, refined	1.75	@	2.00

Domestic Rags

The lower grades of papermaking rags appear to have steadied on the reduced prices levels reached a few days ago, and no further changes of much importance have occurred in other qualities though the tendency in most cases is in a downward direction, this being due to the rather narrow demand emanating from consuming quarters. Roofing stock is selling fairly freely at about 1.25 cents per pound f.o.b. New York for No. 2 packing and 1.40 cents for No. 1 packed, and 2.40 cents for miscellaneous packing f.o.b. New York, while old white rags are holding their price level. New cuttings are not over active and yet some descriptions are moving readily at maintained quotations. Prices f.o.b. New York are as follows:

New Shirt Cuttings, No. 1	12.50	@	13.50
No. 2	6.25	@	6.75
Fancy Shirt Cuttings	6.00	@	6.25
No. 1 Whites, repacked	6.75	@	7.50
No. 2 Whites, repacked	4.00	@	4.50
White Lawns	11.00	@	11.25
New Muslin unbleached	11.25	@	11.50
Light Silesias	8.00	@	8.25
Black Silesias	5.00	@	5.25
Overall Cuttings, Blue	8.00	@	8.25
Washables	5.00	@	5.25
New Black Mixed	4.75	@	5.00
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.65	@	2.90
Thirds and Blues, repacked	2.85	@	3.10
3rds & Blues, misc.	2.35	@	2.50
Black Cotton Stockings	3.25	@	3.50
Roofing Rags No. 1	1.35	@	1.45
Roofing Rags No. 2	1.20	@	1.30

Imported Rags

The movement of imported papermaking rags is somewhat limited at present. Most mills have covered their requirements for a time through purchases sometime ago and are now looking on without engaging in any additional important purchasing, but importers assert that prices are holding obroad and that therefore they are unable to reduce quotations. Dark colored cottons have sold to roofing paper mills at 1.35 to 1.40 cents a pound ex dock for spot lots. Quotations ex dock New York are:

Lins., White No. 1	12.00	@	13.00
Ger. Blue Cottons	2.75	@	3.00
French Light Blue	3.00	@	3.25
New Light Prints	6.25	@	6.50
New Unbleached	10.00	@	10.25
German Linen, blue	3.75	@	4.0
German Linen, grey	5.75	@	6.0
German S. P. F.'s	6.00	@	9.0
German Light Prints	3.50	@	3.7
Dk. Colored Cottons	1.35	@	1.4

A ROLLING STONE GATHERS NO MOSS

BUT, Paper rolled by Press Rolls of Barre Granite gathers increased profit for those whose machines are equipped with these famous rolls.

Full information about them will be sent upon request.

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the trade journal devoted exclusively to the manufacture, sale and use of pulp and paper Published by

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CURRENT MARKETS—Continued

Bagging, Rope, Etc.

Firmness characterizes prices of old manila rope and this article is probably in a stronger market position than any other kind of papermaking material. Sales of No. 1 domestic manila rope have been reported at 7 cents a pound at dealers' shipping points, and it is stated that sellers with rare exception are holding firm for this price or higher. Foreign rope is quoted at 6.50 cents ex dock New York though sales at slightly less have been made. Old bagging is in slow demand and quoted prices are at about previous levels. F.o.b. New York quotations follow:

Gunny, No. 1	1.25	@	1.40
Foreign	1.25	@	1.35
Wool Tares, heavy .	1.50	@	1.75
Scrap Bagg. No. 1.	1.15	@	1.25
Roofing Bagging ..	.90	@	1.00

Wool Tares, light ..	1.25	@	1.50
For. Manila Rope..	6.25	@	6.50
Domestic Rope	6.75	@	7.00
Mixed Strings	1.00	@	1.25

Old Paper

Pronounced weakness still exists in the old paper market and prices have moved off to new levels on nearly every grade. Demand from mills is at a minimum; board manufacturers are buying on a very small scale, and there is not much call from other consuming quarters. Folded newspapers have declined to 80 cents a hundred pounds f.o.b. New York and sales doubtless have been made at less in some instances, while No. 1 mixed paper is down to 55 cents per hundred pounds New York, heavy flat magazines to 1.40 cents a pound, crumpled book stock to 1.15 cents, white news blanks to 2 cents, old No. 1 kraft to 2.10 cents, and overissue news to one cent per pound. Shavings also have declined further, No. 1 hard white being quoted at around 3.90 cents per pound, and No. 1 soft white shavings at 3 cents f.o.b. New York. Quotations f.o.b. this city are:

No. 1 Hard White Shavings	3.85	@	4.00
No. 2 Hard White Shavings	3.00	@	3.25
No. 1 Soft White Shavings	3.00	@	3.10
Box Board Chips ..	.65	@	.70
No. 1 Colored Shavings	1.65	@	1.75
Magazine flat stock.	1.40	@	1.50
No. 1 Crumpled ...	1.15	@	1.25
Solid Ledger Books	2.00	@	2.25
Ledger Stock	1.90	@	2.15

White Blank News.	2.00	@	2.10
Common Paper	.45	@	.50
Kraft No. 1	2.10	@	2.20
New Manila Cuttings	2.25	@	2.50
New Manila Env. Cuttings	2.75	@	3.00
Bogus and Mill Wrappers	.80	@	.85
News, strictly overissue	1.00	@	1.05
Folded News	.80	@	.85
No. 1 Mixed Papers.	.55	@	.60

Twines

Demand for twines shows a tendency to increase. Business is of strictly routine character and yet consumers in at least some cases are absorbing supplies in slightly larger amounts. Moreover, prices evince a stiffening trend, which is due as much to strength in raw material as to improvement in demand for the finished product. Quotations are as follows:

Sisal Hay, pure ...	13.25	@	14.25
Manila Hay, pure..	16.25	@	17.25
Sisal Lath Yarn ..	12.25	@	13.25
Manila Rope, pure, ¾ inch diameter .	15.25	@	16.25
Hardware rope	12.25	@	13.25
Jute rope, ¼ diam. and over, coils ..	12.00	@	14.00
Sail twine, A grade.	19.00	@	

Jute Wrapping Twine, A grade	19.00	@	
Papermakers Twine.	10.50	@	
B. C. Hemp, 18 ...	.39	@	.40
B. C. Hemp, 24 ...	.38	@	.39
B. C. Hemp, 36 ...	.36	@	.37
American Light India—			
No. 6	19.50	@	
No. 7	18.50	@	

Chemicals

Papermaking chemicals are moving well on contract but current business is slow to develop. Producers are reported accepting contract orders for bleaching powder at slightly under 1.50 cents per pound at works. Casein is in fair call and quotations are maintained at an average of about 14 cents a pound.

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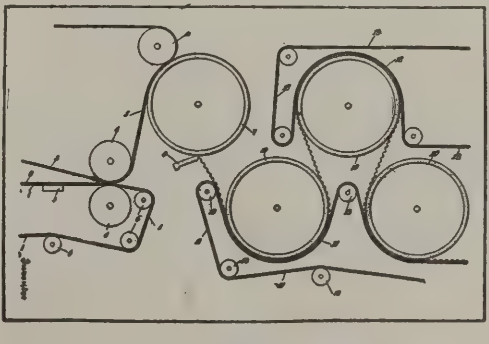
Improved Process of Creping Paper

The Best and Most Profitable

For the manufacture of CREPED PAPER Napkins, Toweling or Stretchable Bag Papers and Creped Packing or Crepe Wrapping Papers the system has no equal



The crepe being formed while the fibres are **steaming hot and pliable is dried without stretching;** not only retaining form better, but shedding less lint than cold creped paper products.

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CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of November 12-17

Paper

Str. Aquitania, Southampton—A. C. Dodman Jr. & Co., 9 bls. hanging; F. J. Emmerich & Co., 4 bls. hanging; Whiting-Patterson Company, 7 cs.; Bernard, Judae & Co., 1 cse., wrapping.

Str. Paris, Havre—American Express Company, 4 cs. cardboard; Dupont Cellophane Company, 15 cs.; R. F. Downing & Co., 2 cs. pasteboard; Davies, Turner & Co., 6 cs.; Guibont, Freres Company, 15 cs.; City of Paris Dry Goods Company, 3 cs.; Schneider Bros., 2 cs.; Judson Freight Forwarding Company, 12 cs.; Coenca-Morrison Company, 2 cs.; Harriet Hubbard Ayer, 5 cs. cardboard; Standard Products Company, 31 cs.

Str. Cedric, Liverpool—Richardson Bros., 21 cs. press board; F. J. Emmerich & Co., 19 bls. hanging; J. J. Gavin & Co., 1 cse. photo; W. M. S. Lloyd & Co., 16 cs. hanging; A. C. Dodman Jr. & Co., 43 bls. hanging; Meadows, Wye & Co., 3 cs. tissue; B. F. Drakenfeld & Co., 18 cs. printing; Order, 3 cs.

Str. Collamer, St. Nazaire—R. J. Reynolds Tobacco Company, 960 cs. cigarette; DeManduit Paper Corporation, 307 cs. cigarette; from Bordeaux-American Tobacco Company, 1,400 cs. cigarette; Orbis Products Trading Company, 20 bls. filter.

Str. Georgia, Trieste—Irving Bank-Columbia Trust Company, 296 rolls newsprint; Publicity Paper Corporation, 70 cs. writing; New York Trust Company, 742 bls. wrapping; Order, 2,526 bls. wrapping.

Str. Manchuria, Hamburg—F. G. Prager & Co., 485 rolls hanging; C. Steiner, 21 bls. printing; Chemical National Bank, 434 rolls newsprint; Guaranty Trust Company, 77 rolls newsprint; Metropolitan Import & Mfg. Company, 86 cs. pasteboard; Bendix Paper Company, 60 cs. pasteboard and 5 cs.; Buschmann Bros., 155 rolls strawboard; Order, 397 rolls newsprint.

Str. President Adams, London—C. D. Stone & Co., 2 cs. filter.

Str. Ryndam, Rotterdam—C. K. MacAlpine & Co., 178 bls. and 273 rolls wrapping; Goldsmith & Co., 48 bls.; Kupfer Bros. & Co., 19 cs. wrapping; Bendix Paper Company, 4 cs. pasteboard.

Str. Zeeland, Antwerp—H. D. Catty & Co., 1 cse.; Lithoprint Company, 1 cse. photo; P. C. Zuhlke, 52 cs. photo and 84 cs. printing; P. J. Schweitzer, 26 cs. cigarette; E. Fougera & Co., 95 cs. filter; Gevaert Company of America, 27 cs. photo; Eastman Kodak Company, 2 cs. photo.

Str. Mount Clay, Hamburg—M. J. Corbett & Co., 9 bls. hanging; American Shipipng Company, 3 cs.; Ladenburg, Thalman & Co., 494 rolls wrapping; Keuffel & Esser Company, 78 cs. drawing; Equitable Trust Company, 14 rolls newsprint.

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CHEMICAL CORP.
Rosin Size — Foam Killer
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Appleton Wires Are Good Wires
Fourdrinier Wires
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of brass and bronze
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Since 1896
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Daily Capacity
425 Tons

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TARZAN
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General Sales Office
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New York

Western Sales Office
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CURRENT IMPORTS—Continued

Str. Morristown, Sundsvall—Maurice O'Meara Company, 162 bls. wrapping.

Str. Reina Maria Cristina, Barcelona—J. Victori & Co., 3 cs. cigarette; Order, 1 cse.

Str. Roussilon, Bordeaux—H. Reeve Angel & Co., 8 bls. filter; A. Giese & Son, 3 bls. filter.

Str. Scythia, Liverpool—F. C. Strype, 6 cs. tissue; Oxford University Press, 4 cs. printing; B. F. Drakenfeld & Co., 13 cs. printing.

Str. Vitellia, Glasgow—Perry, Ryer & Co., 6 cs. printing.

Str. Westerner, Rotterdam—M. G. Lange & Co., 1 cse.; Hudson Trading Company, 72 rolls printing; Republic Bag & Paper Company, 4,600 rolls wrapping; Order, 3,954 rolls wrapping.

Str. Carolina, Trieste—J. P. Heffernan Paper Company, 16 bls. printing; Bernard, Judae & Co., 9 bls. printing; Order 22 bls. printing.

Str. Munchen, Bremen—F. Henjes, Jr., 6 cs. photo; Phoenix Shiping Company, 23 cs. pasteboard; Flexideal Company, 100 cs. press board; Meadows, Wye & Co. 1 cse.; Friedman & Co., 4 cs. cardboard; Hensel, Bruckman & Lorbacher, 5 cs.; R. H. Meehan & Co., 22 cs.; F. A. Binder, 1 cse. hanging; A. Frankan & Co., 9 cs.

Str. McKeesport, Rotterdam—Wilkinson Bros. & Co., 598 rolls wrapping; A. Vuyk, 168 bls. strawboard.

Str. President Roosevelt, Bremen—Maurice O'Meara Company, 65 cs.; A. Frankan & Co., 4 cs.; Parsons & Whittemore, 294 rolls newsprint; C. G. Hempstead & Son, 8 cs. pasteboard; State Bank, 4 cs. pasteboard.

Wood Pulp

Str. America, Bremen—H. Hollesen, 1,402 bls.

Str. Georgia, Sebenico—Order, 1,200 bls.

Str. Manchuria, Hamburg—E. Naumberg & Co., 2,500 bls.; A. J. Bacher & Co., 330 bls.; Order, 200 bls.

Str. Ryndam, Rotterdam—Castle & Overton, 724 bls.

Str. Morristown, Harnosand—Johaneson, Wales & Sparre, 2,100 lbs.; Pagel, Horton & Co., 1,200 bls. sulphite; from Sundsvall—Johaneson, Wales & Sparre, 1,250 bls. sulphite; Guaranty Trust Company, 3,300 bls. sulphite; Mechanics & Metals National Bank, 1,800 bls. sulphite.

Str. President Roosevelt, Bremen—Lagerloef Trading Company, 508 bls.; Woodpulp Trading Company, 698 bls.; H. Hollesen, 2,839 bls.; United States Lines, 1,593 bls.; American Woodpulp Corporation, 300 bls.

Old Rope

Str. Ryndam, Rotterdam—Brown Bros. & Co., 90 bls.

Str. Zeeland, Antwerp—Order, 64 coils and 50 bls.

Str. Galileo, Hull—Brown Bros. & Co., 223 coils.

Str. Liberty, Havre—International Purchasing Company, 209 bls. and 91 coils.

Str. McKeesport, Rotterdam—Order, 65 coils.

Old Bagging

Str. Westerner, Rotterdam—Ladenburg, Thalman & Co., 81 bls.

Str. Eastern Dawn, Antwerp—Maurice O'Meara Company, 75 bls.

Marathon Paper Mills Company

CYRUS C. YAWKEY, President
WALTER ALEXANDER, Vice-Pres.
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Specialties in Bleached Sulphite Papers of all Grades. Quality and Appearance Combined in all Grades

SOLID AND BLEACHED LINED BOARDS FOR CARTON MANUFACTURERS PAPERS FOR REMANUFACTURE

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1 Cylinder Machine, Trim - - 100″
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2 M. G. Yankee Fourdriniers, Trim - 120″
2 Super Calenders - - - - 60″

DAILY CAPACITY
Unbleached Sulphite Pulp - - 200,000 lbs.
Bleached Sulphite Pulp - - - 150,000 lbs.
Ground Wood Pulp - - - - 60,000 lbs.
Paper - - - - - - - - 200,000 lbs.

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Rothschild, Wisconsin

Sales Office:
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CURRENT IMPORTS—Continued

Str. Archimedes, Manchester—Irving Bank-Columbia Trust Company, 28 bls.; Mechanics & Metals National Bank, 47 bls.; Guaranty Trust Company, 54 bls.

Rags

Str. Winona, Alexandria—Order, 104 bls.

Str. Cedric, Liverpool—A. C. Feterolf, 23 bls.; Order, 178 bls.

Str. Colamer, St. Nazaire—Paul Berlowitz, 223 bls.; Goldman, Sachs & Co., 98 bls.

Str. Ryndam, Rotterdam—Wilkinson Bros. & Co., 83 bls.; American Woodpulp Corporation, 62 bls.

Str. Carlier, Antwerp—Union National Bank of Philadelphia, 40 bls.; Kidder, Peabody & Co., 182 bls.

Str. Westerner, Rotterdam—S. Birkenstein & Sons, 179 bls.; Waste Material Trading Corporation, 49 bls.; E. J. Keller Company, 89 bls.; Goldman, Sachs & Co., 50 bls.

Str. Eastern Dawn, Antwerp—E. J. Keller Company, 38 bls.; Salomon Bros. & Co., 61 bls.; Castle & Overton, 44 bls.

Str. Liberty, Havre—Maurice O'Meara Company, 90 bls.; Waste Material Trading Corporation, 38 bls.; Stone Bros. & Victor Galaup Company, 163 bls.; from Dunkirk—Equitable Trust Company, 20 bls.; International Acceptance Bank, 81 bls.; Order, 91 bls.

Str. Siboney, Havana—M. Wolfer & Co., 40 bls.

Str. Archimedes, Manchester—International Acceptance Bank, 137 bls.; Equitable Trust Company, 42 bls.; Irving Bank-Columbia Trust Company, 26 bls.; Mechanics & Metals National Bank, 185 bls.; R. F. Downing & Co., 38 bls.; Order, 296 bls.

Str. President Roosevelt, Bremen—Order, 478 bls.

Paper Stock

Str. Madras City, Liverpool—Daniel M. Hicks, Inc., 271 bls.

Str. Carlier, Antwerp—Irving Bank-Columbia Trust Company, 250 bls.; E. J. Keller Company, 250 bls.; Equitable Trust Company, 14 bls.

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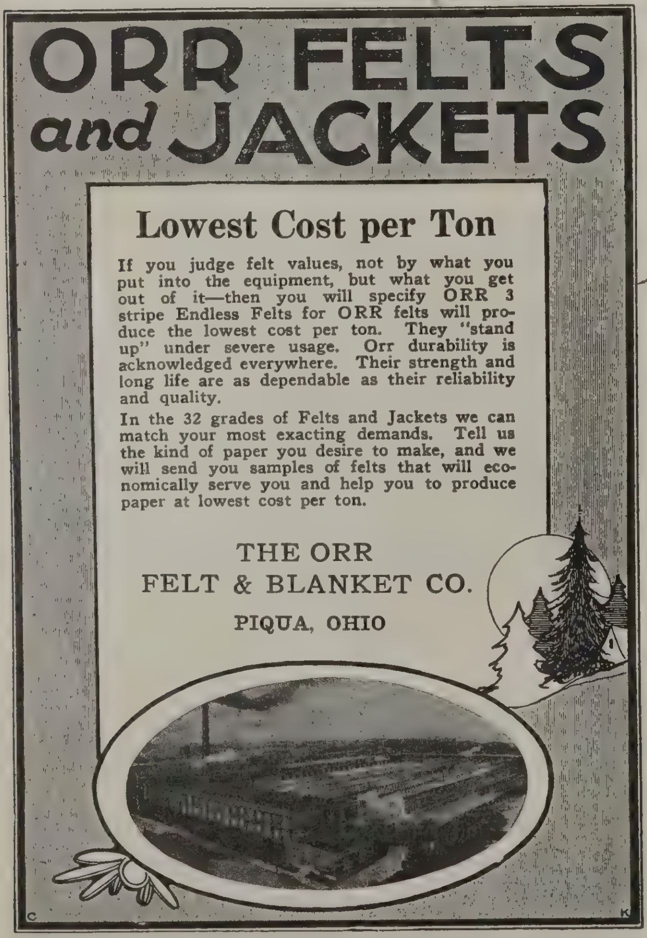

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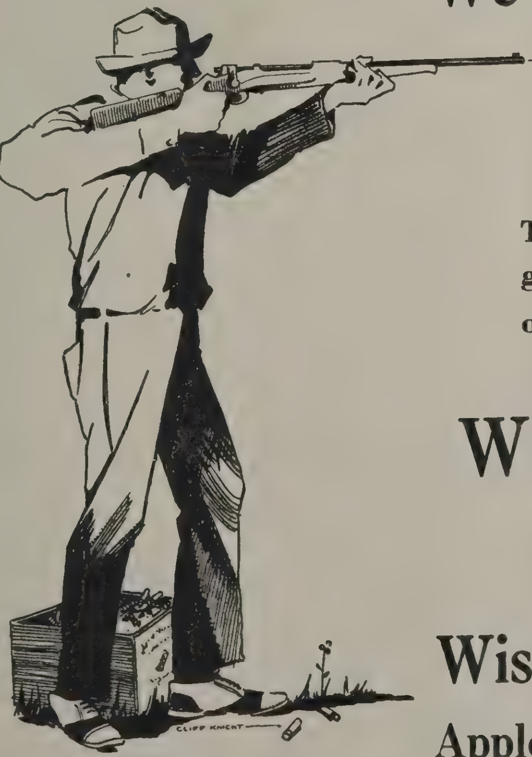

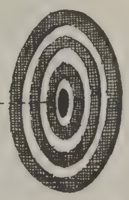

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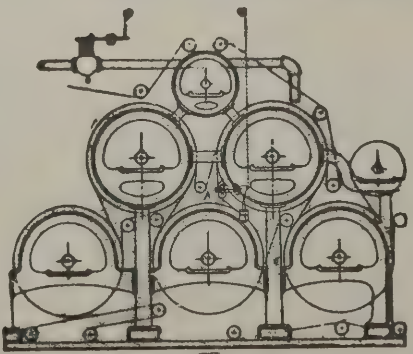

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Vol. XXXIII NOVEMBER 29, 1923 No. 6

Standardizing Paper Quality

Operation of Papermaking Involves Knowledge of the Properties of Raw Materials, Especially of Fibers, if Quality Is to Be Standardized and Controlled

By **Hubb Bell** *and* **H. M. Holmes**
Members of Technical Association of the Pulp and Paper Industry

IT is a well known fact that the process of papermaking comprises the gathering together of certain materials consisting mostly of cellulose or vegetable fibers; removing all undesirable substances; tearing the fibers apart and teasing them by beating in a beating engine; adding alum, coloring matter, filler and sizing materials; and, after proper dilution, passing the product over a paper machine. While on the machine, the surplus water is removed, and the fibers mat into one continuous sheet. This sheet is dried as it is passed over heated rolls. The result at the end of the machine is a sheet of paper.

Control of Materials

It is quite obvious that in order to control the paper quality, it is necessary to standardize and control the quality of the materials which enter into the paper. The sheet of paper may be given any number of different treatments, depending upon the purpose for which it is to be used.

Once the paper is made, it is perfectly evident that the principal quality of that paper is its strength. All different papers are required to have different strengths. The factor which mostly governs that strength is primarily the quality of the materials out of which the paper is made.

A paper which is made from the very best of new rags, for example, is stronger in every way than a paper which is made from woodpulp. Of course, some rags make better paper than others. There are different grades of rags just as there are different grades of woodpulp, each of which affects the strength of the paper made from it.

Obviously, then, the first requisite in standardizing paper quality is to know exactly all the properties of the materials which are being used in the manufacture, establish standards for these materials and divide them into separate classses, so that the relative values of each with regard to strength in any given proportions will be known when matted into a sheet of paper. Once these standards are established all materials purchased must be carefully analyzed and tested by a chemist to make certain that when they are put through the process of manufacture of paper they will produce a sheet of the desired strength.

Vegetable fibers form the chief raw materials used in the manufacture of paper. Animal and mineral fibers are but rarely used; the former in the manufacture of some blotting paper, the latter for fireproof paper and boards. The vegetable fibers may be divided into two classes—rag fibers and rag-substitute fibers. The rag fibers are linen, cotton and hemp, while all the other vegetable fibers, such as esparto, straw, jute, wood fibers, etc., are rag-substitute fibers.

What do we know about the fibers themselves? We know that a single fiber is an element out of which a paper is made. This element repeated untold millions of times is what gives us the final, completed structure. What the brick is to the building, the fiber is to the paper. Now, as a matter of fact, we do not have any such accurate conception of the properties of the fiber as we have of the brick, and the main reason is that the fiber is so much smaller. Take the paper industry through and through, there is not one person in thousands who has any very clear idea of the exact form and texture of the single fiber, whether it be linen, cotton, woodpulp or what not. The fiber is not a simple element. We must not think of it as of a wire; that is, something of uniform size and of uniform composition. It is something much more like a long and exceedingly slender twig or withe, with its outer bark, inner bark, wood and pith. Not that the fiber has bark, wood and pith, but that it has features that may be fairly likened to them, for it does have an outer, intermediate and axial part, and all these vary from one another in physical and chemical properties—in color, density, strength, and chemical composition and in many other ways.

Then, as all these fibers are the result of growth, they are not uniform from end to end. In this again they differ from a wire, whose physical and chemical properties vary but little throughout its length. If the animal that grows wool or hair passes through a period of sickness this results in a weak point in the hair. We shed our hair after a severe illness simply because, during that illness, the scalp, along with the rest of the body, functioned so poorly that it could not build good, strong hair. Later on the hairs break at the weak points and we shed them. A similar thing happens to our finger nails so that for weeks after a severe illness there may be seen creeping up from the roots of the nail and towards its tip, until it is finally worn away, what anyone can readily see to be a different and, as a matter of fact, weaker growth. So with vegetable fibers—these vary and, like all plant growths, roughly speaking may be said to reflect the nature of the season in which they grew. Climatic conditions may give rise to a distinctly weak point in vegetable fiber as described for wool and hair.

Wood Pulp From Young Trees Best

In the writer's opinion woodpulp from, say, a three-year-old tree will produce a better paper than woodpulp from, say, a thirty-year-old tree. The younger tree will furnish a longer and more pliable fiber. Although the fibers are beaten, the more flexible a fiber is the better properties it will have. As an example, a more flexible fiber will take a color much better than one not so pliable.

All manner of paper is being offered today, sometimes under fancy names, usually without mention of the stock, and occasionally in a manner that is deceptive, whether intentional or not. Much of this has risen as the result of the honest effort of the reputable manufacturer to meet the popular and insistent demand for things that look better than they are and sell at a lower price than the genuine. It has been necessary to utilize waste fibers in order to supply these demands, and it is fortunate that modern paper operations and chemical methods have made it possible to start with an inferior fiber and produce from it a more useful and enduring material. It cannot be emphasized too strongly that fibers of all kinds have their economic uses, and any fiber becomes objectionable in a paper only when it is used for the purpose of misrepresentation or fraud, either direct or implied.

The difficulty which each purchaser would have in determining the truth of the printed or spoken advertisement about paper would not be so great as in the case of food, for instance, while the descriptive terms employed are easier to understand. The majority of buyers like to see what they are buying and flatter themselves that if they can also handle the goods they will know much of their quality. The problem of conveying these impressions regarding values to those who could not examine the goods confronted many merchants, notably those selling to distant customers; and while appearance and color may be accurately portrayed by modern printing methods, the only satisfactory way in which to describe quality is by use of terms susceptible of accurate statement, all of which are functions of serviceable usage. Certain unfair practices in the trade are growing up gradually and a fairly general use of these practices are forced by the competitive conditions in the trade.

Fastness of Color in Tinted Papers

Many Americans knew nothing of dyes and colors until the war came. They just took the wonderful colors and shades of modern synthetic chemistry for granted, and never missed the water until the well ran almost dry. Then when dyes of other than German origin came upon the market the training had been such and the propaganda continued to be such that these new dyes were subjected to tests which German dyes had never been expected to withstand, and under which many would have failed. In some instances merchants condemned colors without a trial.

The achievements of American dye manufacturers in co-operating with chemists make one of the brightest pages in our industrial history, but we should continue to want to know in advance how fast colors are to sunlight. This is important to the merchant and customer alike. For this it has been customary to expose strips of colored paper to the sun while a portion of the strip remains fully protected. This is a test which the reader can conduct with ease, the one question being that of time, since it is surprising what a small percentage of some days is recorded as full sunshine. It is also difficult to compare seasons and latitudes, so that an accelerated standard artificial test became essential. In 1920, sets of samples were exposed in Tucson, Ariz.; New Brunswick, N. J., and New York City. The samples were so placed that the noon sunlight would fall perpendicularly upon them. They were exposed only from nine in the morning to four in the afternoon each day, and were not exposed during rainy weather. During their exposure there were only a few cloudy hours and a few hazy days. Comparisons were made with the various electric apparatus on the market which produce artificial sunlight. It was developed that a standard was three weeks of June sunlight, and the apparatus employed produces results in one hour equal to one day in direct, full sunlight.

Standard Formulas

The materials having been standardized the next step is to make a set of standard formulas for the amount of each ingredient which is to be used in the making of each grade of paper. It is not an uncommon thing to have the same grade of paper run over strength in one lot and under strength in another. In nearly every case this trouble can be traced to the fact that the proportions are not the same, due largely to a difference in the consistence of the stock used. The usual weight of halfstuff may be dug from one drainer for the first lot and from another in the second. The chances are that the amount of water in each is different and since the water is weighed with the material it is evident that the proportions of dry stock will be different.

When the resulting paper is made too strong it means that the manufacturer has sustained a loss by using more high-priced material than was necessary and when it is not strong enough there is a likelihood that the order may be rejected or sold at a losing price, for the same reason.

It can be seen that the standardization of materials and of mixtures is fundamental and must be the first thing undertaken. The standardization of processes is equally important. The very best of materials may give widely different results, unless the treatment which they receive is uniform.

Standardizing Processes of Manufacture

The first step to be considered in the manufacturing process is the matter of beating—probably the most important process through which the materials pass. In fact, just ask any old paper mill man and he will tell you that in the beater room is where paper is actually made. If the stock is properly prepared in the beaters it is a pretty sure guess that there will be no trouble during the remainder of the process. In the beating engine the materials from which the paper is to be made are mixed with water, passed under a roll, from which there are a number of projecting iron bars, and over what is called a bed-plate. This operation is done in order to accomplish two results. First, to separate or tear apart the fibers, each one free from all the rest, so that they will be in a condition to mat properly on the paper machine, and second, to obtain what is known to the papermaker as "slowness" of the stock; that is, the fibers have got enough brushing and have been mixed with the water to the proper degree of hydration to allow the water to drain from the fibers fast enough, but not too fast, on the wire of the paper machine.

If this beating process is carried on too long the fibers will become too slow, that is, the water will not drain from them on the wire as readily as it should, consequently this means a slowing up of the machine and production. Also with this long continued beating the fibers become damaged and the resulting paper weakened. If, on the other hand, the beating is not continued long enough, the fibers are not sufficiently teased, and the stock is not slow enough, which means that the water will drain away too quickly, and the fibers will not be properly matted.

Another variable, which has to be taken care of in the beating process, is the matter of pressure to which the stock is subjected under the beater roll. This pressure is varied by the distance the roll is adjusted above the bed-plate. Experience has taught that this pressure should be varied at different stages in the beating, starting with a very light brush and tightening down on the roll at regular periods throughout the entire process.

The "Feel" of Stuff in the Beater

The final condition of the stock is said to be right by the way the stuff feels to the engineer who puts his hand into it and slips some of it between his fingers. Now it is a known fact that if identical materials are subjected to the same processes under the same conditions the results must be the same. Since most paper mills have three engineers and in the matter of beating there are none but the most general rules governing it, and the variables are controlled by the beater engineer's judgment, which is without doubt different in all three cases, the stock which is declared right by each of the three engineers would vary to a considerable degree, if slowness tests were made.

It is possible for a paper manufacturer to establish standards for beating, but first it is necessary for him to make systematic observations on all grades of paper which his mill makes, study each controlling factor in its relation to all the others, formulate his results, and from these derive for each grade his absolute standards for different pressures and time of beating. This done he is no longer dependent upon some experienced man's judgment as to when things are right. He is then in a position to tell any man in his employ just what to do in any case, and be sure that the results will be uniform and right.

Paper Machine Speed

Another important factor in the output of a paper mill is the speed at which the paper machine may be run. Of course papers of differing textures require the machine to be run at different speeds, some will not permit a very high speed, which others must be made very slowly. But the question before the manufacturer today is, What is the proper speed at which each kind and grade should be run? Here again a great many variable conditions enter in which must be standardized before the corerct speed can be determined. The stuff as it comes to the machine must be mixed with the proper amount of water to insure a good matting of the fibers. The shake of the wire and the suction boxes must be so adjusted that all excess water will be removed properly. The temperature of the drying rolls must be of the proper degree.

Too often paper machines are slowed down to remedy some trouble instead of getting at it from its source, consequently there is a falling off of production, which means a loss to the manufacturer. Once all other conditions are standardized, there may be calculated a standard speed for the machine on each grade, and the output and cost of manufacture estimated with perfect accuracy.

Standardization in the Finishing Room

These same much-talked-of principles, which apply to the actual making of paper, may be applied throughout the whole finishing process through which the paper must pass. Such as standardizing the number of sheets that can be handled most easily, the speed of all machinery in finishing process, number of sheets most efficiently used under a trimming knife, standardizing methods for wrapping and sealing packages, proper number of employes to handle each bit of work, etc.

The amount of work connected with the standardization outlined will without doubt require years to complete, but the fact that standardization has been carried to such an extent in many other large industries and has proved a great benefit to them is certainly evidence enough that the paper industry should be working under the same conditions.

Once all the processes gone through in the manufacture of paper have been standardized and we have a standard sheet of paper coming from the machine, it is necessary to build up a number of standard tests for quality which the paper must meet.

This step should be comparatively easy, now that the paper industry has the official standard methods of the Technical Association of the Pulp and Paper Industry.

Strength or Quality Tests

It is perfectly possible for an old papermaker to tell with a great deal of certainty upon examining a sheet of paper, much of the processes which the stock has been subjected to, and from a goodly number of widely different papers pick out the one best suited to the purpose for which it is to be used. But appearance is by no means the best guide. A paper may be made of all rag and yet be deficient in strength which, as said above, is the principal quality of paper.

One papermaker is quoted as saying,—"It is our experience to find that paper made of new cuttings and a reasonable amount of sulphite pulp is a better product and has a longer life than paper made of all rag when the rags are old rags and the strength therefore poor; it is not so much the formula that is used in making paper as the qualities of the stock which should be considered for standardizing."

Such being the case then the statement, "This is a 100 percent rag sheet," means nothing in terms of quality or strentgh. Strength or quality tests should always be made both with and across the grain of the paper to determine uniformity of the sheet. However, perfect uniformity is not practicable owing to the methods of manufacture.

Paper testing has been in use for many years by experienced manufacturers for the purpose of determining relative values for these important characteristics and insuring themselves against defective papers and undue costs. From these tests they learned to recognize certain limits for each property outside of which they did not care to go. These limits vary, of course, with different kinds of paper, depending on what conditions they must withstand in use.

One would therefore, naturally expect to find these limits defined or classified in a quite definite way; but investigation discloses that no one can define a class in definite terms with numerical coefficients.

Consumer is Most Benefited

The consumer who is found in almost every line of business is the man who benefits mostly by paper testing. He often spends large sums of money on the item of paper alone and as a rule has no way of judging the character or quailty of the paper or its suitability to his particular needs, except through observation or the word of the salesman, who is chiefly interested in making a sale. Papers may look and feel much alike and yet be widely different in quality and have many widely different properties. Paper testing here performs the duty of determining which sample represents the best value for the money. The consumer can make the seller submit samples and estimates of the kind of paper he wants. With this data he will then have a chance to compare the kinds and qualities of paper on the market and the prices of the different dealers.

Paper testing is also of value because it shows whether the paper is up to specification and the consumer is getting what he contracted for. It may be stated that paper testing in general is of use:

1. In determining the best value for money paid.
2. In buying on specification, determining which paper submitted is most suitable and economical for the intended purpose.
3. In insuring uniform deliveries and maintenance of quality.

The thing that is now needed to bring about the desired definiteness in the standardization of paper quality is that all the accumulated experience in terms of tests be brought together and analyzed with respect to the bearing of these properties individually to conform to the tests and limits found desirable in practice, independently of the classification as it now exists, and with respect to the limits to be set for each property. It is only necessary to have the consumers agree on the specifications, and to be able and willing to have tests made to insure them that they are getting what they specify.

Until we have standards of quality in terms of tests rather than those of purely commercial consideration there will always be many cases wherein the price a man pays will be highest for paper made from the least valuable material. Already some manufacturers have seen the wisdom of standardizing their product in all respects, and while it has resulted in the loss of a few customers the net result has been very much of a gain. Both manufacturer and consumer will be benefited by standardization because the manufacturer will be able to market a uniform standardized product, and the consumer by knowing that his goods will be uniformly up to specifications.

Buyers are Demanding Guarantees

Under normal business conditions the stress of competition calls for the utmost care and effort to maintain quality of product at all times. During the flush period following the close of the world war the necessity for this care occupied a less prominent position as compared with the imperious demand for greater production, and there was a rather general tendency to favor quantity at the expense of quality. This time has been relegated to history, however, and it will be found that buyers are now critical in their purchases and are demanding guarantees that quality will be maintained. This critical attitude, on the other hand, benefits the seller in equal measure, provided there is a recognized standard by which to measure quality.

Graphical Control Combustion Gases

The accompanying diagrams were accidentally omitted from our issue of November 22 in connection with the article on "Graphical Control of Combustion Gases" by Dr. Rudolph Siebers, Kramfors, Sweden. References to these diagrams will be found in the article in question.

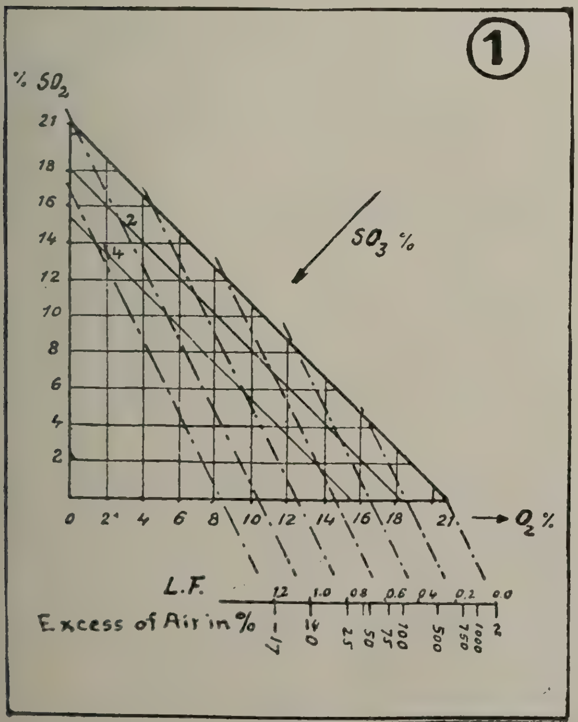

Figure 1

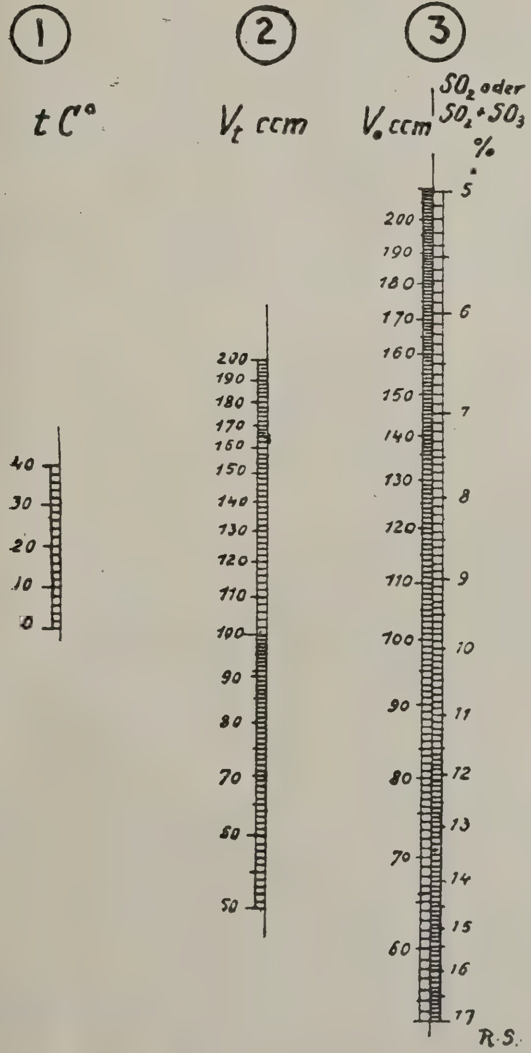

Figure 2

Waste in the Sulphite Industry*

Faulty Processes and Methods Responsible for High Costs—Changes that Will Add to Profits—Good Crew a Big Asset

By **O. L. Berger**

of G. D. Jenssen Co.

THE old proverb "A penny saved is a penny earned" holds good today more than ever and especially so in our industry where the profit of the mill generally depends upon our ability to save what we wasted a few years ago.

The actual physical waste of material during the process of turning wood into sulphite pulp is pointed out to us every day and I shall not speak much about that phase. I shall rather try to point out waste which is caused by faulty processes and methods, or where savings could be made if old methods were changed for those that are more recent and more improved.

There is absolutely no excuse for waste that we can detect with the five senses nature has given us. If such wastes are allowed to continue something is radically wrong and thanks to co-operation and propaganda we find that what is generally called "a bottled up mill" todav is more a rule than an exception.

In the manufacture of sulphite we find the eternal triangle: quantity, quality and economy. We find that it is hard to maintain a high average of all these at the same time as it is self-evident that by forcing one the others are bound to suffer. If we desire quality the production will be reduced and the cost go up. If we, on the other hand, desire a high production, we may lower the cost but are bound to sacrifice the quality. The governing factor is the selling price of the product and in deciding upon the policy of a mill it is well to remember what is really wanted and then aim to produce what is wanted as economically as possible. I believe that much money is wasted in our industry by loss of energy caused by faulty conception of what is to be accomplished and how to accomplish it.

Major Items of Cost

The five major items making up the cost of sulphite pulp are wood, chemicals, steam, power and labor. Your cost accountant knows the cost and each of these items and I would advise you to find out from him and check up from week to week.

With your permission I shall try to analyze each of these items rather than to discuss the operation of each department.

Wood.—Those mill owners who are fortunate enough to possess limits of their own are responsible not alone for delivering the wood to the mill at a reasonable cost, but more so for proper woods operation, forest preservation and reforestation. They must maintain their supply of wood without cutting into the capital of the company and the resources of the country.

When we shall realize the crying necessity of securing a permanent supply of raw material for the paper industry, which is so closely allied with the progress of our country, then and only then will we take the necessary steps toward stopping waste in our forests and this can only be accomplished by changing the methods we use today and run our woodlands on a scientific basis.

We can get along without many necessities and luxuries of modern civilization but it is indeed hard to picture ourselves cutting down the use of paper for writing, printing, wrapping and all its other modern uses. You have all heard of the printers strike in New York a few weeks ago. Can you imagine a city the size of New York without the morning paper? The people were dumbfounded and felt as if they were isolated from the rest of the world, not knowing anything about their favorite scandal, the baseball score or the European situation! It takes a situation like that to bring home to us the power of the press and the necessity of a steady supply of paper, which again means pulpwood.

The introduction of the barking drum has probably done more than any other invention to help us in decreasing waste of wood and in addition to this I shall only call your attention to the necessity of making a careful test of the chips so as to make sure of a proper conversion of the wood into finished chips.

Chemicals.—The chemicals used in the sulphite industry are sulphur and chlorine and I will also include under this heading lime and limestone.

All sulphite mills in this country use sulphur or brimstone in its metallic form, while we find many mills in Europe using pyrites. The low cost of sulphur in connection with the simplicity of its combustion is a pretty good guarantee that we shall never go into the use of pyrites for sulphite acid. In localities like Alaska, with high freight rates and rich pyrites near the mill, it is no doubt possible to produce the sulphur unit cheaper from pyrites than from brimstone. but the cost of the roasting installation must be taken into consideration and the absence of Selenium in the pyrites is also absolutely necessary.

In this country nearly 70% of the acid for sulphite is made from limestone. The difference in the cost of lime and limestone should in itself be a positive proof of the advantage of the limestone. Claims of the superiority of milk of lime acid on account of the advantage of a high percentage of magnesius has yet to be proven and, furthermore, there are today many mills using a dolomite stone in their towers where calcinite is not obtainable. The mills using lime as the base for their acid could save one dollar per ton of pulp by changing over to limestone. Just a matter of calculation.

The question of using bleachpowder, liquid chlorine, or electrolytic cells is one which depends entirely on freight rates and power cost. Many mills are today operating electrolytic cells who could better afford to buy the powder or liquid chlorine, while where power is cheap, production large and salt easy to obtain the home made bleach naturally is of advantage.

I think that most mills in this vicinity who still are using powder could make money by buying the liquid chlorine simply by taking into consideration the losses of available chlorine and changing of the chemical composition of bleachpowder during storage. A bleachplant may run perfectly satisfactory as such with minimum losses of chlorine and a low consumption and a careful investigation may prove that money could be saved by a change in method as indicated above.

The direct saving in chlorine by the use of high consistency bleaching is another matter which should not escape your attention.

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* *Presented at Superintendents association, Papermakers' convention, Appleton, Oct. 25-27, 1923.*

Boycott the Steam Plant

Steam.—Our old friend "Hook 'er to the Biler" has finally passed to his reward. It doesn't seem so very long ago that we had the daily fight between the head fireman and the cook when the cook's main ambition was to pull down the steam to make the fireman work. "Them days are gone forever." We know now how much steam it takes to cook a ton of sulphite and the flowmeter tells the story better than the recording pressure gauge.

By proper manipulation of the digester there should be no extremely heavy pulls on the boilerplant and the ideal condition exists in Scandinavian mills where a steam storage battery, the so called vaporaccumular, will take up any peak loads and furthermore stores excess steam during low peak periods. There are now a couple of these accumulators being installed on this side and we can expect some interesting developments in this field.

The utilization of the relief heat has been successfully solved by the Decker process which, according to recent tests taken at Kenogami, P. Q., will bring the steam consumption per ton of pulp down below 4000 pounds. The average mill uses today around 7000 pounds, so the saving can be readily caculated when we know that the cost of steam is at least 50 cents per 1000 pounds. We can't fool the flowmeter and the only way to get even with the steamplant is to boycott it and cut down the steam consumption.

The insultation of the digesters is bound to save radiation losses and I have seen figures on these losses varying from $100 to $1500 per year for a 10 ton digester. I understand that it costs $1 a square foot to cover the shell properly and again it is a matter for the costman to figure out. One reason insulation is used so generally in Europe is that they use a three inch lining while we on this side use a seven inch lining which, of course, is a better insulator in itself.

Where we dry our sulphite it is necessary to evaporate the water remaining in the pulp after it leaves the presses. This water amounts to 3000 pounds per ton pulp if the test is 40% air dry when the pulp enters the dryers. By the use of the Kamyr press this water can be reduced to 1650 pounds and a consequent saving of over one-third of the steam necessary for drying the pulp is the result.

I mentioned before the use of high consistency in the bleach plant. If this is used it is possible to bleach cold and even if a high temperature is used it is obvious that the less water the pulp contains the less steam it takes to heat it.

It has been proposed to condense the steam escaping from the vomit stack during the blowing of the digester.

The water used in condensing this steam amounts to about 1500 gals. per ton of pulp, can be used for washing the pulp in the pit and for logponds in the winter and many be of special benefit in certain localities.

The blowoff liquor also contains great amounts of heat but the equipment necessary to recover this heat has not been developed so as to work in with the mill operation.

Power.—Thanks to our efficient engineers the use of individual motors replacing line shafts driven from reciprocating engines so generally known a decade ago is now almost universal. The friction losses in the bearings and multitude of belts and gears in the old mills were immense not to mention the loss in operation caused by the constant shutdown for repairs on belts and hot bearings.

The use of high efficiency pumps is still badly neglected by many and could be the cause of considerable saving if installed. Many mills are also using high pressure water throughout their wetroom when it is only necessary to use about 7 pounds on all showers and no pressure at all on the mixing boxes. The only high pressure water needed in the wetroom is for the blowpit hose, which should have at least 40 pounds and for that reason should be supplied from a separate pump.

In some cases unnecessary power is used because the mill is not designed right. The cheapest way is to lift once and then use the natural flow by gravity as much as possible. An extra story of the building which would enable us to place the screens a little higher would probably save an extra pumping of the whole production if a thickener or riffler is to be used.

In the wood room we find more waste of power from inefficient conveyor installation while in the acid plant where milk of lime is used the power could be cut in two if limestone towers were employed.

I shall just mention a recent invention, U. S. patent No. 1,466,413. This patent refers to the introduction or air in pipe lines for pulp to facilitate pumping of heavy stock. We know that it is nearly impossible to pump stock heavier than 4% with an ordinary centrifugal pump. If air is introduced it is possible to increase the consistency considerably, thereby decreasing the power consumption per ton. My idea of an efficient sulphite wetroom is one where the pulp is diluted and kept in suspension in the blowpit at 6% and pumped by the use of this new pumping scheme direct to the screen at an absolute uniform consistency, thereby not only saving the power but eliminating the blowpit man as the screenman could adjust the flow of pulp from the pit at will. This scheme is now going to be tried out in one of our leading sulphite mills and we will soon know how it is going to work out.

Under this heading I will also mention the Bullard gaswasher and cooler, although it would rather come in under general efficiency. Outside of the fact that washing of the SO_2 from the burners removes SO_3 and free sulphur, an installation of this kind as a cooler will save power as it is possible to cool the gas by direct contact with a fraction of the water necessary with our present gas coolers.

—**Labor.**—Although the cost of labor per ton of sulphit only amounts to one-third of the cost of the wood, it is safe to say that a good crew is the biggest asset any mill can have.

The average mill today employs about two men per ton daily production and this varies with local conditions. There are wonderful opportunities to reduce the payroll by installing labor saving machines and time saving devices and as a mans wages will pay interest on a $20,000 investment it behooves the superintendent to look into this and keep his mind open to improvements in mill equipment.

But outside of the actual saving in labor and reduction of the payroll, we have the co-operation of the men and their goodwill towards their superintendent and their company to take into consideration. We hear so much about Ford methods, motion studies and mass production where each man is a piece of a big machine and does his work automatically regardless of individuality. In a sulphite mill this method cannot be carried out as it takes more than that to be a good acid maker, cook or even rollskinner.

And here is where the superintendent can accomplish the biggest saving because of the fact that it is up to him to get the very best out of his crew or get them antagonistic and careless.

It has been my personal experience that it is good policy to advise with the men and get their opinion in matters pertaining to the operation of the mills. I feel that no superintendent knows everything and that the combined experience of his whole crew is better than his own. He

(Continued on page 12)

Waste in the Pulp and Paper Industry*

Waste in Every Phase of Papermaking Operations Is Sufficient to Turn Losses into Profits and Prevent Many Failures

By B. T. McBain

Assistant General Manager "Nepco" Mills and Third Vice President Superintendents Association

I AM from the Pacific coast with thirty years behind me in the paper game, having started in 1893, but I don't think I know it all.

My paper business knowledge comes from half that period in contact with the president and later as manager of the largest mill company on that coast and my manufacturing experience under and with Uncle John Lewthwaite, the dean of paper makers in that far western empire, now 80 odd years young, and still looking for new things in the game.

Do not take it from what follows that Pacific coast mills are perfect. They are the equal of any anywhere; but are not by any means free from waste. By knowing what they are doing in many ways, I know what not to do and many of these things are in the column of waste. They are very wasteful of everything; but particularly wood, power and labor. They do not know it, however, and will not believe it, like many others.

I do know, however, the advantages they have over mills in the East and middle West in timber supply, power, water and steam and where the present available powers and timber belts of the future American paper industry are located, which I believe makes my survey of the waste problems in mills, East, West, North, South and middle West, near enough correct to warrant making record of it.

Pulpwood Wasted Everywhere

In the first place, there is enough good pulpwood wasted each year in the logging camps of the Pacific Northwest to run many of the eastern or middlewest paper mills, yet no seeming effort is being made by present mills to conserve their natural resources and to stop this waste. Pulpwood, however, is not alone being wasted in Pacific coast logging camps. It is being wasted everywhere, though in a lesser degree. During the past four years in the middle West and East, I dare say that from 10% to 20% of the total wood cut has been wasted from rot, disease and insect life, depreciation of value being chiefly due to the rush to secure supplies and the evident thought that the end of wood growth had been reached. Some mills have the fruit of such wastefulness still in evidence, as a guide to the future. The new wood condition which faces the industry in America is a very serious one, indeed.

Canada, as you have heard, has recently authorized the placing of an embargo on exportation of privately owned timber. This law was passed for a purpose and sooner or later will, no doubt, be made effective. Many American pulp manufacturers will then be deprived of a wood supply. Then, where will they look for it? The South and Pacific coast or Pacific northwest states afford the only outlet of any size in America and only cerain grades of pulpwood grow in the South. The only alternative is "Move over into Canada" or purchase Canadian or other foreign pulp from across the water. This means greater demand for foreign pulps, higher cost prices for raw materials, and greater finished paper costs.

Many of you here are representatives of conversion plants, and I might see in some minds the argument "Why should we worry". Gentlemen, whatever injures one of us in the industry, is felt indirectly by all of us. This seems a broad assertion but before the end, I think you will agree with me. Shortage of wood, means shortage of pulp—shortage of pulp causes higher prices, therefore, and possible shut down, meaning higher cost of paper; but you might say too, higher selling price. Will the selling price be higher in proportion though, with possible cheap paper offering from Canada and other foreign countries.

Others say there are very little book, writing and board made in Canada. That may be so; but what is to hinder making it there? There was very little newsprint made in Canada but a few years ago—look at today's condition.

I recently read a paper at the superintendents annual convention at Springfield, Mass., which has been published in the Year Book and in many of the magazines of the industry. Parts of that paper are incorporated in this one by request of the committee arranging this program.

I have recently had to do with the designing and building of a new paper mill. The first machine was started July 23rd on the date set for it to start. This mill is the nearest to a wasteless mill that I have seen yet. All the water and stock going away from the plant must go over the machine room floor and you can rest assured that very little goes that way when those in charge must clean up the mess. It is no longer in the experimental stage. It can be done, has been done and is being done at Port Edwards, Wisconsin.

Synopses of Former Papers

Time is Life—Time is the stuff that life is made of. Don't waste it. If you have a minute time to spare, use it to improve yourself; prepare yourself to fill the shoes of your superior officer next above and prepare your assistant to relieve you of the burdens of your present position.

Waste—A Disease—My subject touches upon one of the most vital diseases of the pulp and paper industry today; yes, of every industry in America of everything American, as I see it and by this I mean the United States and Canada. We have had so many years of plenty that we have become careless, yes, even to the last degree. I think we waste enough of everything each year in the pulp and paper industry alone in America to run a 200 ton mill full product, for many years. By we, I mean all of us, you and you and you and myself.

Extravagance—During the World's War, which seems yet to be bothering some of our Allies, we in America became careless, extravagant and wasteful. We made large sums of money; the returns to the manuafacturers were large; the profits great. We could have everything and anything we wanted. If what we had didn't suit, we charged it off, threw it away and bought another. Everyone seemed to forget there was to be another day; tomorrow was not thought of; we all lived for the present, like the gnat which is born but today, yet today must die. Overnight, the change came. We hardly knew how to meet the situation; had dollar ideas and penny incomes. We had driven to our work in high powered cars, if we worked at all; we had been used to two men for every job. The new situation was not understandable; surely it wouldn't, couldn't last long. Some woke up early, wrote off their losses and

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** Paper read before joint sectional meeting of Michigan Illinois division of Superintendents association at Kalamazoo, Sept. 20, 1923.*

started anew; others thought to beat the new conditions; but that couldn't be done.

Profit Must Come From Waste—Today many of us are still hoping against hope that the price of paper will go up enough to allow us to show a decent profit. Gentlemen, the sooner we put that idea behind us, the better. What we must do is, get busy, use all the authority we have and even exceed that authority to stop present, and prevent future waste. It is everywhere—in some form—waste in wood, in raw material, in finished product, in sales.

Worse Than Stealing—To waste, in my opinion, is worse than to steal. That is a hard thing to say, because all of us are in the waste column. If we are, and are not making every effort to prevent waste, we are doing worse than stealing what we are wasting. Why? If stolen, usually someone gets some good out of the stolen article. If wasted, no one does. Stealing can be stopped; so can waste. The law prevents stealing. The law should be as strong against waste and should be enforced. There is no law ,however; common sense should make us all stop it. It is waste today that prevents many American manufacturers from showing in the profit column instead of in the red. It is waste today in my opinion, that prohibits many American manufacturers from getting into the export business and doing some business with the markets of the world at a profit, instead of at home, alone and at a loss.

Can Increase Production—I have been preaching this anti-waste doctrine for many years. In one large mill the campaign we started netted 20% greater production and a very material reduction in cost. In others while the returns were not so great, the increase by savings alone put the business on the right side of the ledger.

There are many mills today, mill officers, mill managers, mill superintendents, who will sit back and say "That don't mean me, I am not guilty." Yet when you go into their mills, you will find stock wasting into the river, waste in power, waste in steam, waste in coal, waste in everything, but particularly waste in labor.

Specialists Needed—We all have specialists in our mills in our particular line of manufacture; but few of us have specialists in the saving of waste. Most of our mills employ cost accountants, and rightly so, who put in expensive systems to watch the disbursement of nails and like material from the mill store, the amount of paint or aniline delivered to the mills and the woolen felts, wires and jackets delivered to the machines, but the value of these same articles is being wasted many times each day in other ways, without any way of checking them. What the boss doesn't know, doesn't hurt him and nothing is being done to prevent this loss—waste.

Generally Speaking—I can start from the wood lot and follow the wood to the mill, through the various processes to the car and even to its final use in the plant of the consumer, whoever he may be and show you waste; yes, waste to the point of making you disgusted with such an industry if you didn't have the right and the authority to stop it. Go home, gentlemen, for a few moments. Your minds are now on your daily work. Follow me through your plants, please:—

The Wood Pile—The wood in the pile—see that rotten log? That tree should never have been felled; but if down before its value was determined, it should not have been shipped. Waste of labor in cutting and loading, waste of freight in delivery, waste of labor unloading and worse than anything else, rot and worms go together, your log pile is endangered by contact with it. There are many such logs; great is the waste.

Methods of handling wood from pile to mill make it necessary to deliver these logs when their turn comes, more waste of labor, the quality of your product is endangered. An error happens, some of it gets into the chip bin or goes to the grinder room. It is not even good fuel, you get no product from it, waste of all equipment and labor in the handling ensues; but you do get dirt and in the case of greenwood, you get infection which shows up in the pile of stored laps and then again there is waste.

Power Machinery—See that engine running that wood room? the exhaust steam can be used; but is going to waste. Another wood room is operated by direct connected water wheel installed thirty years ago, probably never cleaned since installed and wasting over half the water going through the flume while the number of gears and belts in use show another waste of 25% to 50% of the power the wheel does produce.

If an old, out of date water wheel must be used, it will pay to get a small sand blast and give it a thorough cleaning inside, at least once a year. The waste in most plants on this account is great, many times almost 50% of the possible power. But if you do clean them, know that they are cleaned inside, don't take someone's say for it.

The Boiler Plant—Look at the steam pressure—some mills are still using boilers that are little better than junk. Steam driven pumps, hand firing of coal, poor handling of hog, improperly designed furnaces, poor draft, lack of meters on water and steam, improper control of air, etc., are all points to show whether the efficiency possible in the boiler room is at a point where there is sure to be waste. Coal costs for power and heating are putting many mills to the bad.

Fire System—Are you using the steam fire pumps for general service and work where an up to date centrifugal or plunger high efficiency pump would pump twice the water for half the cost? Is your fire pump of any value for emergency use in case of fire if it is being so used?

Labor—Follow the wood to car or to the pulp mill grinders or chippers and check up on each man. In most plants 10% of the labor is waste; in some, considerably more.

Fibre Mills—Because of the length of fibre, the loss is not so great as in groundwood plants; but there is waste from chippers, poorly made chips, chip screens, blow pits, screens, deckers, wet machines, liquor waste in making, steam waste in cooking, liquor waste in reclaiming and recovery, chemical waste in possible by-products, sludge waste in soda and sulphate. Some soda mills are saving 85% of their original lime by recalcining their sludge. Laws prevent the discharge of sludge and other mill waste into streams. Thank the law.

Pulp Grinders—Check up the power used per ton of pulp on the grinders. Some mills are wasting from 10% to 40% of the power on the grinders because of improper or insufficient use of burrs, poor supervision by foremen; not running the stock at proper temperature, poor speed control, and various other reasons.

Pumping Equipment—Follow the pulp from grinder pits to screens. Very poorly designed, out of date pumps are wasting 25 or 50% of the power used, either because of over speed or of improper type for the service.

Screens—The screens in many mills are discharging or rejecting good fibre because of the speed of screens or improper consistency of the stock, waste of power and fibre, as well as labor and equipment producing the wood and pulp to the screens.

Thickeners—The deckers are leaky and are passing good stock around the ends of cylinders, due to poor packing and poor maintenance. "But that isn't being wasted," I hear some say, "because we use all our white water;" but in following up all avenues of waste of white water, a large stream sometimes as rich as 4 pounds per 1000 gallons, is found wasting into the sewer and river, 4 pounds in 1000 gallons is 10% of the original consistency of the stock at the screens, or going to the deckers, and what is commonly called ½% consistency.

Screenings of Value—The tailings rejected in most groundwood mills are considered of little value. Some are saved and sold in good times; but in poor times, wasted. These contain some of the best fibre of the log. In grinding wood, two distinctly different fibres are encountered; the hard, annular rings and that soft punky intercellular material between these rings. In my opinion, two distinct and different processes are necessary to properly handle these two kinds of fibre; that which the screens reject must be handled by a refiner, many good types of which are on the market and are in use in some mills, making marketable No. 1 pulp out of this waste. Again, the pump from decker chest, the agitator, the belts and gears in use, are all wasting power for one reason or another.

Beaters—The beater line is not run up to speed on account of overload, or low voltage, or dirty runners in water wheels, for one of many causes and the beaters are operated 10% or more slower than they could be and the beater rolls have not been ground perfect and true; waste of capacity, beating surface, labor, everything before and possibly everything following, because in some mills the machine production is governed by beating capacity.

Piping—Follow up into the machine room basement. Water and stock pumps are all wasting power. Why? Because of improperly placed or poorly designed and too small piping, as well as old, worn out pumps placed when the paper machine was running 250 ft. are still being used with the speed at 500 feet or more, by simply speeding them up—waste.

Paper Machine Screens—Are the paper machine screens wasting stock? If any fibre is being rejected, it has a value—save it. Why withhold these causes of waste longer from the junk man? There are probably half a dozen water pumps supplying water where one central water system with proper filter would do the work with a saving of from 50% to 75% of the power, saving also maintenance, labor and material.

Suction Pump—What kind of a suction pump is used and is it doing its work in an economical manner?

Clothing—Look in to the life of wires, felts and jackets—why does the felt wear out in two weeks with old rusty iron felt rolls when with rubber covered rolls the life might be doubled—waste. Where is the white water going from machine mixing box and how much is being wasted from the saveall under couch?

—Steam for Drying—Look into the drying pressure and use of steam per pound or ton of paper and get someone versed in the scientific drying of paper to show you where you can save the 25 to 50% of the steam now being wasted and how you can get more paper and better paper at the same time. Again, the vapor arising from the paper is probably being blown out of doors and wasted, while it contains valuable heat units for re-use either in drying, or in heating the room, or to supply hot water for various production purposes. Heating engineers are available at no cost, to explain this waste.

Broke—Follow the paper from dryers to calenders, to reel and to winder. Weigh the broke that goes through the convenient broke hole, or holes, into the basement. Some mills show as high as 15% of the paper made going back to the heaters as broke—waste that can be cut in two, three and even four by proper follow up; there's a reason for all waste. Eliminate the cause, no matter who or what.

Hoods, Etc.—Dryer felts are many times damaged or worn out before half their proper life is gotten from them. I have seen this caused by sulphuric acid in the sulphite used or from excessive use of alum, also by improperly designed hoods, causing a wet streak that even a dryer felt could not correct. The shorter life is waste, remove the cause. An hour per day average is enough to wash up and change clothing. If more is used, it is wasted.

Programs or Running Schedules—I might just refer to improper handling of orders, too frequent changes of weights and quality as a cause for waste—making grades for which the mill is not properly equipped—another waste; careless handling of the paper in the cutter and finishing rooms; on the cutters and by the finishers.

Dissatisfied Customers—The cut price salesman is a great source of waste. In fact, a dissatisfied customer is waste, especially if the product delivered must be sold a second time to the same or a new man. I could write of waste and fill a large book; the more one studies the subject, the more places he finds where dollars have been and are still going to waste in one form or another in almost every mill. Industrial accidents are a waste in many ways; how some mills get by without wasting more lives and limbs is beyond me.

He Who Knows it all—But, one of the worst causes of waste is the superintendent who thinks he knows it all, who thinks he is too proud to belong to this section of the American Paper & Pulp association, for the man who thinks he knows it all and cannot learn from his fellow man, his competitor, if you please, is not only going backward, but is at a point where others can learn little from him, except not to do as he does.

Eyes But Cannot See—The next worse cause of waste is the owner, the manager, or the superintendent who will not see when his errors are pointed out to him. He does not deserve to and cannot be expected to get into line.

Savings Reduce Cost—However, I believe that with the saving of all forms of waste in the pulp and paper Industry, many plants now in the red can be put into the pay class, not by demand increasing the selling price; but by the savings reducing the cost.

Waste in the Sulphite Industry

(Continued from page 9)

is the general that leads the battle but the shooting is up to the individual soldier.

If the men feel that their opinion is respected and their suggestions followed they are eager to suggest and help while on the other hand they are easily hurt if snubbed by the boss.

The superintendent that feels his responsibility to such an extent that he asks no advice from his help and is afraid to lose prestige by admitting his shortcomings will always carry his burden alone and the crew will enjoy seeing him in trouble.

We can install everything possible in the way of charts, records and red tape to promote efficiency but when it comes right down to facts the mill where everybody from the manager down are working in harmony is the most successful and the mill where the best results are attained.

In closing I wish to say that the successful operator is the man who is up-to-date, who is willing and anxious to profit by other people's experience and I know of no better place to get new ideas than at a meeting of this kind where practical operators come with an open mind willing to give and take.

The Northampton Paper Stock & Mill Supply Co. at 106 Hawley Street, Northampton, has been purchased by Burt Michelman. He will continue the business at I Isabella Street.

New York Superintendents Meet

Northern New York Division Makes Good Showing at Carthage Meeting—Interesting Papers Presented—Dr. Baker Talks on Forestry

ONE hundred members of the Northern New York division of the American Pulp and Paper Mill Superintendents Association convened in Carthage for their fall session on Saturday afternoon and evening, Nov. 17. Frank P. Wilder and John O'Connell of the Diana Paper Company of Harrisville, had charge of the arrangements for the meeting.

The afternoon business session was held in the rooms of the Carthage club with the banquet and evening business session at the Elmhirst hotel. The members of the association arrived in Carthage at noon Saturday. At 1:30 the entire party left for a visit and inspection of the local mills.

Homer Stafford of Watertown, chairman of the division, called the afternoon meeting to order. William J. Argy of the St. Regis Paper Co., Black River, N. Y., presided as secretary and a stenographer was present to take the minutes of the meeting. Mr. Stafford welcomed the members to Carthage and assured them of some interesting papers concerning vital matters relating to paper mill problems. He urged all the eligible men present to sign up the application for membership saying that he knew they all wanted to join an organization of this type. He brought out the fact that the more members the stronger the organization.

Synopses of Papers

A. J. Darling, of the General Electric Company, delivered the first paper on "Steam Turbines and Power Transmission as applied to Paper Mill Practice" bringing out some interesting facts which were listened to attentively by the members. Following his speech his paper was the subject of general discussion among the members and Mr. Darling answered many questions on various parts of his paper. Several other members took the floor to ask question or explain several points. At the conclusion of his paper Mr. Darling was roundly applauded by the members and was thanked by Mr. Stafford, chairman.

"Powdered Coal and Boiler Equipment to Go with Same," was discussed in a paper given by F. W. Dean, of Boston, who is a manufacturer of such machinery. His talk was clear and logical to the last detail and he presented a strong case which seemed to convince the members that powdered coal and its accompanying equipment were the solution of this difficult and expensive part of paper mill costs. He was strongly supported by Robert G. Argy, who said that equipment for powdering coal and accompanying boiler equipment had been recently installed in his mill, the Cliff Paper Company of Niagara Falls, and was rendering complete satisfaction. Features of the use of powdered coal were the complete absence of dust which may be seen by the eye, the lack of backbraking labor, the coal being delivered to the boiler by a system of fans, the absence of ash in its use, the ability to burn the cheapest kind of coal including Western lignite as well as the higher priced grade of coal. When the furnace is shut down all that is done is to turn a valve and there is absolutely no ash or refuse left in the furnace. Fires do not have to be banked as with a little kindling a fresh fire can be started in a moment. Discussion by the members followed his paper.

"Groundwood—The Three-Pocket Small Grinder as against the Magazine type" was discussed by F. W. Roberts of Lockport, N. Y. General discussion followed his paper also and considerable dissension was shown in the talks of the members in favor and against the two types. W. J. Argy, secretary of the division, of the St. Regis Paper Co., Black River, spoke in favor of the magazine type. One member argued against it from the viewpoint of, "Does its much greater cost equal the benefits it produces."

The Next Meeting

Following the final discussion of Mr. Robert's paper the subject of the next meeting place of the members was brought to the attention of the meeting by Chairman Stafford. He said that a joint meeting with the Connecticut Valley division which is the youngest, has the most members and is one of the strongest, had been suggested for early next spring at Albany, a central point for the members of both divisions. It would possibly be a two day meeting. Inasmuch as the national meeting comes in Dayton, Ohio, May 23, one member thought this joint meeting would come too close to the national meeting which he said, all the members who can possibly attend should make this day a holiday and take their families to the meeting.

He suggested a meeting of the division earlier in the fall and again urged all members possible to attend the national convention. At the last convention in Springfield, members from all over United States and Canada were present and delegates attended from several foreign countries. He suggested Niagara Falls, as an ideal meeting place for the fall session and made a motion that at the discretion of the officers, the meeting was to be held at Niagara Falls, the time and place to be fixed by the officers. Mr. Stafford put the motion to the members who unanimously accepted it.

The chairman told the members of the enjoyment to be expected at the evening banquet, the speakers, and other interesting features of the banquet. He also thanked the management of the local mills for the courtesy shown the visiting members in their trip of inspection and mentioned the quality of the paper made here in the fact that he was not even able to pick up a scrap of broken paper to take home and compare notes. He said that this could not be equaled anywhere and mentioned several other mechanisms in the local mill which proved of interest to him and the other members.

At the close of the meeting the chairman urged all eligible for membership to come forward and sign the application blanks to make a 100 percent total. A large number did so at the close of the meeting.

Dr. H. P. Baker, of New York City, executive secretary of the American Paper and Pulp Association, delivered the main address at the evening banquet, his subject being, "The Paper Industry and the Conservation of Forests in the East."

Doctor Baker said in part:

"The paper manufacturer has been charged all too often with devastating the forests. I want to point out just casually what we are taking from the forests and just what forestry and handling of our forests is going to mean as time passes.

"It was somewhat of a surprise to me that you voted as you did on Nov. 6, on this Ferris amendment and that it was treated just as you treated it. I expected it would fail as there were so many against it, I was a little surprised that this northern country should go against it, not that I am arguing for the Ferris amendment which would allow the use of 3 percent more of the Adirondacks for the timber. What I am surprised about is that this question was not decided upon facts, upon what it might mean to the future business of this state, but was decided upon sentiment influenced by men who are not interested in the business developments of this state but who have camps in the Adirondacks. Why is it that our people are so very careful in having better forests and what does it mean to us? Why do we have to be stirred up before we will give serious consideration to the proposition?

"We have had so much forest; wood has been too cheap to practice forestry and through the years we have been interested in forests in a sentimental way. We are getting away from that attitude and becoming interested in the economical value of our forests. The cost of wood is no longer at a point above production. Today with wood pulp selling at the price it is, with lumber what it is, the cost of wood is under the cost of production. When that stage is reached, we can afford to grow wood. We are going to grow wood and grow it in tremendous quantities.

Time to Abandon Sentiment

"I say, sentiment has controlled us too long in our attitude toward the forest land in this state. I said in Syracuse and I say it now, I have no patience with the policy that allows you to lock up two million acres and keep it idle and non-productive. I know that we can take these two million acres and we can get a direct return from the forests. I know that we can so handle these forests as to give us the necessary return and we can have a better recreation place. In Europe they are making their forests so productive that they are turning their agricultural lands into forests. They have more game in those forests than we have in this northern country. It is absurd.

"Do you know that the northern section of the United States has better forests than any section in Europe? We can do something in handling these forests lands of ours. Our virgin forests have never been productive. However, they give us wealth. We are going to grow forest lands again in this state, better than ever grown before. There are two or three dangerous factors to be removed before we can afford to practice forestry. We must protect our forests from fire. We are burning over seven million acres of wood land in this country, more acres than we are getting for our lumber and pulp. We have burned more wood and forests than we have used in the development of this nation. We have to stop the forest fires.

"Another factor which must be changed is the matter of forest taxation. Forest land has been wrongly taxed in this country. You do not tax the growing of agricultural products. We have got to change the method of taxing the forests, so with the low land tax, thus taxing the forest when it is removed. Wrong method of taxation has destroyed more timber in this country than has been used in the manufacture of paper. You can tax the forest and be fair. We have devastated too extensively. We have treated our forests so carelessly and have allowed them to burn so that today we have 81 million acres so badly burned and devastated that they will not go back to another forest.

"Our friends across the line have threatened us with an embargo. We have had one for some time and we have gotten along fairly well. Now, the Dominion government, a little hard up, threatens to put an embargo on wood from their lands. It will probably bring them some income. We have a sovereign state in this great union of ours which is putting an embargo on coal, the state is Pennsylvania. The situation is not so serious after all because we are learning how to use the southern woods. We are learning to use hard wood and we have lots.

"If the embargo is put upon us, we are gaing to more quickly utilize these lands of ours. I am going to live in New York and you are too, to see these 8, 9 or 10 million acres of idle forest land in New York again covered with productive forests. What a state it will be to live in with the forests going to our doors as it was in the beginning! We are going to bring back wood using industries and commodities. New York is going to be a much better state to live in after we have covered again our idle forest lands. It is going to be cheaper land and it is going to give us a larger return on the investment. I am convinced that we are at the beginning of a tremendous development in the use of our forest lands and in the use of our forests. We have got to fortify our industries with the forests if it is to be permanent in this country.

"In Scandinavia, every paper mill has a forest back of it and they are permanent. We have not developed a sense of permanency in our industry as we must develop.

"We are beginning to appreciate the fact that we will not be strong until there is a forest back of every mill, a productive forest that is going to make New York a great forest state."

Those in Attendance

Those present were:

Robert G. Argy, Cliff Paper Co., Niagara Fills, N. Y., Delbert Martin, Diana Paper Co., Harrisville, N. Y., F. W. Mullen, W. C. Stebbins Co., Inc., Watertown, N. Y., B. J. Flynn, Diana Paper Co., Harrisville, N. Y., N. J. Argy, Cliff Paper Co., Niagara Falls, John Authen, Diana Paper Co., Harrisville, N. Y., Joseph Bell, St. Regis Paper Co., Norfolk, N. Y., E. G. Eggleston, Champion Paper Co., Carthage, N. Y., H. P. Cadwell, North Country Coal and Supply Co., E. G. Eddy, North Country Coal & Supply Co., Milton J. Maquire, Empire Size and Chemical Corp., H. E. Rockwood, Champion Paper Co., Carthage, N. Y., J. R. Van Amber, North Country Coal and Supply Co., Chas. H. Plantz, St. Regis Paper Co., C. T. Wright, Champion Paper Co., Carthage, N. Y., B. J. Baron, St. Regis Paper Co., W. P. Forbes, Champion Paper Co., Carthage, N. Y., E. W. Clarke, Knowlton Bros., Watertown, N. Y., H. E Harmon, Knowlton Bros., Watertown, N. Y., George W. King, Delber Rubber and Supply Co., Syracuse, N. Y., A. D. Merrill, Stebbins Engineering and Mfg. Co., Watertown, N. Y., C. R. Outterson, Adirondack Mineral Co., Inc., Carthage, N. Y., C. J. Schoof, Crane Co., Syracuse, N. Y., C. A. Castles, Adirondack Mineral Co., Inc., Carthage, N. Y., F. W. Roberts Mfg. Co., Lockport, N. Y., J. F. Gordon, Crane Co., Syracuse, Hiram Sanders, Carthage, National Paper Products, W. J. Hinds, Carthage Machine Co., Pat Moran, Carthage Sulphite Pulp & Paper Co., A. K. Hinds, Carthage Machine Co., K. F. McGeary, St. Regis Co., Norfolk, N. Y., Harold Oken, Watertown, B. H. Traduzee, Traduzee Supply Co., Watertown, Martin Nolan, Diana Paper Co., Harrisville, N. Y., Seibert Lippitt, International Paper Co., New York City, C. A. Lura, St. Regis Co., Defereit, S. W. Tripp Co., Inc., H. Weston, American Meinger Co., H. E. Newcomb, St. Regis Paper Co., Defereit, N. Y., Frank C. Baker, Belleville, N. J., Eastwood Wire Manufacturing Co., E. E. Martin, Bagley-Sewall Co., Watertown, Leonard Mann, National Aniline & Chemical Co., 40 Rector St., New

(Continued on page 21)

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

Conservation From A New Angle

R. S. Kellogg, secretary of the News Print Service, speaking at the New York State College of Forestry Nov. 12, introduced the subject of paper conservation from a distinctly new angle. He says:

"It is unfortunate that thousands of tons of white paper and millions of good spruce trees are yearly employed in spreading misinformation, prejudice and scandal. There is little basis for controversy when all the facts are known on any subject. We are only beginning seriously to consider the fundamental problem of human relations of how men should live and work together, of how they should conduct themselves if the complex that we call modern civilization is to endure. There are no short cuts to wealth and happiness that are substantial.

"A man has the right to work for whoever he chooses and to hire whoever he chooses. Employes and employers have a right to organize for the promotion of their respective interests, but neither has the right to use power to the injury of the public. The closed shop, union or non-union is ethically wrong, and the flat union scale economically unsound. The only just payment for labor is based upon quantity and quality of product.

"There is no such thing as men being created equal except in the spread eagle speech of the Fourth of July orator. The inalienable right is that of opportunity. Never will there be equality of accomplishment and reward, socialists' theory notwithstanding. Sound progress will not come from crusades inspired by ignorance and fanaticism. Bolshevism and Ku Kluxism are present examples of 'wolf trees' in the social forest with which the world has always been cursed."

How Much Does Reforestation Cost?

The problem of the cost of reforestation is one which constantly comes up in discussions of the etxent to which the paper industry can practice forestry. Some interesting figures have been secured, and the belief is growing that reforestation alone is not a solution, but that forest management in all its phases is the sure course to perpetual supply. Too long a delay after cutting in taking care of the cut over land increases the reforestation cost, even where artificial planting is necessary.

Carl Riordon of the Riordon Pulp and Paper Company, speaking some time ago at Miami, Ohio, said that the remedy for the exhaustion of the timberland supplies of the United States and Canada will be planting, "or whatever husbandry will make every acre that is unfit for agriculture yield the greatest possible harvest of wood." He went on to say that, in his opinion, reforestation for pulp and paper companies could not be considered at present a sound investment. The paper industry, however, will to a constantly increasing extent practice forestry on its holdings, as the present resources are depleted.

Data on reforestation costs for the spring of 1923 are available from the American Paper and Pulp Association, Woodlands section. W. G. Hastings, commissioner of forestry of Vermont placed the cost of forest plantations of small magnitude at $16.50 per acre, divided as follows: Trees, $8.40; labor, $6.00; freight and drayage, $.60; overhead expenses, $1.50; On a large scade he believes these figures would be cut 25 per cent. Philip W. Ayres, secretary of the Association for Protection of New Hampshire Forests, places the cost of white pine planting at $15 to $20 per acre.

Harris A. Reynolds, secretary of the Massachusetts Forestry Association, places his estimate at $15 per acre for white pine, while a trained crew would plant at $10 per acre. H. O. Cook, chief forester for Massachusetts, puts the cost of planting 3 year old transplants at $15, of which $7 is for the planting stock and a similar amount for labor. Costs on lots of 20,000 or more trees would be shaded 5 to 10 per cent. J. W. Toumey of Yale puts the cost at from $12 to $24, according to the use of seedlings or transplants. The Connecticut figures range from $12 to $13.20 per acre.

In New York, the forest schools at Syracuse and Cornell give estimates ranging from $15 to $17 per acre. The Forestry Association in New York State made a number of plantings for municipalities where the cost figures were very low, but where hired crews were engaged, the cost was $22 per acre for transplants and $13.75 for seedlings.

New Jersey figures run from $10 to $12 per acre, Pennsylvania from $11 to $12, and Maryland as high as $28.68 per acre. A paper company forester in Ohio, Karl A. Swenning of the Mead Co., Chillicothe, O., planted cottonwood and maple at a little under $14 per acre, this being a 1921 planting.

These figures all tend toward the conclusion that planting stock must be provided at low cost, either from company nurseries, where the area to be reclaimed is extensive, or from State nurseries at cost of production. Still more important is the matter of forest taxation. Reforestation at the average cost of $15 per acre will increase rapidly among all far-sighted timberland owners whose land is situated in the states where the law exempts planted forest growth until time of harvest.

Urge Definite Forest Policy

At its eighteenth annual meeting, held at Utica, N. Y., Nov. 8, the Empire State Forest Products Association adopted the following resolutions:

1. The resolutions of the previous convention, held on November 9, 1922, regarding State and National forest policies are re-affirmed and it is with satisfaction that we note the steadily increasing acceptance of the basic principle of Federal leadership and co-operation with the states and timberland owners in all important forestry proposals before the country. This denotes sound progress of the most encouraging sort.

2. The time has now arrived when the formulation of an adequate policy covering the management and use of all the forest resources of the State of New York can no longer be delayed. We know the basic facts required and the permanent welfare of ten million people demands that the forest lands of the State of whatever status of ownership, as rapidly as possible be placed in condition to yield the maximum permanent annual return in timber, watershed protection, recreation, and fish and game. These objects are not conflicting; they constitute the harmonious economic development of the tration of the public forests of the Nation.
resources of the forest as is abundantly proved by adminis-

3. We believe that the Empire State Forest Products Association including, as it does, within its membership representative timberland owners, manufacturers of forest products and

foresters of wide training and experience, is eminently qualified to take the lead in the formulation of the principles upon which an adequate and permanent State forest policy must be based and we recommend to the board of directors that this be made the major activity of the association for the ensuing year.

4. We also recommend that the association solicit the active co-operation and assistance of all other organizations and individuals in the State, who, in the interest of the public welfare, are willing to help work out this problem along the lines herein specified.

To Americanize The Chinese Chestnut

Forestry specialists are investigating two Chinese chestnuts, Messrs. *C. molissima* and *C. vilmoriana*, and others of their brothers and cousins primarily to find a species that will be a fitting substitute for the American species and at the same time resist successfully the chestnut blight which is now sweeping through the South Atlantic States and threatening to destroy utterly the American chestnut.

While chestnut lumber does not especially interest the manufacturers of paper or the producers of pulpwood, the complete loss over a wide area of any good lumber tree can not fail to have its effect upon industry. In Massachusetts, before the chestnut bark disease took its heavy toll, one tree in every six was a chestnut. In many other eastern states readjustments in the use of species have become necessary as a result of the disease.

The experiments in question are being conducted at the Department of Agriculture's experimental farm near Washington, D. C., and also at the Appalachian Forest Experiment Station at Asheville, N. C., while in China an explorer sent out by the office of foreign seed and plant introduction of the Department of Agriculture is searching the Himalaya uplands for new species and varieties of chestnut and closely related genera for further research work in this country.

The Indian chestnut (C. diversifolia), a large evergreen from the mountains of Bengal, stands in equal favor with the Chinese species, and a Japanese species has been found which possesses good blight-resisting qualities. Our native chinquapin has also entered into the tests, which include cross-breeding as well as blight exposure and various climatic ordeals. The work must go on for some time before a definite decision can be published. Two small plantings have been made on the Natural Bridge National Forest and two on the Florida National Forest.

Commends Chamber of Commerce Forestry Report

Col. Henry S. Graves, former chief forester and now head of the Yale Forest School and president of the American Forestry Association, in a letter to five hundred local chambers of commerce commends the report of the national chamber's committee on forestry. He, however, calls attention to the fact that certain recommendations of the committee, if applied literally, would restrict the federal government in its present work of purchasing forest areas in the east under the Weeks law.

"One of the recommendations of the committee is to the effect that the government should, under existing law, acquire and replant our waste lands on which reproduction of forests cannot be obtained by natural means. This recommendation interpreted literally would restrict the government in its Weeks law purchases to the acquirement of land on which there is no timber growing at the present time, and which would have to be reforested by planting or seeding.

"The purchase of forest lands by the government for the building up of national forests in the east must not be confined exclusively to waste areas. The operation of the present Weeks law during the last ten years has proved conclusively that it is desirable and essential for the federal government to acquire lands covered with standing timber even though it is young and immature forest growth.

"The wisdom of this policy is clearly demonstrated by the areas which the government has been acquiring as national forests in the White mountains and the southern Appalachians. If the committee's recommendation is construed to restrict the government to the purchase of waste lands only, its operative effect would be a serious blow to the federal government's present program of acquiring public forests in the east."

Forests of Colorado

State Forester W. J. Morrill has just completed a statement relative to the forests of Colorado. His figures show that the standing timber is worth $60,000,000, that one-fourth is privately owned, the national forests containing 75 per cent.

In the national forests there are 18,076,432,000 board feet of timber, and on this basis the entire amount is conservatively estimated at 24,000,000,000 board feet. The value is based upon an average price of $2.50 a thousand feet.

The average annual loss during the last five years has been .035 per cent of the valuation within the national forest. Outside it has been a little higher. The fire loss average in the national forest was $21,321 a year, while outside it was $5,280 a year.

New Chief Forester For Nova Scotia

O. Shierbeck, formerly chief forester for Price Brothers of Quebec, has resigned to become chief forester for the province of Nova Scotia, to conduct a study of forest conditions and possibilities in that province.

A forest nursery will be started at Annapolis Royal for the benefit of farmers and land owners as a demonstration area.

Mr. Shierbeck has spent the last four years on the pulpwood operations of Price Brothers and his service in Nova Scotia will be financed by Frank J. D. Barnjum, who offered to maintain this department when the province failed to establish such a department at its own expense.

Experiments In Slash Disposal

A series of experiments in the Bend, Oregon, region by the Shevlin-Hixon Company has produced some interesting data as to the possibilities of reproduction of timber on cut over western lands.

The company experimented on burning in strips, totaling not over 400 acres, and the unburned area is showing a good sized stand of young trees of various sizes, while on the burned strips there is an absolute absence of seedlings.

Forestry in Louisiana

There is now under state forestry supervision in Louisiana about 145,000 acres of land owned by paper and lumber companies, and an additional tract of 55,000 acres is under observation. In all cases the forestry work is being done by co-operative effort between the state and private interests.

Oregon has fifteen federal forest reserves and the forest area of this year is given as 13,137,447 acres. The secretary of state has apportioned $168,111.95 to the various counties sharing in the fund secured from forest reserve rentals, sale of timber and other resources from forest reserves within the state of Oregon for the year ending June 30, 1923. Of this money 75 percent goes to the road fund and 25 percent to the school fund.

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What Is Waste?

IT is popularly but erroneously supposed that half of the wood used in the manufacture of sulphite pulp is lost. Some editorial writers, ourselves among the number, have aided in the dissemination of misleading information of this kind during early days of contact with the industry, but a better knowledge obtained by closer study of materials and processes has operated to clear up doubtful points and correct some misconceptions of what really constitutes waste.

In the paper by Professor McKee of Columbia University, on the utilization of sulphite waste liquor, which was read before the American section of the Societe de Chemie Industrielle on October 12, and published in PAPER for November 1, 1923, the statement is made that "in the making of sulphite pulp about 50 percent of the wood is dissolved by the cooking liquor and discarded as waste into the river." Discussing the paper Professor Doremus reiterated the statement that wasteful methods prevailed in pulp manufacture as evidenced by the loss of 50 percent of the raw material which was washed away, to the consequent pollution of streams and watercourses, for the lack of some method of recovering by-products of the spent liquor.

This alleged waste of "50 percent of the wood," so constantly talked about, does not in fact exist, and it is not helping the industry at all to put out statements of this kind about tremendous waste when there really is no such waste.

It is true that there is a shrinkage in making sulphite pulp from wood, but if the steps in the process are traced from tree to pulp it will be found that there is no waste such as might be implied in a failure to apply a material to some useful purpose.

In the woods there is extremely little of the tree that is not used. When a tree is cut to a two-inch top as it is in many places, and to four inches in most, not much can be said about waste in the woods. After the wood reaches the mill the bark is removed, amounting to 11 percent, approximately, which leaves 89 percent. From this must be deducted about 2 percent of the gross wood for sawdust, leaving 87 percent as chips to be cooked. There is in spruce about 48 percent of cellulose and in cooking sulphite pulp commercially the efficiency of conversion is about 45 percent of the weight of the wood, based on dry weight. The net result of cooking is a further shrinkage of 47.85 percent, making a total shrinkage of 60.85 percent.

An analysis of the shrinkage will reveal no true waste. If the bark and sawdust are used as fuel it certainly is not waste and if there is no known profitable method for using the dissolved woody substance in the waste liquor it is not waste to dispose of it in the least expensive way. Pulp manufacturers are not in the business to trade dollars with themselves and that is about the best that can be said for most of the schemes to utilize waste sulphite liquor.

Zeolite Patent Is Void

A decision recently handed down from the bench in the United States district court, Detroit, declares the patent of the Permutit Company of New York, on their zeolite water softening system, absolutely void.

The case is one of the most important patent suits in recent years, and is of particular interest to the readers of PAPER. Suit was brought by the Permutit Company to restrain the Weyne Tank & Pump Company, of Fort Wayne, Ind., patent infringement being claimed.

The Wayne Tank & Pump Company manufactures both domestic and industrial water softening systems, many of the latter having been supplied to the papermaking field.

Judge Arthur J. Tuttle, who devoted nine days to the hearing, was aided by his knowledge of the German language. Much of the testimony was given by witnesses brought from Germany by both plaintiff and defendant.

Judge Tuttle declared in his decision that August Neumann, a civil engineer and filter manufacturer of Reppen, Germany, and the star witness for the defendant, had originated the first commercially successful zeolite water softener.

He further held that "the patent in suit is no more entitled to the credit for the porperty possessed by zeolites than a man is entitled to credit for making water run down hill, or entitled to a patent on gravity. It is at natural property known to the world, known to the art (of water softening), prior to the time of the patent in suit."

The Scientific and Industrial Research Council of Canada has for some time been interested in the making of paper from the huge straw piles of the vast prairie provinces. From experiments conducted the practicability of this being done was apparently established, though much remained to be accomplished in this respect. The experiments are to be speeded up, for if they are fully successful it would mean a new and great source of wealth to the West.

New Developments in Paper Making

Cellulose for Paper Making

The chopped up stalks and leaves of lupines and shells and pods of beans and peas are digested with two percent sodium hydroxide solution under a pressure which varies from two to three atmospheres. They are then treated with a four to six percent solution of bleaching powder and with a solution of sodium bicarbonate.

The fibers obtained are very fine and durable and are suited for the manufacture of papers of the highest quality. This process is patented in German patent No. 375,034.

* * *

Purifying Sulphite Cellulose Waste

Concentrated sulphite lye is sprayed into furnaces or against heated walls by means of nozzles. In this way the noxious materials obtained from and in sulphite cellulose waste lyes are burned.

The air used in spraying the lye or that supplied to the furnace or combustion chamber, or both, is preheated. In this way exaporation of the water begins at the moment of spraying and the sulphite lye is completely burned. This process is patented in German patent No. 375,036.

* * *

Paper With Leather-Like Finish

German patent No. 379,471 is concerned with a process for making a paper with a leather-like finish. The process consists in taking a sheet of tissue paper or other thin paper and squeezing it together in a small ball, after which the ball is smoothed out again. The sheet of paper is then placed on a flat, dry paper undersurface and sprayed with a varnish or resinous adhesive mass.

Shortly after the paper is sprayed or painted with this composition, the latter penetrates through the thin sheet so that the adhesive serves to fasten together the top sheet of thin paper to the paper undersurface. The surface is then brushed and given the appearance of leather.

* * *

Cellulose Determination

The lignin of wood is dissolved by heating with dry phenol, but the reaction is rapid and complete only in the presence of traces of mineral acids or dissociable acid salts. This reaction can be utilized for the quantitative estimation of resistent cellulose provided the hydrolysis of the carbohydrates is controlled by careful regulation of the concentration of the acid and time and temperature of heating.

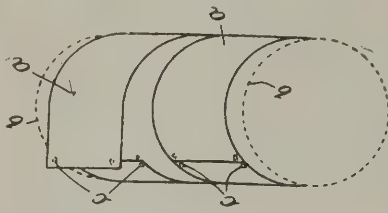
The finely rasped wood material is passed through a sieve with one hundred meshes per square centimeter and extracted with water and acetone, then dried in the oven. Four grams of the material are treated in a tube 18 by 3 centimeters, with 50 grams of dry phenol containing 0.1 percent of its weight of hydrochloric acid, and heated in a water-bath at a temperature of 97 degrees C. for one hour, with occasional stirring. Under these conditions constant yields are obtained but the more readily hydrolyzable hemicellulose and pentosans are attacked and dissolved, so that the yield of cellulose from spruce wood is 48.3 percent and from beech wood 46.4 percent.

The same method may be used for the determination of resistant cellulose in sulphite pulp and cotton, for which materials the concentration of the hydrochloric acid should be reduced to 0.05 percent. The results may be corrected from the quantity of the pentosans remaining in the crude cellulose. The values that are obtained by this method, while constant under specified conditions, have no direct relation to any absolute standard and stand between those found by Cross and Bevan's method, where a minimum attack on the hemicellulose is aimed at, and those found by Koenig's method, where the maximum elimination of the hydrolyzable carbohydrates is ensured. For further details see Cellulosechemic, 1923, pages 37 to 40.

* * *

Dandy Rolls

British patent No. 202,196 describes the construction of an ingenious dandy roll. The watermark carrier is detachable and can be fastened by its back to the surface roll. The illustration shows the construction of the roll.



The improved device consists of a strap of wire gauze carrying the watermark device. This can be wrapped around the surface of the dandy roll so that the edges of the gauze just meet but do not overlap. The back or underside of the meeting edges of the strap and the surface of the dandy roll are provided with corresponding press button fastenings c, equivalent two part fastenings, whereby the strap carrying the watermark is detachably and interchangeably secured in place upon the surface of the roll b.

In some cases the surface of the roll may be suitably recessed where the press buttons or the parts carrying them are located.

* * *

Washing Paper Machine Felts

British patent No. 201,728 is concerned with a process and apparatus for washing paper machine felts. The invention relates to a process which comprises successively treating the same portion of the felt with a washing solution, with steam under pressure, and with air under pressure.

It also relates to a process in which the treatments are applied to one side of the felt in combination with additionally treating the opposite side of the felt by applying suction to it. In this process the treatments are applied to the back of the felt in combination with treating the front of the paper carrying-surface of the felt by suction. The back of the felt may also be successively treated with a hot cleaning solution, a cold rinsing water, with steam under pressure and with air under pressure and exposing the surface of the felt to suction simultaneously with steam and air treatments.

The process includes the suction treatment continued longest, the air treatment next longest, and the cleaning solution treatment shortest in point of time. The apparatus for cleaning paper machine felts comprises a suction box disposed for engagement with the face of the felt, means for directing washing fluids against the back of the felt at a point adjacent to the suction box and means for directing steam under pressure and air under pressure against the back of the felt at a point in contact with the suction box. The apparatus may also consist of a suction box which comprises a pair of independent suction chambers disposed for engagement with the face of a felt, the steam and air supplies, each being in contact with one of the said suction chambers. In another form of apparatus the suction box is moved towards and away from the felt by means of cams.

A. P. W. Co. Will Have Canadian Pulpmill

The first sulphite mill to be erected in Nova Scotia will be that which the Albany Perforated Wrapping Company will construct at Sheet Harbor, next Spring.

It is reported that the mill will have a capacity for 25,000 cords of pulpwood per year and will employ about seventy-five men in the mill and 200 in the woods. The initial expenditure will be in the neighborhood of $250,000.

The A. P. W. Co., has purchased the property of the Sheet Harbor Lumber Company, formerly Rhodes and Curry. The contract for electrical power to the amount of 21,042,600 kilowatt hours has been signed by the chairman of the royal power commission. The contract is for 30 years.

The contract with the power commission provides that the company is to commence work on the plant before May 1, 1924, and complete the mill within fifteen months. It is also stipulated that the company is to expend not less than $100,000 for machinery and equipment.

R. E. Jones, the representative of the A. P. W. Co., who has been in Halifax for some time negotiating the contract and making the preliminary arrangements for the new enterprise, is to be the resident manager of the new mill.

Sheet Harbor affords excellent deep water shipping facilities and the product of the pulp mill will be shipped direct from there.

The project will be financed entirely by the A. P. W. Co., one of the largest concerns of its kind in the United States. It was established in 1877 and its factories at Albany, have a capacity of eight tons per day.

Makes New Western Connections

Chain Belt Company, Milwaukee, manufacturers of rex chain, transmission machinery and conveying equipment, formerly represented on the Pacific Coast by Meese & Gottfried Company, San Francisco, has established direct factory branches and warehouses in Portland and Seattle. Arrangements have also been made in important centers throughout the Pacific northwest for the prompt handling of local requirements.

The northwest territory, with headquarters at Portland, will be in charge of Allen C. Sullivan, M. E., a graduate of the University of Washington. Mr. Sullivan was formerly connected with the Allis-Chalmers Co., of Milwaukee and more recently with Smith & Watson Iron Works of Portland, as chief engineer.

Don B. Catton, formerly with Meese & Gottfried Co., and later engaged in the machinery supply business on his own account will be the special sales representative for the Portland office. The Seattle and British Columbia territory will be handled by Wm. F. Nichols out of the Seattle office. Mr. Nichols for the past 11 years has been connected with the Meese & Gottfried Company and is considered one of the best posted chain men in the Pacific Northwest.

The Portland office of the Chain Belt Company is located at 67-69 First Street, Portland, Ore., and the Seattle office at 1040 Sixth Avenue, South, Seattle, Wash. Large stocks are maintained at both places.

Rosebush Talks to Rotarians

Judson G. Rosebush, treasurer and general manager of the Northern Paper Mills Co., Green Bay, Wisconsin, gave a very interesting talks before the Rotary Club of Wisconsin Rapids, on November 14th. The subject of his talk was the scope and activity of the Y. M. C. A. in which he has been interested for many years and was a delegate to the recent constitutional convention of the organization held at Cleveland, Ohio, at which a new constitution to be submitted to local units throughout the world for approval was adopted Mr. Rosebush is also international president.

After outlining the proposed constitutional changes Mr. Rosebush discussed the interest taken by the Y. M. C. A. in activities overseas and as an extreme example of the scope of the work cited the fact that the organization lost $1,000,000 in property in the Japanese earthquake.

He characterized the Y. M. C. A. as an important factor in spreading Anglo-Saxon ideals throughout the world.

Mr. Rosebush, in addition to his connection with the Northern Mills, is president of the Patten Paper Company of Appleton, and vice president of the Nekoosa Edwards Paper Co., at Nekoosa and Port Edwards, Wisconsin.

In the plants of the Nekoosa Edwards Paper Company, Port Edwards, Wisconsin, there has been conducted a strenuous no-accident campaign for some time. Both the Nekoosa and Port Edwards mills are fighting for possession of the trophy, a bronze tablet, which will be presented at the end of the year to the mill having the least accidents for the 365 days. The Nekoosa mill has a slight wedge on Port Edwards so far.

The Brown Paper Mill Co., Inc., which is erecting a paper mill at Monroe, La., is beginning the steel construction and the plans are laid for the plant to be completed and ready for operation by June 1, 1924.

David C. Mahoney and Charles F. Hicks have purchased the building and business of the Colonial Paper Box Co., at 385 Harrison Avenue, Boston.

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St. Regis Using Electric Grinders

Taking advantage of the increased flow of Black river as a result of the recent heavy rain, the St. Regis Paper company at Deferiet, N. Y., threw into operation its new electric pulp grinders. Corwin T. Jewell, assistant general manager of the St. Regis mills said that the results of the test were extremely gratifying, although he could give no exact figures on production thus far obtained from the new grinders.

The electric grinders, numbering eight, are installed in a building across the tail race of the development at Deferiet, about 500 feet from the building housing the paper machines. Their capacity when fully running is expected to be about 75 tons of pulp every 24 hours. The 20 water grinders of the St. Regis plant at Deferiet are capable of turning out 160 tons of pulp daily under normal water conditions, so that the total pulp-grinding capacity of the mill, with proper water flow, will be in the neighborhood of 235 tons a day.

Ground pulp can be run from the new grinding establishment directly to the newsprint mill by gravity, thus effecting a considerable saving both in time and money.

During the low water period ended by last week's rains, the Deferiet plant of the St. Regis was grinding only 30 tons of pulp a day, against a normal low-water output of 70 tons. Purchase of large quantities of graundwood fram Canada was thus made necessary.

Mr. Jewell said that every effort would be made now to operate the full battery of grinders of the St. Regis at capacity in the hope of storing up sufficient pulp to carry the mill through the winter. More electric grinders will be added from time to time, Mr. Jewell said.

It is believed that eventually all water grinders at the Deferiet mill will be replaced by electric grinders, owing to greater production capacity and sureness of operation.

The production of the St. Regis at Deferiet is around 180 tons of newsprint a day, with a record of more than 188 tons.

A group of seventy-five students of the Economics department of Kalamazoo college went thru the plants of the Kalamazoo Paper Co. Wednesday October the 24th. F. M. Hodge furnished guides to take them through.

Promotions at Nepco

With the installation of two new paper machines and other necessary equipment at the two plants of the Nekoosa Edwards Paper company several promotions have been made.

There has been created at the Port Edwards mills, of which there are now three, a department of maintenance. This department will have the entire care and repair of all machinery, roofs, buildings, dams, etc., and this new department will include millrights, pipefitters, machine shop construction and reclaiming.

In line with the company policy John E. Walley, a man who has been doing work along these lines for the past six years, was promoted to the place of superintendent of maintenance with the same relationship toward the officers as the other superintendents. Prior to his promotion Mr. Walley has been in the employ of Nepco as head of the construction department and has completed a number of large jobs during that time, the last being the construction of a new mill and two paper machines.

The installation of two machines means three boss machine tenders, six machine tenders and six back tenders in addition to the regular crew. Men who have served the company longest have been promoted from machine tender to boss machine tender, back tenders to machine tenders and third hands to back tenders. There have also been several other promotions to positions of shipping and finishing room foreman, shipping clerks, beater engineers, etc.

C. E. Trelevan who for a number of years has been shipping room foreman at Nekoosa has been promoted to the position of "order scheduling and shipping" at all the mills of Nepco. The increased production of the plants makes it necessary to have a man who knows all of Nepco's products in order to get the best possible delivery date for their customers.

Nepco mills, as now equipped, make nearly every grade of wrapping paper known to the trade and with 8 machines, 200 tons per day production are supplying the whole line to wrapping paper houses in many states.

Finland's August Paper and Pulp Exports

Manufacturers state that the paper market in Finland is still quiet and marked by low prices, the demand for both newsprint and wrapping paper being very dull, reports Consul Leslie A. Davis of Helsingfors, to the U. S. Department of Commerce.

Paper exports were less in August than in July, and considerably less than in August, 1922, the volume for the month, according to official statistics, amounting to only 12,969 metric tons, compared with 15,309 during July and 17,452 tons during August, 1922. The total exports of paper during the first eight months of 1923 have amounted to 116,234 tons, a loss of 9,516 tons compared with a similar period during 1922.

The mechanical ground-wood market has also been rather dull during the past month or two, and exports of both pulp and cardboard in August were considerably under those in July and in August, 1922. Exports during August, 1923, amounted to only 8,314 tons of pulp and 1,780 tons of cardboard, although the total exports for the first eight months of 1923 were better than for the same period of 1922, shipments of pulp reaching 44,665 tons and exports of cardboard totaling 16,374 tons, compared with 41,500 tons and 14,919 tons, respectively, during 1922.

There has been little change in the chemical woodpulp market during the past month. Exports of this product, which amounted to 15,958 tons during August, were less than during July, and it is said that not many sales have been made during the summer, although inquiries have increased recently. Prices remain the same as they have been. The total exports of chemical wood pulp during the first eight months of this year amounted to 141,568 metric tons, of which 104,561 tons were sulphite and 37,007 tons sulphate. Exports for the similar period of 1922 amounted to 117,378 tons, of which 82,335 were sulphite and 35,043 tons sulphate.

Make Survey of River Pollution

E. J. Tuley, chemical engineer of the State Board of Health, is making a survey of the Wisconsin river between Rhinelander and Nekoosa for the purpose of investigating the alleged pollution of the stream.

At each of the principal river valley cities Mr. Tully meets the local conservation warden, who arranges for boats and cars. Rhinelander, Tomahawk, Merrill, Wausau, Stevens Point, Wisconsin Rapids and Nekoosa are the points at which samples of water are being taken.

While the project is being carried out by the State Board of Health, the investigation into river water conditions has the cooperation of the conservation commission and sportsmen in hope that better conditions for fishing will result.

An involuntary petition in bankruptcy has been filed at the office of the referee at Augusta, Me., against the Agusta Paper Co., of Augusta, and asking that a trustee of the concern be appointed. Most of the creditors of the company are Boston concerns.

To Overcome Housing Shortage

Building permits issued in Vancouver, Washington, for the month of October, 1923, totaled $298,530 as against $3585 for the corresponding month of 1922.

Deducting the $285,000 permit for the saw mill and main paper mill of the Columbia River Paper Mills Corporation the amount of the permits left is nearly four times the $3585 building permits issued last year; yet the real estate men report that every desirable house in the city is occupied.

The new industries located in Vancouver are responsible for the greater portion of this house shortage although so far most of their work has been that of building the plants.

The paper mill is helping the Chamber of Commerce work out a plan to build moderate priced houses to be sold on the installment plan to employes of the industries.

Testing a Snow Motor

The projected field demonstration in the snow covered forests of the north woods by the Woodlands section of the American Paper and Pulp Association of a snow motor is resulting in many calls from northern pulp mills and motion picture houses catering to paper mill communities for the motion picture film showing the snow motor in action.

The pictures were taken last year in the west, and are being shown so that practical woodsmen can devise in advance some difficult tests to put this machine to when the demonstration is held in mid-winter.

The film is already scheduled for showings in Carthage, Au Sable Forks, N. Y., as well as Sheldon Springs, Vt., and Austin, Pa.

N. Y. Superintendents Meet

(Continued from page 14)

York City, H. D. Frost, Cleveland, Ohio, W. S. Tyler Co., J. W. Rice, W. C. Stebbins, Watertown, Thomas H. Holness, Knowlton Bros., Watertown, Carl C. Schneider, Knowlton Bros., Watertown, K. N. Gradings, Crane Co., Syracuse, Stanley G. Linney, Ryther and Pringle Co., Carthage, N. Y., A. R. Ackerman, manager Crane Co., Syracuse, C. A. Denny, St. Regis Paper Co., M. J. Connell, St. Regis Paper Co., Robert Eldredge, The Foundation Co., New York City, L. F. Urunger, St. Regis Paper Co., J. E. Cuddelback, General Electric Co., Syracuse, J. J. Grieb, Ryther & Pringle, Carthage, N. Y., R. S. Martin, St. Regis Paper Co., Herrings, N. Y., A. V. Miller, St. Regis Paper Co., Defereit, Allen Fritz, Ryther & Pringle, Carthage, N. Y., E. S. Baker, Lowe Paper Co., C. R. Gibbs, Ryther & Pringle Co., Carthage, N. Y., Earl F. Trawnor, West End Paper Co., Carthage, N. Y., John C. Murray, Carthage, N. Y., E. L. Outterson, Ryther & Pringle Co., Carthage, N. Y., Fred Norwood, St. Regis Paper Co., Black River, N. Y.; Luke E. Burns, St. Regis Paper Co., N. Y.; C. D. Dawley, National Paper Products, Carthage, N. Y., H. E. Stafford, Knowlton Bros., Watertown, N. Y., N. Rigabar, National Paper Products, Carthage, N. Y., J. L. Strickland, Hardware & Mill Supplies, Carthage, N. Y., J. H. O'Connell, Diana Paper Co., Harrisville, N. Y., William Brydges, Defiance Paper Co., Niagara Falls, N. Y., C. C. Church, Engineer, National Paper Products, Carthage, N. Y., Hugh P. Baker, American Paper and Pulp Association, New York City, M. C. Drutalspiel, National Paper Products, Carthage, N. Y., Charles E. Norris, Carthage, N. Y., J. L. O'Connor, Ogdensburg, N. Y., E. B. Eddy, National Paper Products, Carthage, N. Y., W. B. Rapley, Diana Paper Co., Harrisville, N. Y., J. A. Bayley, Island Paper Co., Carthage, N. Y., George N. King, St. Regis Paper Co.

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Doings in Canadian Paper Field

No Rise in Newsprint Price Expected

Newsprint production in Canada during October increased by 11.7 per cent over that for September and stood at 114,475 tons, or only 250 tons below the high record set up in August. During the first ten months of 1923 the newsprint production was 1,059,295 tons as compared with 896,840 for the same period in 1922, an increase of 18 per cent; during this time the United States production increased by only 4 per cent.

It is not expected that there will be an increase in newsprint prices at the first of the new year. As a matter of fact, though the increasing cost of labor is bound to increase the cost of getting out wood and thus boost the cost of production generally, still there is an impression that possibly the market may be weakening a little, for which reason it would be better to pocket any loss occasioned through higher productions costs rather than to run risk of weakening the demand through higher prices.

There are indications also that the value of the Canadian dollar in New York is bound to be affected by the fall in sterling, while the drop in grain prices, even though the volume of exports remains the same, is bound to reduce the favorable balance of trade in favor of Canada, and thus reduce the value of the Canadian dollar.

Now this would be a gain, rather than a loss, to Canadian mills selling in the United States, for in proportion as exchange goes against the country to that extent would they benefit through the enhanced value of American funds in which they receive settlement. This would enable them to meet higher production costs without increasing the price of newsprint.

St. Regis Lets Power Contract

As if reflecting the advance of the pulpwood embargo come the details of the plans of the St. Regis Paper company which has in mind the erection of an important pulp and paper enterprise in the province of Quebec to supplement its mills in Northern New York.

The Canadian Comstock company has been awarded a contract by the St. Regis Paper company for the hydro-electric development work at Godbout, Que., in connection with the wood preparing plant which the paper company has under construction at this point.

The St. Regis company realizes the necessity of becoming established in Canada and its present development work at Godbout is in connection with its program of manufacturing on this side of the border from the limit it holds in Quebec. The company proposes to build, at a later date, a pulp and paper mill to round out its production program.

Attack Christmas Tree Evil

Some of the executives of the pulp and paper companies in eastern Canada are complaining about the wholesale destruction of small fir and spruce trees in the eastern provinces of New Brunswick, Nova Scotia, Prince Edward Island and Quebec.

The gatherers of Christmas trees are now at work cutting the young trees. Following the holiday, these little trees will be tossed into the discard; whereas had they been permitted to grow, the trees would have increased the pulpwood supply greatly in the course of a few years.

Of recent years the number of little trees cut down in the eastern provinces for the Christmas season has been beyond all reason and the volume is growing heavier each year. This year the cutting of the young trees started early in November and large shipments are being made to all parts of Canada and Newfoundland, to the British Empire and to the United States and the British West Indies. There should be some restriction placed on the activities of the Christmas tree gatherers. Curtailment instead of increase of the cut should prevail.

Canada in Competition with Sweden

Great possibilities for the development of the pulp and paper industry in Canada were seen by Olaf Kjellstrom, one of the leading pulp and paper manufacturers of Sweden, who was in Toronto a few days ago on his way to the Orient.

He has visited the main pulp and paper centres in Canada and the United States and will spend some time in the Orient investigating the markets there and reorganizing the company's branches in Tokio and Yokohama.

It is thirteen years since Mr. Kjellstrom visited this continent and he declares his surprise at the prosperity exhibited on all sides. "You people out here have the opportunity of developing a tremendous trade with the Orient and in Canada we are going to meet with very severe competition in the pulp and paper line," he said.

Brompton Bonds to Be Redeemed

The Brompton Pulp and Paper company has announced its intention of redeeming on Nov. 1 the balance of the issue of first mortgage sinking fund six per cent bonds maturing in 1927 at 105 and accrued interest. This issue, which was put out in 1907, orginally amounted to $1,000,000, $896,000 having been previously redeemed.

The total funded debt of the company, as shown in the last annual balance sheet, was $5,153,200, the bonds which it is planned to retire being the oldest of four issues. First consolidated sixes, due 1935, to the amount of $104,000, are held in escrow to provide for the redemption.

W. H. Sherriff, head of the Hodge-Sherriff Papee Company, Toronto, selling agents for Wayagamack kraft, has returned to Toronto after a trip through Canada to the Pacific coast. Mr. Sherriff reports a growing demand for kraft paper throughout the west although business conditions there at the moment are somewhat draggy.

The Lincoln Paper Mills Company, Limited, at Merritton, Ont., has promoted one of its staff, in the person of A. E. H. Fair, to the position of superintendent of the Lybster plant of the company. Mr. Fair's rise in the paper industry has been rapid. Graduating in chemical engineering from the University of Toronto a year and five months ago, he entered the employ of the Lincoln Mills and is now in charge of one of their chief divisions.

A. P. Costigane, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association, has returned to Toronto after a week spent in the mills of the Spanish River Pulp and Paper Mills Company at Saulte Ste. Marie, Espanola and Sturgeon Falls, Ont. As a result of consultations with the executives and men Mr. Costigane is more optimistic than ever as to the future of accident prevention in the company's mills.

The extension of the wood room of the Abitibi Power and Paper Company's plant at Iroquois Falls, Ont., has been completed. Four new barking drums have been installed and are in operation. The new upper and lower water tanks are also finished. When the eight drum barkers are at work the capacity of the plant will be double what it was. When pressed the barkers will bark as high as 2400 cords a day.

While no definite step has been taken as yet it is known that the Fort William Paper company are preparing to double the capacity of their newsprint mill at Fort William, Ont. The present capacity of the mill is 120 tons of groundwood pulp per day, and 160 tons of newsprint. If the contemplated enlargement goes on it will involve an expenditure of between $2,000,000 and $3,000,000 and will increase production to about 400 tons of newsprint daily. The plant, as it stands, represents an investment of about $4,000,000, and directly or indirectly gives employment to about 1,000 men.

According to Angus McLean, head of the Bathurst company, Bathurst, N. B., the company's new newsprint mill turned out 55 tons of newsprint a day during October. September was the first full month the machine was operating when 50 tons were produced. It is expected that production will reach 60 tons during the present month, which is considered a fairly good record.

Many Ontario paper men greeted with pleasure last week an old fellow worker in the person of J. J. Herb, head of the Westminster Paper Company in British Columbia, manufacturers of light weight papers. Mr. Herb was at one time superintendent of the Interlake Tissue Mills, Limited, at Merritton, Ont., and quite recently established a mill in New Westminster, B. C., where he says things are running smoothly.

Warwick Bros. & Rutter, Limited, a big manufacturing stationery house in Toronto, has just issued a beautifully bound and printed book containing the complete story of their business which is now just seventy-five years old. The book is a beautiful example of the printers' art and contains much interesting historical data and pictures dealing with Woodstock, Ont., where the firm was founded, and Toronto, where the company has a huge plant. Some interesting historical side-lights are thrown on both places from a commercial standpoint.

The Ontario government has recently disposed of four timber areas totalling in extent some twenty square miles. The tracts are in all cases burned over ones which require to be sold immediately if the merchantable timber is to be salvaged. The tracts are situated in the districts of Timiskaming. Rainy river, Kenora and Nipissing. The contractors paid from $1.50 to $2.20 per cord for the spruce pulp.

Tenders are being received by the Eastern Trust company of St. John, N. B., for the sale of first mortgage bonds of the Nashwaak Pulp and Paper company of St. John, sufficient with interest to exhaust the amount of seventy-eight thousand dollars new on deposit with the Eastern Trust company under the sinking fund provisions in the trust mortgage securing the bonds.

Sir William Price, president of Price Brothers company, pulp and paper manufacturers of Quebec, expresses himself as decidedly in favor of an embargo on pulpwood exportation to the United States. He says there is no surplus wood to export and asserts the Canadian Mills will not be able to secure supplies and will not operate to the fullest capacity.

The Whalen Pulp and Paper Mills are now operating at capacity, and it is understood, will show a profit on production. There does not appear to be a move just now for reorganization, especially as trade conditions have improved.

A Paper of Distinction

Silvertone Transparent Manifold Parchment

Assures Satisfaction to Particular People

Manufacturers of "Quality Papers at Quantity Prices"

WOLVERINE
PAPER COMPANY
OTSEGO, MICHIGAN

Doings in Canadian Paper Field

Alexander Smith Heads Abitibi

Another prominent American business man in the person of Alexander Smith of Chicago, a member of the banking firm of Peabody, Houghteling and Company of Chicago and for some time vice-president of the Abitibi Power and Paper Co., has been chosen president to succeed the late F. H. Anson. This is an assurance that the vigor, enterprise and financial support that have given Abitibi the prominent place it occupies in the Canadian pulp and paper industry will be assured to this corporation.

Other changes made in the directorate and management are as follows: W. A. Black, vice-president and managing director of the Ogilvie Milling Co., has been elected vice-president; E. L. Pease, vice-president of the Royal Bank of Canada has been added to the directorate and L. R. Wilson, for many years secretary of the company, has been appointed general manager.

L. R. Wilson was associated with the late F. H. Anson in a business capacity for 23 years, the association dating back to 1900 in the milling industry in New York state. When Mr. Anson came to Canada and entered the employ of one of the leading Canadian milling companies, Mr. Wilson went into the sugar business, and in 1912, when the Atlantic Sugar Refineries was organized, Mr. Anson induced Mr. Wilson to assume the management.

It was about this time that the Abitibi company was started, some of those prominent in Atlantic Sugar being also prominently identified with the new power and paper venture, and Mr. Wilson became the first treasurer of Abitibi. In 1917 he severed his connection with Atlantic Sugar and devoted all his time to Abitibi's affairs. His appointment to the general management has been received with very great favor.

Proof of Anson's Foresight

That the Canadian pulp and paper industry owes much to the courage and enterprise of men such as the late F. H. Anson is to be seen in the fact that when the timber limits now owned by the Abitibi Company were first put up for auction there were no buyers; indeed, they were practically peddled among the financial interests. It was thought that being so far away a mill could not be a paying proposition.

It was at that time that Mr. Anson became interested in them and in the water power possibilities, and came to the conclusion that a power and paper enterprise could be made to pay handsomely. Some called it "Anson's Folly," but he kept on with the result that is well known.

Progress of Backus-Brooks Mill

Development work in connection with the first unit of the newsprint mill of the Backus-Brooks Company, at Kenora, Ont., has progressed to a point where the company expects to have its first paper machine operating in December. The machine, as large as any in the world, is being built by the Dominion Engineering Works, Montreal.

It is the intention to build a sulphite pulp mill soon after the paper machine is in operation. At present the mill has a capacity of 80 tons of groundwood pulp, which is sufficient for 100 tons of newsprint that will be turned out by the new machine. The sulphite pulp will be shipped in until the new mill has been completed.

It is planned to add 100-ton units until the mill has a capacity of 500 tons or more of newsprint daily.

Power is being supplied by what was formerly a municipal hydro-electric plant at Kenora, and which has been brought to a point where it is capable of producing from 10,000 to 12,000 horse power.

The Backus interests also control the water power of the Norman dam, situated less than two miles from Kenora. Negotiations in regard to water levels on the Lake of the Woods, which will have an important bearing on the power capacity of the Norman dam, are proceeding between Canada and the United States. As soon as a settlement is reached Mr. Backus proposes to construct the power. The combined output of the two plants, both located on the Winnipeg river, will be sufficient to operate pulp and paper mills with a capacity of about 400 tons daily.

Talks on Forest Policy

Addressing the Ontario Associated Boards of Trade at Hamilton, Ont., Dr. Clifton D. Howe, dean of the faculty of the University of Toronto, declared that only an aggressive and sustained policy of regeneration and more intensive fire protection would conserve Ontario's forest wealth.

Citing how New England, Michigan, Minnesota and Wisconsin had squandered their timber wealth, and how England, France and Germany had adopted reforestation only after prodigal policies had taught them a bitter lesson, Dr. Howe said that Ontario, if it had any regard for the future, must heed the lessons of history.

Ontario, he said, through a lack of progressive timber policy, was paying from $12 to $20 freight charges on every thousand feet of lumber it imported from British Columbia and the southern states, when it had an abundance of the same wood within 100 miles of Toronto, Hamilton and London. This was all because citizens of Ontario had not taken an active interest in mouldering the forest policies of its government.

An important transfer in pulpwood lands took place in New Brunswick recently. J. L. Peck sold his holdings in the eastern section of Albert county to C. McFarlane. About seven million feet are involved. The purchase price is said to have been in the neighborhood of twenty thousand dollars. The intention is to cut as much as possible during the Winter, shipment to be made via the Bay of Fundy to the United States. The pulpwood holdings are situated in close proximity to the bay, and it will be a comparatively simple matter to export by barges.

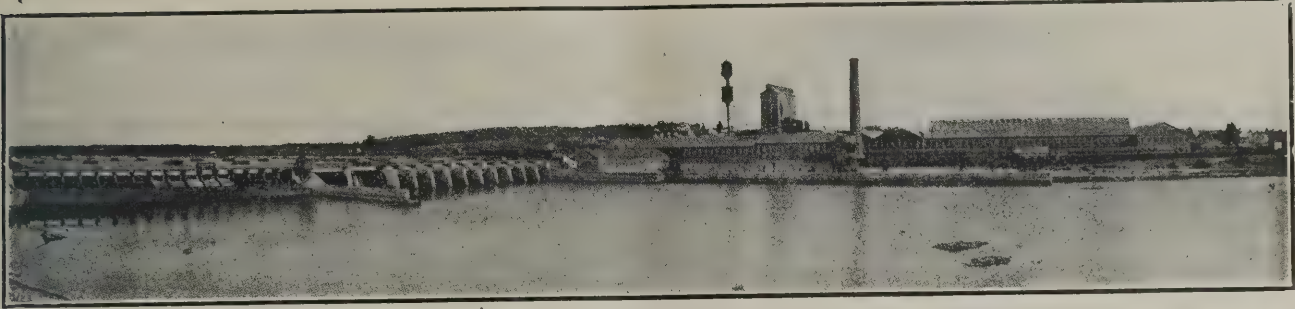
The Barber division of the Provincial Paper Mills, Limited, at Georgetown, Ont., has resumed the manufacture of enamel blotting paper. While blotting paper is made to some extent in Canada, the home article has not been found to be suitable for enameling and the product is imported from Virginia. The paper being turned out by Provincial is an unusually fine sheet and is being stocked by the jobbers.

The Thompson & Hyland Lumber Company, Toronto, have made contracts for 67,000 cords of pulpwood to be delivered within the next six months. As soon as the snow falls in sufficient quantity to enable settlers to haul wood to the stations for transportation on cars, the company will begin shipping and expect to send forward 600 cords a day, about a quarter of which is for pulp and paper concerns in the United States.

Marathon Paper Mills Company

CYRUS C. YAWKEY, President
WALTER ALEXANDER, Vice-Pres.
B. F. WILSON, Treasurer
C. S. GILBERT, Director
C. J. WINTON, Director
W. H. BISSELL, Director
D. C. EVEREST, Secy. and Gen'l Mgr.
P. M. WILSON, Ass't Secretary
J. R. RUSSELL, Mgr. of Sales

SULPHITE BOND, LACE PAPER, WAXING, SPECIAL WATERMARKED WRAPPINGS, M. G. DESIGN PAPERS, M. G. PLAIN PAPERS



Specialties in Bleached Sulphite Papers of all Grades. Quality and Appearance Combined in all Grades

SOLID AND BLEACHED LINED BOARDS FOR CARTON MANUFACTURERS PAPERS FOR REMANUFACTURE

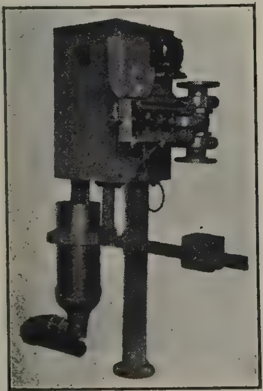
EQUIPMENT	
1 Cylinder Machine, Trim	100"
1 Fourdrinier Machine, Trim	120"
2 M. G. Yankee Fourdriniers, Trim	120"
2 Super Calenders	60"

DAILY CAPACITY	
Unbleached Sulphite Pulp	200,000 lbs.
Bleached Sulphite Pulp	150,000 lbs.
Ground Wood Pulp	60,000 lbs.
Paper	200,000 lbs.

Mills and General Office:
Rothschild, Wisconsin

Sales Office:
1126 Conway Bldg., Chicago, Ill.

EASTWOOD WIRE M'F'G CO.
FOURDRINIER WIRES
BELLEVILLE, NEW JERSEY, U.S.A.



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More than 210 in use - - - Ask us about it

Also "Made in Canada"

TRIMBEY MACHINE WORKS, Glens Falls, N. Y.

CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.50 @ 7.25
M. F.	6.25 @ 7.00
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.75 @ .85
WRAPPING	
No. 1 Domestic Kraft	7.00 @ 7.50
No. 1 Jute	8.25 @ 8.75
No. 1 Wood	4.00 @ 4.25
Butchers	4.00 @ 4.25
BOARD	
News	45.00 @ 50.00
Chip	45.00 @ 50.00

Paper and Board

New York, November 27—While there has been some expansion of trade in certain kinds of paper reported during the past few days, demand for other grades continues rather slow. Viewing the market as a whole, there is fair activity and yet business hasn't the snap that is usually a feature at this period of the year nor is there the volume to demand for most descriptions of paper that ordinarily characterizes the pre-holiday season and that manufacturers had been prone to anticipate at about this time.

Consumers continue to buy on a very reserved scale. This is particularly true as regards writing, book, wrapping and tissue papers, and one of the unfavorable features of the prevailing situation is that mills producing these papers have but a small amount of business ahead, that is relatively speaking. Of course, demand for print paper is exceeding anything the industry has ever known, and newsprint manufacturers are working full blast and are more troubled with difficulties in supplying their customers with all the paper wanted than with locating an outlet for their production. Doubtless the heavy movement of newsprint and some other kinds of paper such as bag and building papers serves to offset the proportionately lighter demand for other descriptions of paper, thus making for a market of normal dimensions when every kind of paper is considered, but this does not deny the fact that a good many manufacturers are in want of additional business and that operations in a large number of mills are not up to a scope customary for this time of the year.

The statistical report of production for September compiled by the American Paper and Pulp Association shows an appreciable falling off of paper output in that month compared with August, but the association reports that it is probable the October summary will show an increase of production over September. In its latest bulletin the association points out that basic business conditions are good and that there is every indication consumption of paper of various kinds is on the rise following the recession in September, which came after better than normal production in the summer months.

Activity in the newsprint industry shows no let down. In fact, it is likely that demand is at its crest at the moment since publishers are printing large issues to carry all of the pre-holiday display advertisements and since circulation of newspapers invariably is greater at this period of the year. Newsprint mills are running at maximum capacity and are shipping out their product about as rapidly as it is produced. Stocks are reported low, and there is small likelihood of demand diminishing to any material degree during December, so that this branch of the paper industry will probably close the year with a blaze of activity. Furthermore, manufacturers are now arranging contracts with publishers for 1924 deliveries, and, according to reports, orders are for equally as large tonnage as, and in many cases larger, than publishers have been absorbing in recent months.

Book papers are meeting with fair demand but there is still not enough buying to keep all mills making book paper working at anything like capacity. However, quotations are steadier than they were, and there is a tendency in some quarters to stiffen. Fine papers are wanted chiefly in small lots. Jobbers are ordering in a way merely to cover their immediate needs, and printers are buying in a similar manner. Wrapping paper is in a little better demand, reflecting the pre-holiday trade, and tissues are moving in fair volume at maintained prices.

SCANDINAVIAN PULP AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars.

Athens Implement & Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

No improvement of consequence is noted in the board market. Demand is comparatively slow and most mills, particularly in the East, have curtailed operations. There is little doubt, that weakness in waste paper—the principal raw material of board mills—has had considerable to do with the decline in box board prices, and now that paper stock values exhibit a strengthening trend it is likely board prices will steady if not advance as the two usually follow each other very closely. Plain chip and news board are quoted at about $45 a ton f.o.b. New York, with some manufacturers quoting higher on news board though with others shading this price in some instances on chip.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	7.00	@	7.55
No. 2 Domestic	6.25	@	7.00
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.15	@	7.75
No 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.75	@	7.50
M. F.	6.50	@	7.25
Lithograph	9.00	@	14.00
Coated & Enameled	9.25	@	15.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	3.75	@	4.00
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	45.00	@	50.00
Manila Lined Chip	70.00	@	75.00
Woodpulp	75.00	@	80.00

Mechanical Pulp

Quotations on mechanical wood pulp are marked by firmness and there is fair activity in the trade. One thing seems sure and that is most of the ground wood being offered by producers is meeting with a ready sale, and under such circumstances prices are well sustained and in some cases buyers are granting premiums to secure quick shipments. On the other hand, it would appear as though quotations are on rather broad ranges. Domestic ground wood is quoted at around $42 per ton f.o.b. pulp mills, with prices of a couple of dollars on either side of this basis named, but quotations from Canadian producers are said to run all the way from about $37 a ton at pulp plants up to $50, prices depending on the air dry test and the freight from grinding to consuming points.

Foreign and Domestic Chemical Pulp

The tone of the chemical pulp market shows signs of steadying. In fact, it can be said that there is a greater degree of firmness to be noted than has characterized the market in a long time, but the improvement seems due more to increased confidence among those on the selling side of the trade regarding the outlook than to any appreciable broadening of demand from paper mills. Consumers continue to buy in a most reserved way, seldom absorbing other than pulp directly and actually required, but with the winter near and the Baltic due to close almost any day, importers are expecting a spurt of demand and sellers in general are seemingly less anxious about disposing of stocks they have unsold. Prices are quite irregular though the tendency has switched to an upward direction,

The

St. Regis Paper Company

and the

Hanna Paper Corporation

Daily Capacity
425 Tons

Newsprint
Catalog
Butchers Manila
Packers Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite

Manufacturers of

TARZAN

Fibre Shipping Cases

General Sales Office
30 East 42nd St.
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Western Sales Office
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BLEACHED
Sulphite
Fibre
of the highest grade

Uniform quality, prompt shipments and market prices. Daily capacity of 600 air-dry tons.

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

CURRENT MARKETS—Continued

and importers and domestic producers are more insistent on obtaining the prices asked than they were. Sales of strong foreign unbleached sulphite at around 2.85 cents a pound ex dock New York, and of No. 1 foreign kraft at 2.75 cents on the dock have been reported. Quotations ex dock New York and f.o.b. pulp mills are:

Sulphite foreign—			
Bleached No. 1..	4.00	@	4.50
Unbleached No. 1.	2.85	@	3.25
Unbleached No. 2	2.70	@	2.85
Easy Bleaching . ..	3.35	@	3.50
Sulphite, domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No. 1.	2.90	@	3.25
Unbleached news grade	2.75	@	3.00
Easy Bleaching	3.25	@	3.50
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.75	@	4.00
Kraft, foreign	2.75	@	3.00
Kraft, domestic	2.90	@	3.25
Sulphite screenings, refined	1.75	@	2.00

Domestic Rags

The market for papermaking rags lacks feature. On the whole, there is a fair demand from consuming quarters yet it is apparent papermakers are buying mostly in a hand-to-mouth manner and that the aggregate movement toward mills is not up to normal for this time of the year. Dealers contend, however, that rags are not coming in from collection sources in usual amounts, and this condition at the supply end evidently offsets the lighter call for rags from consumers.

Roofing stock is moving probably as freely as any other class of rags, and prices hold at about 1.35 cents a pound f.o.b. New York for No. 1 packing and 1.25 cents for No. 2 roofing. Old whites are quotably steady, and thirds and blues are holding their own in price. Some grades of new cuttings have stiffened in price, No. 1 white shirt cuttings being quoted at a minimum of about 12.75 cents a pound f.o.b. New York, washables at 5.25 cents and higher, blue overall cuttings at 8.25 cents, and light silesias at 8.25 cents. Quotations f.o.b. New York follow:

New Shirt Cuttings,			
No. 1	12.75	@	13.00
No. 2	6.00	@	6.25
Fancy Shirt Cuttings	6.25	@	6.50
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.50
White Lawns	11.00	@	11.25
New Muslins, unbleached	11.25	@	11.50
Light Silesias	8.25	@	8.50
Black Silesias	4.75	@	5.00
Overall Cuttings, Blue	8.25	@	8.50
Washables	5.00	@	5.25
New Black Mixed .	4.50	@	4.75
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.75	@	2.90
Thirds & Blues, repacked	2.85	@	3.00
Thirds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags, No. 1	1.35	@	1.40
Roofing Rags, No. 2	1.25	@	1.30

Imported Rags

Paper mills are purchasing imported rags rather slowly though occasional sales of moderate importance are reported by dealers. Dark colored cottons are moving whenever importers will accept about 1.35 cents a pound ex dock New York, and blue cottons are in fair call at about 2.50 cents ex dock for German blues and 2.75 cents for French light blues. Prices on an ex dock New York basis are:

Lins., White, No.1	12.00	@	13.00
Ger. Blue Cottons..	2.50	@	2.75
French Light Blues.	2.75	@	3.00
New Light Prints .	5.50	@	5.75
New Unbleached ...	9.50	@	9.75
German Linen, blue.	4.00	@	4.50
German Linen, grey.	6.00	@	6.50
German S. P. F.'s.	6.00	@	9.00
German Light Prints	2.50	@	2.75
Dk. Colored Cottons	1.35	@	1.40

EMPIRE SIZE AND
CHEMICAL CORP.
Rosin Size — Foam Killer
Felt Soap
ALBANY, N. Y.

Appleton Wires Are Good Wires
Fourdrinier Wires
Cylinder Wires
Save-all Wires
Washer Wires
of brass and bronze
Manufactured at Appleton, Wisconsin
Since 1896
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APPLETON WIRE WORKS

FRANKFOLD
Enamel

Enriches your direct-mail pieces with its unusually fine appearance. It helps convert your message into an interesting sales appeal.

FRANKFOLD ENAMEL has a smooth, highly coated surface that takes illustrations faithfully. The body of FRANKFOLD Enamel is made of extra long, tough fibres, firmly knitted, which accounts for its wonderful durability.

Your direct-mail campaign when printed on FRANKFOLD ENAMEL, has all the necessary requisites that make for greater results.

We will gladly forward some printed specimens or blank sheets for dummy purposes.

THE FRANKLIN
COATED PAPER COMPANY
FRANKLIN, OHIO
Eastern Sales Office: 110 E. 42nd St., New York

CURRENT MARKETS—Continued

Bagging, Rope, Etc.

Demand for old rope continues good and prices on this article are firm and tending higher. Dealers quote 6.75 to 7 cents a pound f.o.b. New York for No. 1 domestic manila rope, and foreign manila rope is reported fetching up to 6.50 cents ex dock at this port. Old bagging is comparatively quiet but is holding in price. No. 1 scrap bagging is quoted at 1.25 cents a pound New York, and roofing bagging at 90 cents to $1 a hundred pounds. F.o.b. New York quotations follow:

Gunny, No. 1	1.30	@	1.40	Wool Tares, heavy .	1.40	@	1.60
Foreign	1.20	@	1.30	For. Manila Rope .	6.25	@	6.50
Wool Tares, light ..	1.30	@	1.40	Domestic Rope	6.75	@	7.00
Scrap Bagg., No. 1.	1.15	@	1.25	Mixed Strings	1.00	@	1.25
Roofing Bagging ..	.90	@	1.00				

Old Paper

Prices of old paper have finally turned steadier after a rather long-drawn-out period of steady decline, and in at least several grades market levels have moved just a little above the bottom levels reached a few days ago. Demand from consuming sources is still quiet. Board manufacturers are buying in small volume and so are other consumers, yet the low level of values has affected collections and with less supply available prices display a steadier tone. Old folded newspapers are quoted at 80 cents a hundred pounds f.o.b. New York, which represents a slight advance, while No. 1 mixed papers are quoted at 50 cents, also a bit above the recent low point. Shavings are quoted at 3.75 to 4 cents a pound for No. 1 hard white, and 2.85 to 3 cents for No. 1 soft white shavings f.o.b. New York, prices depending largely on the quality of packing. Old flat magazines are selling at 1.40 cents a pound New York, old No. 1 kraft paper at 2 to 2.15 cents, and white blank news at around 2.15 cents a pound. Quotations f.o.b. New York are:

No. 1 Hard White Shavings	3.75	@	4.00	Kraft No. 1	2.00	@	2.15
No. 2 Hard White Shavings	3.25	@	3.50	New Manila Cuttings	2.00	@	2.25
No. 1 Soft White Shavngs	2.85	@	3.00	New Manila Env. Cuttings	2.75	@	3.00
Box Board Chips ..	.55	@	.60	Bogus and Mill Wrappers	.80	@	.90
No. 1 Colored Shavings	2.00	@	2.25	News, strictly overissue	1.00	@	1.05
Magazine flat sotck.	1.40	@	1.50	Folded News	.80	@	.85
No. 1 Crumpled ...	1.20	@	1.25	No. 1 Mixed Papers	.50	@	.55
Solid Ledger Books	2.15	@	2.25	White Blank News.	2.15	@	2.20
Ledger Stock	1.90	@	2.10	Common Paper	.35	@	.40

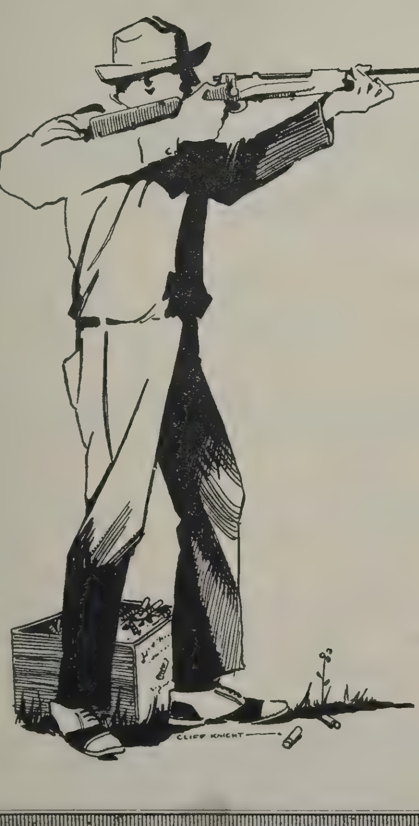
Twines

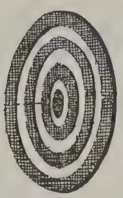
The twine market shows improvement. There is a better all round demand and the advancing position of most kinds of raw material tends to strengthen prices of the finished product. Consumers are mostly ordering in small lots but the movement of supplies nevertheless is expanding. Quotations follow:

Sisal Hay, pure ...	12.25	@	13.25	Jute Wrapping twine, A grade	19.00	@	
Manila Hay, pure..	16.25	@	17.25	Papermakers Twine.	10.50	@	
Sisal Lath Yarn ..	11.25	@	12.25	B. C. Hemp, 18 ...	.39	@	.40
Manila Rope, pure, ¾ inch diameter.	14.25	@	15.25	B. C. Hemp, 24 ...	.38	@	.39
Hardware Rope	11.25	@	12.25	B. C. Hemp, 36 ...	.37	@	.38
Jute rope, ¼ diam. and over, coils ..	12.00	@	14.00	American Light India— No. 6	14.50	@	
Sail twine, A grade.	19.00	@		No. 7	13.50	@	

Chemicals

What is described as a trade war between several leading producers is making for price easiness in bleaching powder, and consumers are reported securing some supply of bleach down to 1.25 cents a pound f.o. b. works. Casein is quoted at about 14 cents a pound and is in fair demand. Quoted prices of other papermaking chemicals are maintained.





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Wisconsin Wires

Wisconsin Wire Works
Appleton Wisconsin

CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of November 19-24

Paper

Str. Nieuw Amsterdam, Rotterdam—Keuffel & Esser Company, 2 cs. drawing; Order, 11 cs.

Str. Albert Ballin, Hamburg—American Shipping Company, 16 cs.; W. Schall & Co., 17 cs. writing; Steiner Paper Company, 16 cs. printing; New York & Huseatic Corporation, 17 cs.; Quality Art Novelty Company, 40 cs.; Hensel, Bruckman & Lorbacher, 20 cs.; W. Hartman & Co., 35 rolls wrapping; International Acceptance Bank, 82 rolls wrapping; Irving Bank-Columbia Trust Company, 97 bls. printing; W. Schall & Co., 3,741 rolls wrapping; Order, 543 bls. wrapping.

Str. Assyria, Glasgow—Perry, Ryer & Co., 52 cs. printing; Perkins-Goodwin Company, 52 cs. printing; Blauvelt-Wiley Paper Mfg. Company, 60 bls. wrapping.

Str. Canopic, Hamburg—Freedman & Slater, 5 cs.; Bendix Paper Company, 47 cs. pasteboard; F. G. Prager & Co., 20 cs. pasteboard and 304 rolls hanging; Fourth & First National Bank, 225 rolls newsprint; Metropolitan Import & Mfg. Company, 58 cs. pasteboard; Order, 4 cs. writing; from Bremerhaven—National City Bank, 465 bls. hanging; C. G. Keferstein, 23 bls. wrapping.

Str. Mississippi, London—W. H. S. Lloyd & Co., 13 bls. hanging; Order, 4 cs.

Str. Verentia, London—Japan Paper Company, 1 cse.

Str. Ohio, Hamburg—J. P. Heffernan Paper Company, 11 bls. wrapping; Chase National Bank, 25 bls. and 20 rolls wrapping; C. G. Keferstein, 1,017 rolls hanging; International Acceptance Bank, 404 rolls wrapping; Wilkinson Bros. & Co., 955 rolls and 403 bls. wrapping; Chemical National Bank, 710 rolls newsprint; W. Hartman & Co., 226 rolls newsprint and 745 bls. wrapping; Hallgarten & Co., 1,432 rolls hanging; Fernstrom Paper Company, 50 bls. wrapping; Gallagher & Ascher, 107 bls. wrapping; Hoole Service Company, 56 cs.; Order, 169 bls. pasteboard.

Str. London Commerce, London—Order, 2 cs. tissue.

Str. Adriatic, Liverpool—F. J. Emmerich & Co., 26 bls. hanging; A. C. Dodman Jr. & Co., 48 bls. hanging; Keuffel & Esser Company, 2 cs. drawing; W. H. S. Lloyd & Co., 13 cs. hanging.

Str. Waukegan, Havre—F. P. Gaskell & Co., 38 cs. cigarette; Standard Products Corporation, 80 cs. cigarette.

Str. Tyrrhenia, Hamburg—Bernard, Judae & Co., 16 cs.; Falsing Paper Company, 61 cs. printing; Publicity Paper Company, 125 bls. wrapping; J. W. Hampton Jr. & Co., 7 cs. writing; Whiting-Patterson Company, 3 cs.

Str. Bergensfjord, Christiana—American Exchange National Bank, 100 rolls newsprint; Order, 175 rolls newsprint.

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The Book Department takes orders for any German book desired.

CURRENT IMPORTS—Continued

Str. Rochambeau, Havre—C. B. Richard & Co., 1 cse. cigarette; DuPont Cellophane Company, 10 cs.; Surbrug Company, 15 cs. cigarette; Standard Products Company, 16 cs. cigarette; J. W. Lyon & Co., 25 bls.; Morrison Machine Company, 13 bls. hanging; H. Maillard, 3 cs. pasteboard; James McCreery & Co., 1 cse. hanging; H. D. Catty & Co., 1 cse.

Str. United States, Copenhagen—Chemical National Bank, 173 bls. and 1,680 rolls wrapping; Order, 70 rolls wrapping.

Str. Lyngensfjord, Sundsvall—Maurice O'Meara Company, 666 bls. wrapping; Order, 2,580 rolls newsprint; from Kotka—Paper House of Pennsylvania, 27 rolls newsprint; Order, 1,444 rolls newsprint.

Str. Majestic, Southampton—J. Manheimer, 80 bls. filter.

Str. President Wilson, Trieste—Order, 606 rolls wrapping, 28 bls. printing and 5 cs. cigarette.

Str. President Monroe, London—W. H. S. Lloyd & Co., 12 bls. hanging.

Wood Pulp

Str. Gustavsholm, Stockholm—Mead, Patton & Co., 650 bls.

Str. Canopic, Hamburg—E. Naumberg & Co., 700 bls.

Str. Ohio, Hamburg—Wilkinson Bros. & Co., 1,052 bls. sulphite.

Str. Bornholm, Liverpool, N. S.—Tidewater Paper Mills Company, 3,300 bls. ground wood.

Str. Tyrrhenia, Hamburg—Globe Shipping Company, 50 bls.

Str. Bergensfjord, Christiana—J. Andersen & Co., 750 bls. sulphite; International Acceptance Bank, 1,000 bls. sulphite; E. M. Sergeant & Co., 250 bls. sulphite; National City Bank, 250 bls. sulphite.

Str. United States, Copenhagen—E. M. Sergeant & Co., 254 bls.

Str. Lyngensfjord, Kotka—Lagerloef Trading Company, 5,080 bls.; from Viborg—Lagerloef Trading Company, 5,082 bls.

Old Rope

Str. Nieuw Amsterdam, Rotterdam—Brown Bros. & Co., 55 bls. and 161 coils.

Str. Albert Ballin, Hamburg—Brown Bros. & Co., 98 coils and 6 bls.

Str. Mississippi, London—Brown Bros. & Co., 141 coils; Ellerman-Wilson S. S. Line, 38 coils; Order, 234 coils.

Str. Wells City, Bristol—Brown Bros. & Co., 198 coils.

Str. Ryufuku Maru, Genoa—Irving Bank-Columbia Trust Company, 70 bls.

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Wire Works

"The Fourdrinier that took the
Ire out of Wire"

INTERNATIONAL WIRE WORKS
MENASHA, WISCONSIN

CURRENT IMPORTS—Continued

Str. Waukegan, Havre—Brown Bros. & Co., 38 bls.

Str. United States, Copenhagen—Bank of New York & Trust Company, 246 bls.

Str. President Monroe, London—Brown Bros. & Co., 94 coils and 15 bls.; International Acceptance Bank, 20 bls.; Ellerman-Wilson S. S. Line, 34 coils.

Old Bagging

Str. United States, Copenhagen—Goldman, Sachs & Co., 141 bls.

Rags

Str. Vincenzo Florio, Leghorn—New York Trust Company, 152 bls.

Str. Mississippi, London—Order, 15 bls.

Str. Wells City, Bristol—International Acceptance Bank, 61 bls.; S. Silberman Company, 653 bls.; Guaranty Trust Company, 26 bls.

Str. Verentia, London—S. Silberman Company, 39 bls.

Str. London Commerce, London—A. W. Fenton, Inc, 88 bls.

Str. Adriatic, Liverpool—American Express Company, 171 bls.; Albion Trading Company, 9 bls.; Order, 99 bls.

Str. Tyrrhenia, Hamburg—L. H Abenheimer, 138 bls.

Str. Orizaba, Havana—M. Wolfer & Co., 20 bls.

Str. Rochambeau, Havre—Equitable Trust Company, 1,005 bls.

Str. Virginia, Copenhagen—Goldman, Sachs & Co., 497 bls.

Paper Stock

Str. Assyria, Glasgow—J. Fyfe & Co., 139 bls.

Str. Waukegan, Havre—Salomon Bros. & Co., 36 bls.

Talc

Str. Vincenzo Florio, Genoa—C. B. Chrystal & Co., 200 bags.

Str. Ryufuku Maru, Genoa—C. Mathieu, 300 bags; C. B. Chrystal & Co., 200 bags.

China Clay

Str. Wells City, Bristol—Moore & Munger, 622 tons; Papermakers' Importing Company, 453 tons.

Bleaching Powder

Str. Adriatic, Liverpool—H. Kohnstamm & Co., 75 cs.

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AIR COMPRESSORS

Nash Engineering Co., South Norwalk, Conn.

ANILINE COLORS

Bachmeier & Co., Inc., New York.
Heller & Merz Co., New York.
National Aniline & Chemical Co., New York.

ARCHITECTS AND ENGINEERS

Carey, James L., Chicago, Ill.
Ferguson, Hardy S., New York.
Hardy, George F., New York.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

BEARINGS

Link-Belt Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BEATING ENGINES

Black-Clawson Co., Hamilton, O.
Dayton Beater & Hoist Co., Dayton, O.

BELT CONVEYORS

Link-Belt Co., Chicago, Ill.

BLEACH

Penn. Salt Mfg. Co., Philadelphia, Pa.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOX BOARDS

Standard Paper Co., Kalamazoo, Mich

BOARD MACHINES

Black-Clawson Co., Hamilton, O.

BOND PAPER

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

BRASS WIRE CLOTH

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, O.

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BRONZE WIRE CLOTH

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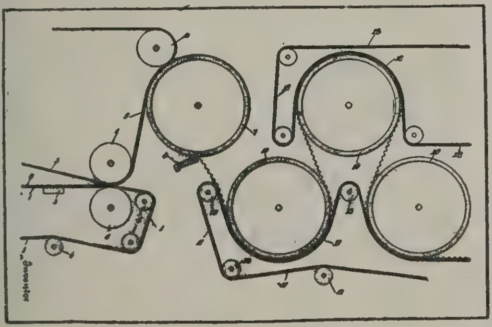

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Link-Belt Co., Chicago, Ill.

COATED PAPERS

West Virginia Pulp & Paper Co., New York.

COGS

Menasha Wood Split Pulley Co., Menasha, Wis.

COLORS AND TINTINGS

Heller & Merz Co., New York.
Kuttroff, Pickhardt & Co., New York.

CONSISTENCY REGULATORS

Trimbey Machine Works, Glens Falls, N. Y.

CONVEYORS AND ELEVATORS

Link-Belt Co., Chicago, Ill.

COUPLINGS (SHAFT)

Link-Belt Co., Chicago, Ill.
Hudson-Sharp Machine Co., Green Bay, Wis.

CREPE PAPER MACHINES

Hudson-Sharp Machine Co., Green Bay, Wis.
Tompkins-Hawley Fuller Co., Valatie, N. Y.

CUTTERS

Appleton Wire Works, Appleton, Wis
Black-Clawson Co., Hamilton, O.
Cameron Machine Co., Brooklyn, N. Y.

CYLINDER COVERS

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International Wire Works, Menasha, Wis.

CYLINDER MOLDS

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Black-Clawson Co., Hamilton, O.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

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DIFFUSERS

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Hardy, Geo. F., New York.
Stebbins Engineering Co., Watertown, N. Y.
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Orr Felt & Blanket Co., Piqua, O.
Shuler & Benninghofen, Hamilton, O.
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International Wire Works, Menasha, Wis.
Lindsay Wire Weaving Co., Cleveland, O.
Wisconsin Wire Works, Appleton, Wis.

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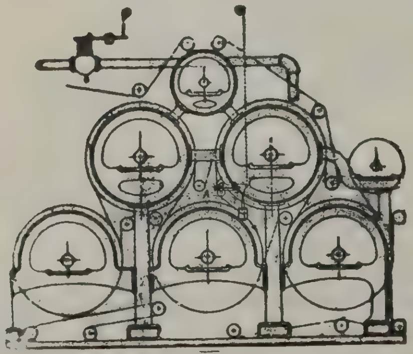

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Brown Co., Portland, Me.
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PAPER

EVERYTHING REGARDING THE MANUFACTURE
SALE AND USE OF PULP AND PAPER

Vol. XXXIII DECEMBER 6, 1923 No. 7

Improvements in Fine Papermaking

While Process Remains Practically Unchanged Many Refinements Have Been Introduced which Tend to Improve Product and Lower Cost

By I. Gordon, Member of TAPPI
Lee Paper Co., Vicksburg, Mich.

ALTHOUGH many improvements have been made in the last twenty years, the process of papermaking itself remains practically unchanged. Our industry, like others, has continued to look ahead for new ideas, for new raw materials, for new machinery; in fact, for anything that might give a better sheet or lower the cost of a process of manufacture.

With prices as they are today, with the consumer remembering what they were years ago, and with the increased production per machine, not mentioning new mills, we have been forced to find ways and means of making a product for the consumer which he may feel is not prohibitive as to price.

Moral Effect of Waste Prevention

We hear much at the present time about the elimination of waste, for the reason that competition is exceedingly close and selling prices are figured so near the cost that waste in making an order may turn it into a loss; or, on the other hand, an improvement in a process may put the mill in a position to underbid for certain business.

An added effort should be made to eliminate waste for the effect it may have upon employes. Most of them will co-operate when they see the heads of departments earnestly doing all they can in this direction. A good hardworking organization is a big asset to any firm adn this is possible only when each and everyone feels that the quality of the finished product depends on their individual work.

Fine mills are paying more attention to the quality of water used with the result that much artesian well water is now employed. Artesian well water has a constant temperature throughout the year, which means less trouble in sizing. Artesian well water is constant in quality, thereby avoiding changes that might be made by the refuse of mills up the river, by vegetation, by rainfall, or by the spring freshet. Artesian well water is usually colorless, thus insuring less annoyance to the superintendent when trying to get the same shade at different periods of the year.

Fine writing mills are still using the Holland beaters. Some prefer the corrugated bars while others have success in using bars of different compositions, but most mills want bars made by the manufacturer who built the beater. The Niagara type of beater is comparatively new and we can not say how much it will be used in the fine paper industry of the future. A few fine mills are trying out this beater. It is said that the Niagara beater heats the stock to a higher temperature than does the Hollander. The rate of circulation is faster, which means shorter beating time, and some aver that the horsepower used per pound of stock is higher. The important questions determining whether the Niagara can survive and which have to be answered before the fine paper mills will install it in quantities are: Can it produce equal or better stock, will the stock be difficult to size, and how much does it cost to run?

The improvement in the making of rosin, where firms with specialists produce it instead of the mill size man, has helped the fine writing mills. No man in a mill, with its inadequate equipment and with little or no knowledge of the chemistry of size manufacture, can produce as uniform a milk of rosin. In former times, when a size man left his job, or fell sick, it devolved upon the mill foreman or superintendent to train another in the mysteries of sizing. The size man was often one without education, except to know how and when to put in the different quantities and if anything out of the ordinary happened, he was often at a loss to suggest a remedy.

There is a story told of one size man who had a formula for adding a secret solution to the rosin in order to make it of a higher quality. It happened that this man fell sick one time and in order to make the size they broke into his cupboard for the magic fluid. Some of it was sent to a chemist for analysis and the report came back that the fluid was distilled water!

Mill superintendents have plenty of trouble making hard sized papers, without surmising or feeling that the size may be at fault when anything goes wrong. The present method has given confidence in size uniformity.

Sizing methods are changing slightly and men are constantly working for something new. Except for the use of glue, starch, rosin, alum, and silicate, sizing methods are mill secrets or patented processes. Mills have their own processes and there are no two mills that put in the same materials or make them in identically the same manner, though the basic principle may be the same.

New Machinery and Methods

The flat screen has given away to the circular screen in most cases; it is much easier to work with one plate all the time than to change plates to fit the stock. There are no screws to break off and the jar is even the whole length. The circular screen is revolving and is washed periodically.

Suction rolls have met with favor in most of the fine mills. The manufacturers claim longer life to the wire, ability to eliminate top couch and jacket, a dryer sheet when leaving the wire, less broke and greater production. One setback is the two-sided effect in the colored sheet, which however, may be eventually overcome by the use of fast dyes.

The old multiple-shaft system of winding has given way after passing through the different stages of progress to the two-drum surface winding method. The multiple-shaft machine wound a roll on a shaft driven by a slip belt or friction clutch. Although it had a cheap initial cost, it took lots of power and the resultant rolls were not always up to standard. Machines are now being built to give a good uniform roll with less power consumption.

Another change which is more individualistic with the different mills, as to method, is the procedure of drying the paper after it has passed through the size tub. Mills are changing from the loft system to a machine air-dry method, on account of the cost, and are making a sheet which is as good for practical purposes. There are many systems in use but the principle is to dry the paper at a lower temperature than that of the steam dryer by the use of dry air. These processes consume minutes where the loft requires days.

The sheet-calender method of finishing is gradually going out of use, where the paper is wound on rolls from the machine, and is giving way to the supercalender finish. The mills can get the same finish on the supercalenders as on the sheet calender, with a probable slight loss of cockle, and at the same time eliminate the slow feeding process of a sheet at a time, thereby getting greater production, which tends to lower the cost of the finished paper. The broke is lower and less calenders are needed.

Sorting the paper while cutting it into sheets of the required size from the roll has been found efficient in lowering the cost of some grades. This cannot be used with a bad lot or where close sorting is required. The cutter process of sorting is to throw out imperfect sheets as they are cut and when the load is a few inches in height to fan it on the sides to get those which have been overlooked. This method seems to be haphazard, but on trying it a few times with a check of sorting by hand, one will find it fairly efficient.

All fine mills have some electric-driven machines and in many regions where electric power is cheap the motor-driven machines are displacing water or steam driven types. We are beginning to hear of whole mills being electrified. Perhaps in the near future nothing but electricity will be used because of the economy effected by doing away with line shafts and bearings. It is less trouble to fix one machine than to shut down a whole system for it or to come in Sunday for the job, if it could be delayed until Sunday.

How Associations Help

The different organizations, similar to the Technical Superintendents, and Cost associations have worked out and given much valuable information along improvement lines and are ready to help at any time when called upon. Their meetings give ideas to mill representatives, and mills should continue to send men there to receive what they can on how the other fellow is progressing and compare with his own mill. A convention trip may not show returns the first or second time, but is bound to do so sooner or later. A trip is similar to a chemical experiment; many trials are made until the best method is found and when it is brought to light it pays for all the trouble and expense.

The increased use of cost systems has done much for advancement in the paper industry. It is not so

(Continued on page 20)

Rapid Analysis of Paper

French Technologist Explains Method for Quickly Determining Constituents of a Paper Sample for Purposes of Duplication

By Jacques Crolard

The following paper, which was written from the standpoint of a manufacturer who is asked to duplicate a sample of paper submitted to him by a customer, shows how the qualities of the paper are first determined by physical and chemical means. It will show the manufacturer what to expect from his works chemist when he is called upon to analyze a paper sample so that the information may be supplied to the plant superintendent to enable him to duplicate the paper in the mill. The article is translated from Le Moniteur de la Papeterie Francaise and is very interesting and worth the attention of all paper technologists and executives.—Translator.

WHEN a sample of paper is given to a paper manufacturer to be duplicated, his first move is to examine the paper carefully to determine what he can, about its qualities and then to compare it with another sample of paper which he may have in his files and which appears to resemble the first most closely. But that is as far as he can go, for his very next question is how do these two samples of paper differ from one another and in what way can the manufacturing process be modified so that a duplicate of the sample can be obtained? This is not a question of approximating the paper but of duplicating it exactly, for the conditions under which the paper may be used in printing do not permit the attainment of the same good results with a poor duplication of the paper.

Problem for the Chemist

The problem is thus up to the chemist. He is asked to do two things. He must analyze the two papers to determine the characteristics of both and be able to compare their properties. Then he is asked to outline the manufacturing conditions which will duplicate the sample of paper exactly. This is really the only scientifically correct and practical method of arriving at the information that is required, for paper is a rather complex product, containing as it does various kinds of pulp, fillers, sizing materials, coloring matters, etc., all of which have marked effects on its qualities.

One of the most important properties of a paper is its content of mechanical wood pulp. This is the first matter to consider in making an analysis. It is necessary to determine the exact amount of mechanical wood in the paper and it will be interesting to discover whether there is a reliable method of finding quickly the approximate proportion of this ingredient in the paper.

The first step, before determining the quanitative proportions of various kind of fibers, is to identify these. This examination allows the following classification to be made in case of the simplest kinds of paper:

1. Paper containing wood pulp and chemical pulp.
2. Paper containing wood pulp, chemical pulp and rag stock.

A number of simple reactions are available for telling the difference between these fibers. All the different fibers which are used in making paper can be recognized in this manner, but generally a paper will not contain more than three of these.

There are certain organic compounds which are absorbed in different proportions by the various kinds of cellulose fibers. The amounts absorbed, however, always remain the same for any one kind of fiber. Hence it is always possible to determine the fiber by examination in this way. There are quite a few of these substances, but there are two which are very well-suited for this purpose, as they will give accurate results when the fibers are placed in solutions of these chemicals of constant concentration and under similar conditions. Phenols and aromatic bases are most satisfactory.

In carrying out the examination a known weight of paper is digested with a definte volume of a standard solution of phenol or aromatic base. At the end of a certain length of time, which is sufficient for completion of the absorption process, the excess of phenol or aromatic base which is still left in the solution is titrated. This gives the weight of phenol or aromatic base which is absorbed by the cellulose fiber. Certain calculations can then be carried through, which will be explained below, to determine the percentages of the different fibers in the paper.

In table I is given the results of a large number of tests which were made to find the average amounts of phenol and aromatic base absorbed by the different classes of fibers.

Table I

Relative Absorption Capacities of Different Cellulose Fibers

	Phenol	Aromatic Base
Pure cotton	0.2	1.1
Rag stock	0.5	3.0
Esparto	0.7	3.7
Bleached sulphite pulp	0.8	5.0
Bleached straw stock	1.1	6.2
Bleached soda cellulose	1.2	6.5
Unbleached sulphite pulp	1.2	6.6
Bleached jute stock	4.1	10.
Mechanical wood pulp	8.	12.

It was found that mechanical wood pulp made in various countries differed considerably so far as their phenol absorptive capacity was concerned. The variations were from one to two percent. However, this variation is about the same as the experimental error incurred in making the analysis.

Calculating Percentage of Mechanical Pulp

The first case that will be considered will be the simplest one, a newsprint containing both mechanical wood pulp and unbleached sulphite pulp. Two equations are necessary to arrive at the results. These are as follows:

$$B+M=100 \text{ and } \frac{p_1}{100}B+\frac{p_2}{100}M=P$$

The symbols in these equations have the following significance: B represents the proportion of sulphite pulp; M represents the proportion of mechanical wood pulp; p_1 is the absorption coefficient of unbleached wood pulp or 1.2; p_2 is the absorption coefficient of mechanical wood pulp or 8.0; P is the phenol absorption coefficient of the paper.

The value of M is obtained from the following equation, which is itself obtained by solving the simultaneous equations given above:

$$M=\frac{100(p-p_1)}{p_2-p_1}$$

This formula also possesses a certain value in the determination of the proportion of a certain grade of pulp found in a mixture of two kinds of fibers, if the values of p_1 and p_2 are sufficiently distinctive.

It may be assumed that in analyzing or testing the paper, the value of P was found to be 5. Then as the values of p_1 and p_2 are known, being derived from table 1, the percentage of mechanical wood pulp in the paper can be found by substituting these values in the equation for M, as follows:

$$M=\frac{100(5.0-1.2)}{8-1.2}=55.7 \text{ percent.}$$

However, in practical work the problem is generally much more difficult than the one which has been solved above. Mechanical wood pulp may exist in a paper in combination with bleached sulphite pulp and rag stock, casse paper for example. The equations which were given above will then not be sufficient to give the desired information. In this case there are three unknown quantities to be determined in the place of two; thus it is necessary to write equations containing the unknowns, percentage of mechanical wood pulp, percentage of rag stock and percent of sulphite pulp. This, then, means three equations and in writing the third it is necessary to use the coefficient of absorption with the aromatic base.

Thus the three following equations are formed:

$$B+M+C=100.$$

$$\frac{p_1}{100}B+\frac{p_2}{100}M+\frac{p_3}{100}C=P$$

$$\frac{a_1}{100}B+\frac{a_2}{100}M+\frac{a_3}{100}C=A$$

The symbols B, M and C represent respectively, the percentages of sulphite wood pulp, mechanical wood pulp and rag stock present in the paper. The symbols p_1, p_2, p_3, a_1, a_2, a_3 are the coefficients of absorption of these different grades of pulp and may be found in table I. P and A represent the absorptive capacity of the paper for phenol and the aromatic base, respectively. The solution of these algebraic equations to give an expression for M or for B or C involves simple algebraic operations which are too familiar to require explanations here.

After these expressions or roots have been found, all that is necessary is to substitute the following values in the equations:

$p_1=0.8$ $p_2=8.0$ $p_3=0.3$
$a_1=5.0$ $a_2=12.0$ $a_3=3.0$

P is found to be 2.1 and A 5.4 by actual test. Under these conditions the percentages of the different grades of cellulose in the paper are found to be as follows:

Mechanical wood pulp=M=20.5 percent
Chemical wood pulp =B =30.0 percent
Rag stock =C =49.5 percent

Accuracy of the Method

It is evident that the method described above is a very rapid one and possesses distinct advantages over the more exacting chemical and microscopic methods in that it is much easier to carry out than these, consuming much less time and labor. In the following tabulation is given the results obtained by chemical analysis compared with those obtained by the mathematical method described above.

TABLE II

Determination of Mechanical Pulp and Chemical Pulp in Paper

No.	Nature ot fibers Method of analysis	Sulphite pulp $p_1=0.8$; $a_1=5.$	Mechanical pulp $p_2=8$; $a_2=12$	Rag stock $p_3=0.5$; $a_3=3.$	Phenal absorbed P	Aromatic base (anilien) absorbed A
1.	Composition of paper	30	20	50		
	Composition calculated	30	20.5	49.5	2.1	5.4
2.	Composition of paper	65	15	20		
	Composition calculated	64.9	14.8	20.3	1.8	5.6
3.	Composition of paper	50	40	10		
	Composition calculated	49	41	10	3.7	7.8
4.	Composition of paper	50		50		
	Composition calculated	48		52	0.64	
5.	Composition of paper		20	80		
	Composition calculated		21	79	2.1	
6.	Composition of paper	70	10	20		
	Composition calculated	71	9.5	19.5	1.35	5.2
7.	Composition of paper	75	5	20		
	Composition calculated	74.8	5.2	20	1.12	5.

The values which are given in this table are the average of ten different determinations in each case. In practical work the chemist need not repeat his tests so many times. Each test should, however, be made five successive times and the average results taken and substituted in the equations.

By an examination of the figures in table II it will be seen that the error incurred in the mathematical process does not exceed one percent in the entire series of operations. Each if it is admitted that there will be an error of at least that amount in making the titrations, the results will be accurate within two to three percent. On the other hand, it is impossible to obtain results which have an error of less than five percent in making an analysis with the microscope in the ordinary way.

Rapid Approximate Method

The question is often asked, does this or that paper contain mechanical wood pulp and if so how much does it contain approximately? It is not a matter of determining the mechanical wood content within a few percent, but to tell whether the paper contains 30 percent, 50 percent or more of this kind of cellulose. In such cases it is not necessary to make any chemical analysis as this would take too much time, even when made in accordance with the method given above. A very simple method is used for this purpose and it is, of course, always possible to substantiate the conclusions reached from this examination by making an exact quanitative determination.

There are certain organic compounds, among which may be numbered the phenols, amino-phenols and amines, which possess the property of producing very vivid colorations with ligno-cellulose.

There are various organic compounds which will color mechanical wood pulp but will not produce any coloration on any of the other grades of wood pulp. One of the commonest reagents used for this purpose of phloroglucin, which dyes mechanical wood pulp a bright, scarlet red. The following table indicates the color reaction that takes place on mechanical wood pulp when a drop of various chemicals is placed on it.

Coloration of Mechanical Wood Pulp with—

Phenols and Amino phenols		Aromatic Bases	
Phloroglucin	red	Phenyl hydrazine	yellow
Pyrocatechin	violet	Dimethyl-paraphenylene-diamine	red
Alpha naphthol	green	Aniline sulphate	yellow
Beta naphthol	rose	Chlorhydrate of para-nitraniline	orange
Ortho amino phenol	yellow		

Fundamental Bases of a Colorimetric Method

There are certain objections which may be and have been raised against the use of a colorimetric method for determining the presence and the amount of mechanical wood pulp in a paper. The organic chemicals that are employed for this purpose are known to lose their coloring power as they age. The intensity of the color produced does not vary proportionally with the percentage of mechanical wood pulp present in the paper. It is, however, true that this opinion is based on experience with inaccurately made analyses. When the colorimetric determinations are made in the following manner there will be objection to them, for the results are inaccurate and unreliable.

The first thing that is generally done is to select a powerful reagent such as phloroglucin. Then it is necessary to make a colorimetric scale with the aid of this reagent. Thus it is possible to make up a set of samples from papers containing varying percentages of mechanical wood pulp and to use these standard color cards in examining the unknown paper. This method is simple enough, but it is bound to give poor results. The results are never constant, for the reason that the intensity of the coloration depends on factors that very easily. Thus, the concentration of the reagent, the age of the same and other factors, such as the variation in the intensity of the drop of the reagent with the duration of the reaction. It is easy to determine that in several cases the intensity of the color at the end of ten minutes is double the intensity after five minutes. Furthermore, this condition is itself variable.

The colors that are obtained in testing the unknown samples of paper are compared with those obtained with standard papers. This method immediately circumvents the first criticism which has been mentioned above. In this case the analysis is relative in character and hence all the variable factors act in the same manner on the unknown paper sample as on the standard papers that are used in the analysis. Even when the reagent is old and has been used for a considerable time, accurate results will be obtained for the colors will still be clearly defined and of an intensity which varies with the proportion of mechanical wood pulp that is contained in the paper.

The second objection which is cited above can be answered by observing what happens when a drop of the reagent is placed on the paper sample. Thus, for example, when a solution of the chlorhydrate of phloroglucin is used in the analysis at a fixed concentration, if there is any mechanical wood pulp present in the paper the latter will be seen to become redder and redder at the point where the drop of the reagent fell. If papers containing as much as 50 and 80 percent of mechanical wood pulp are examined, it will be seen that the intensity of the color in both cases is the same, even though the percentages of mechanical wood pulp are much different. This is due to the fact that the color produced by a paper containing 50 percent of mechanical wood pulp, is the deepest that the eye can detect. Deeper reds are beyond the visible range.

This difficulty may be circumvented in the following manner. When it is desired to determine the proportion of mechanical wood pulp in a certain paper, after it has been found that the first test will not give the desired results, it is necessary to find a concentration of the color-producing reagent which will yield a color with the paper that is within the visible range. On the contrary, when examining papers, which contain only a slight amount of mechanical wood pulp, it is advisable to use a reagent which will give as strong a color as possible.

In general it will be necessary to have on hand two concentrations of the reagent only; one, the more concentrated solution, will serve for testing papers containing small proportions of mechanical wood pulp, and another of smaller concentration for testing papers which contain more than 40 percent of mechanical wood pulp.

Method Employed in Applying Test

Two samples of paper are cut from the unknown paper and from the known standard paper. For example, say that it is known that the unknown paper contains somewhere in the neighborhood of fifteen percent of mechanical wood pulp. Then a sample is cut from the standard 15 percent mechanical wood pulp paper. These two samples are then dipped simultaneously in a solution of phloroglucin of known concentration. After the papers have colored it is an easy matter to determine by comparison of colors whether or not the unknown paper contains more or less than fifteen percent of mechanical wood pulp. If the colors produced on the papers are equal in intensity, then it may be concluded that the unknown paper contains fifteen percent of mechanical wood pulp. In order to determine the delicacy of the test, it is an easy matter to take two samples of paper, one containing fifteen percent of mechanical wood pulp and the other twenty percent of this cellulose and compare the colors that are obtained with the phloroglucin solution.

Careful study and experimentation with this process have led to the conclusion that it is sufficiently accurate to give a good approximation of the percentage of wood pulp contained in a paper. The method is extremely rapid, requires few reagents and can be readily applied by the ordinary laboratory worker.

(To be continued)

Silicate of Soda in the Paper Industry

Comprehensive Review of the Literature of the Use of Silicate of Soda in Papermaking Processes

By WILLIAM STERICKER, PH. D.

Philadelphia Quartz Co.

Sizing

Ink Resistance:—According to Blasweiler, there have been sporadic attempts for over forty years to use either sodium or potassium silicate as substitutes for rosin in paper sizing. It was not until 1907, that Klemm[1] pointed out that both silicate and rosin might have a place in paper. Sizing is frequently considered to mean the resistance to the penetration of aqueous inks. This is not a satisfactory standard for printing papers since printers' inks are actually oil varnishes. Rosin sizes against aqueous solutions but not against oily liquids. Silicate is valuable for the latter. Although sixteen years have elapsed since Klemm's article appeared, the distinction is not fully recognized in the paper trade even now.

Method:—The method of using the silicate depends to a large extent on the kind of paper and the regular practice in the mill. The following[2] has been found to give maximum retention in many cases. It is also advantageous because it interferes to the least extent with the routine of the mill operation. The silicate is added to the pulp in the beater before any color or other size has been added. Sufficient alum[3] is then added to precipitate the silicate and the rest of the process carried out as if there were were no silicate present. Sodium metasilicate[4] is of no value for this use while the higher the ratio of silica to soda in the silicate solution the better results are obtained[5].

Effects:—In discussing the use of trimmings for corrugated and solid fiber board as part of the beater furnish Burt said the silicate present was injurious to the size. He claimed there was 7% of silicate in such trimmings[6]. Vail[7] replied that this was only the case when insufficient alum was used. If enough were added, all the silicate would be precipitated and slack sizing would be avoided. In addition, the silicate would increase the retention of the rosin and improve the hardness and finish of the paper.

An individual, who prefers to be known as "Greaseproof," gives[8] the following description of the effect of silicate. When acids or acid salts are added to soluble silicates in the beater, silica is precipitated as a gelatinous hydrate. This permits the pulp to carry more water onto the machine and hardens the paper. Vail[2] has given a more extended description of the effects of silicate. These results are based on mill tests with large quantities of paper using 2-4% of silicate. There was an average increase of 12% in the Mullin test. The ink resistance was increased, probably due to the increased retention of rosin[9]. If the silicate is carefully added at the correct time, there are no deleterious effects on the colors. When no rosin is used, discoloration on aging is minimized. The hardness, rattle and finish of the sheet are improved.

Blasweiler has carried out a long series of experiments under the direction of Emil Heuser, one of Germany's greatest paper and cellulose experts[10]. He used $Na_2O.3SiO_2$ using from 5 to 30% of silicate. The experiments were made in a 30 liter hollander using 2.5-3% of pulp. The results found confirm and extend those previously mentioned. In every test the tensile strength of the paper made with silicate was increased. The maximum was

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[1] 1.—Wochbl. Papierfabr. 38, 1893-5 (1907)

[2] 2—Vail. Paper 29, No. 6, 19-20 (1921); Paper Trade J. 73, No. 17, 32-4 (1921); Chem. & Met. Eng. 25, 823-4 (1921).

[3] 3.—The term "alum" is used for aluminum sulphate or "papermakers' alum" throughout this report.

[4] 4.—Blasweiler. Paperfabr. 19, 809-16, 875-7 (1921); Paper 28, No. 22, 20-2, No. 24, 20-2; 29 No. 6, 19-20.

[5] 5—Papeterie 43, 1058-66 (1921).

[6] 6.—Fibre Containers 6, No. 2, 14 (1921).

[7] 7.—Ibid No. 3, 16.

[8] 8—Papeterie 43, 1058-66 (1921).

[9] 9—Possibly due also to an increased hydration of the fibers.

[10] 10.—Papierfabr. 19, 809-16, 875-7 992-7, 1108-11, 1217-23 (1921) A condensed translation by West appeared in Paper 28, No. 22, 20-21; No. 24, 20-2; 29, No 6, 19-20. The original articles have appeared as a book, "Die Verwendung von Wasserglas zum Leimen von Papierstodd". (Elsner, Berlin, 1922).

18.5% which was obtained with newsprint. The hardness and rattle or snap were greater. The finish and feel were improved. The suction on the paper machine was good and there was no sticking on the pressure rolls so less water could be used. The suspended matter in the back-water settled rapidly and completely. The colors were brighter and did not fade as rapidly on silicated papers. The cut paper laid flat and the behavior with printers' ink was improved. The silicate also increased the retention of loading materials.

Straw Paper:—A. R., who translated this work into French, was led to tell of his own experience with silicate in sizing straw paper[11]. In order to speed up production the digestion of straw was carried out under high pressures. This causes hydrolysis and porous paper resulted. When meat was wrapped in it, the paper soaked and tore easily. Since most of the sales were to butchers, a method of sizing had to be found. Rosin could be used but was too expensive. Equally good results could be obtained by the use of 10-2% of silicate precipitated with alum. The former method cost more than 400 francs, the latter about 60.

Alum:—Blasweiler[10] found it advisable to add enough alum to make the solution distinctly but not strongly acid. In spite of the fact that sufficient alum to precipitate the silicate seems necessary in order to secure any good results, there are mills which consistently use silicate without any alum to take care of it. They apparently secure effects that they can detect and which they believe pay for the silicate. In some cases this is because of special qualities not directly connected with the paper. When alum is not used, the back-water is returned to the machine. This is good practice in any case as the effort of the silicate seems to become cumulative in this way. One-hundred pounds of "A-Syrup" ($Na_2O.\ 3.3SiO_2$) require about 30 pounds of alum and one-hundred of "S" Brand $Na_2O.3.9\ SiO_2$) require twenty-five pounds. In case the water is very hard or contains some acidic material, these amounts may be excessive. The intentional addition of salt or magnesium sulphate does not pay for itself.[10]

Alum Substitutes:—Frohberg[12] proposed the use of magnesium sulphate of alum but Blasweiler found that it did not give good results in the presence of paper stock. Any substitute has to compete with the additional sizing effect due to the aluminum hydrate or silicate formed by the interaction of alum and silicate. Klason[13] used sulphate waste liquor to precipitate the silicate. The rattle and finish were improved but the paper was yellowish. Franck has patented the use of fluosilicates as precipitants. So far as is evident they are not actually used. It is claimed[14] that silicate and alum may be used as a dry powder. The silicate is sprayed on solid aluminum sulphate and the mixture is then dried and ground.

Rosin:—When both silicate and rosin are used, the paper is sized for either aqueous or oily liquids. In addition, the use of silicate increases the retention of the rosin. Usually the silicate and the rosin are added to the beater in their usual form but there have been a number of proposals to combine them. Kuldkepp and Graf[15] mixed rosin and silicate in the cold to prevent the precipitation of silicic acid. Sommer[16] found that finely pulverized or emulsified rosin would dissolve in dilute silicate solutions. "Greaseproof" says that boiling silicate solutions dissolve powdered rosin forming a size similar to brown rosin soap[8]. It is important to use no more silicate than is necessary. The writer's work indicates that rosin dissolves more readily in the more alkaline silicates ($Na_2O.\ 2SiO_2$). When hot concentrated solutions of $Na_2O.\ 3.3SiO_2$ weer used, there was always a separation or rosin soap.

In 1920, Clapp proposed the use of freshly precipitated calcium silicate and aluminum resinate as a size for counter board[17]. The size was formed by the reaction of hydrated lime, sodium resinate, silicate of soda, and alum.

Bakelite:—The use of silicate with bakelite for sizing has been patented in Germany. It is claimed that good results were obtained[18]. West[19] says that the bakelite is used to bind the precipitated silica to the fibers but it seems more likely that it acts like rosin. Unless it shows decided advantages, bakelite will be too expensive to be practical.

Starch:—In 1910, Fues[20] applied for a patent on the precipitation of starch for sizing paper in the presence of silicon compounds but Klemm was able to show that he had previously used silicate with starch. Wrede[21] found that silicate and starch were better than silicate alone for sizing against non-aqueous materials. Since silicate is cheaper than starch and increases the retention of the latter, its use is advisable. The mixture increases the strength and rattle of the sheet and the retention of any filler. Fues claimed to be able to secure practically quantitative precipitation of the colloids at exact neutrality. Wrede recommended a strong excess of alum but only recovered 60-70% of the starch.

In a later article[22] Wrede claims that starch not only improves the quality but reduces the cost of manufacturing paper. It is most economical to swell the starch, add silicate, and then put the mixture in the beater. When used in writing paper, this mixture increases the strength and gives a better finish and a harder feel. Since the paper is harder and tougher, it stands erasure better. For this kind of paper it is recommended that the silicate and starch be added after the rosin size has been precipitated. In print papers it should be added after the fillers. In all papers where raw starch is used as a filler, 2-4 liters of silicate should be used with each kilogram of starch.

Soap:—Kolb claims[23] that soaps, especially the stearates, may be used to replace rosin size. When used in connection with sodium silicate, they give pronuonced size-fastness and good feel. The silicate increases the sizing action by increasing the surface area of the other materials. Blasweiler investigated both soy-bean and cottonseed oil soap with and without silicate but was unable to find sufficient improvement to pay for their use. For example, 5% of cottonseed oil soap, 5% of 38° Baumé silicate ($Na_2O.\ 3.3SiO_2$), and 10% of alum increased the tensile strength but decreased the stretch of the sheet.

Glue:—Muller[24] dissolves one part of glue in 6 of water using the usual method. While the solution is still warm, he adds a solution of 1 part of 38° Be'. silicate in 8 parts of water. When the solution has cooled, he stirs in a solution of alum. An excess of alum has to be avoided so the mixture is not completely precipitated. This material is added to the furnish followed by enough alum to give a faintly acid reaction. Muller considers that the fibers are coated since the brilliancy, the handle, and the fullness of the paper are improved. In addition, the retention of the fibers and loading materials is greater. Other colloids

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11.—Papeterie *43*, 1077; *44*, 58-61 (1922).
12.—Wochbl. Papierfabr. *44*, 4250-2 (1913).
13.—Papier-Ztg. No. 34, 1315 (1907?).
14.—Papermakers' Monthly J. No. 4, 122-3 (1911).
15.—Ger. Pat. 245,975.
16.—Ger. Pat. 257,816.
17.—U. S. Pat. 1,345,317 (6-29-20).
18.—Holzverkohlungs—Industrie Akt. Ges., Ger. Pat. 338,396 (1921).
19.—Paper Trade J. *73*, No. 15, 52 (1921)
20.—Wochbl. Papierfabr. 44, 1223, (1913).
21.—Ibid 835-41.
22.—Papierfabr; Paper *31*, No. 12, 11-4 (1923).
23.—Papierfabr. 19, 1141-4 (1921).
24.—Ger. Pat. 317,948 (1920).

may be used in place of glue and acid salts in place of alum. In any event the size would be produced before the pulp is present.

Other Materials:—Kuldkepp and Graf[25] have patented mixtures of casein or casein-like substances with silicate. Stein[25] has covered the use of algin with inorganic colloids. Possanner found silicate in a number of commercial sizes sold in Germany.[26] Humic acid is said to give satisfactory sizing when used with silicate.[27]

Fillers:—All the investigators find that silicate increases the retention of loading materials. Reichard obtains two distinct effects by the use of silicate.[28] Ordinarily when very heavy materials like barium sulphate are used to load paper, a large proportion settles out. If silicate is added to the suspension, it acts as a stabilizing medium. When the silicate is precipitated in the beater, it carries the loading material into the paper. Magnesium chloride is preferred as a precipitating agent.

Blasweiler included experiments on newsprint containing 80% mechanical wood pulp and 20% bleached Mitscherlich pulp. The use of silicate increased the retention of the china clay used as a filler and, at the same time, increased the tensile strength and improved the color.

Paper for wrapping oranges and lemons was made[29] from 30% white paper trimmings, 10% fine white ground wood, 30% unbleached Mitscherlich, 20% semi-bleached sulphate, and 10% waste paper. About 1% of silicate was added and precipitated with alum. Approximately 5% of talc colored with eosin was also used. The talc was credited with giving the paper a smooth feel and preventing molds. It seems likely that the silicate helped in these effects. The use of silicate in connection with talc is also mentioned in a patent to Altmann.[30]

Color Lakes:—Silicate is not only used to increase the retention of loading materials but also of colors.[31] When silicate is precipitated by the action of magnesium or aluminum sulphate or calcium chloride in the presence of a dye, the dye will be strongly absorbed if it is basic, weakly if it is substantive, and not at all if it is acid. The magnesium precipitate is best for basic dyes and the aluminum one for substantive dyes with the calcium intermediate in both cases. The dyes thus held are quite fast but the acid ones wash out. The retention of silica is greatest when alum and a basic dye are used. Color lakes of this type are on the market in England.

Coating and Tub Sizing

Artus[32] was the first to propose the use of silicate of soda for coating paper. He treated moderately strong writing paper with two coats of silicate of unknown composition diluted to 15-9°Be′. (sp.gr. 1.12-1.15). The first coat was allowed to dry before the second was applied. Paper treated in this manner could be used for packing salves and plasters. Concentrated silicate solutions gave a beautiful glassy coat but the paper broke when rolled. Silicate is now widely used for grease-proofing paper. It is also used as a preliminary coat under paraffin to reduce the consumption of the latter. For this work 35° solutions of $Na_2O.3.3SiO_2$ are used.

Altho silicate alone will grease-proof paper, Cavanaugh[33] has patented a paste composed of 11 pounds of silicate, 4 ounces of mica, 10 glycerol, 3 of powdered dextrin, and sufficient precipitated chalk to thicken.

Waterproofing:—Paper is usually waterproofed with paraffin alone or paraffin over silicate. It is claimed[34] that it can be done by passing dry paper through a bath of a hot mixture containing 50% resin, 45% paraffin, and 5% silicate. The proportions of resin and paraffin can be varied up to 10%.

Tub Sizing:—Wezel[35] dissolved horn shavings in caustic soda and added silicate. This solution was mixed with potato starch and then nearly neutralized with acetic or a dilute mineral acid. The mixture was then used as a tub size.

Size and Adhesive:—Morrison[36] developed a size which can also be used as an adhesive on wallboard. It consists of 3-15% silicate of soda, 1-7% glue or other organic adhesive, and 1-8% pottery clay or other filler. In no case should the organic adhesive exceed the silicate. This size gives a higher Mullin test, decreases the absorption of ink or paint, and excludes moisture. Morrison soaked 37.5 pounds of high grade glue for 36 hours in 75 gallons of cold water. He then heated the mixture to 130-60° F. for 15 minutes, slowly, and added 25 gallons of 40° silicate while stirring. After this 29 pounds of pottery clay were worked in. If desired, the silicate and clay may be mixed and then added to the glue solution.

De-Inking:—Silicate has been used in de-inking paper.[37] If the ink has a mineral oil base, hydrated lime is said to aid in the process.[38]

25.—Aus. Pat.
26.—Chem.-Ztg. *38*, 100 (1914).
27.—Ger. Pats., reviewed by West, Paper Trade J. *75*, No. 1, 55 (1922).
28.—Brit. Pat. 177,137 (11-24-21): see also Fr. Pat. 543,763; Paper *31*, No. 20, 20.
29.—Papeterie *41*, 634 (1919).
30.—Ger. Pat. 288, 106.
31.—Heuser and Behr, Papierfabr. (1923) 1-6; Paper *31*, No. 18, 7-12 (1923); Heuser, Paper Maker *64*, 433 (1922).
32.—Chem. Zentr. *28*, 749 (1957).
33.—U. S. Pat. 1,357,844 (11-2-20).
34.—Papier *22*, 358 (1919).
35.—U. S. Pat. 686.374 (11-12-01).
36.—U. S. Pat. 1,365,715 (1-18-21), assigned to the Cornell Wood Prod. Co.
37.—Bancroft, Chem. Met. Eng. *23*, 454-6 (1920).
38.—Jespersen, U. S. Pat. 1,424,411 (8-1-22).

West Coast Papermaking

Samuel P. Taylor, of New York state, was the first paper manufacturer west of the Rocky mountains. Mr. Taylor went to California during the gold rush of 1849 but later returned to New York where he married. In 1855 he and his wife journeyed to California taking with them a 36-inch cylinder paper machine, reads an interesting review of the history of papermaking in the West which appeared in a recent issue of The Timberman.

The first paper manufactured on the Pacific coast was made with this machine. The location of the mill was on a creek 32 miles northwest of San Francisco. All the newsprint and wrapping paper used in the city was manufactured in the Taylor paper mill. Samuel P. Taylor died in 1886 but a son, Will Taylor, is still affiliated with the paper industry in San Francisco.

The second western paper mill was located at Oregon City, Ore., and had a capacity for but three-quarters of a ton daily. This was in 1866.

A paper mill was erected at Stockton in 1870 and in 1873 John Lewthwaite, the oldest living paper maker on the Pacific Coast, began working in this mill.

A list of the Pacific coast pulp and paper mills gives the number in operation now as: Alaska, 1; British Columbia, 7; Washington, 7; Oregon, 5; California, 9. There are other mills in process of erection at the present time.

The Crown-Willamette Paper company is the most important paper and pulp manufacturing firm on the Pacific coast. It employs about 7000 men in the mills and camps which it operates and 250,000 cords of wood are used annually. The invested capital of this firm is reported to be $25,000,000.

The woods used in these western mills are: Western hemlock; Sitka spruce, cottonwood, white fir and Douglas fir.

Summary of Paper Industry for October

THE statistical summary of the Paper Industry is submitted herewith for the month of October, 1923, and previous months.

The following association cooperate in the collection and compilation of data from their numbers, namely; Binders Board Manufacturers association, Converting Paper Mills association, Cover Paper Manufacturers association, Newsprint Service Bureau, Tissue Paper Manufacturers association, Wrapping Paper Manufacturers Service Bureau and Writing Paper Manufacturers association.

Tonnage Summary

GRADES	Number of Mills	Stocks on hand first of month	Production	Shipments	Stocks on hand end of month
		Net tons	Net tons	Net tons	Net tons
Newsprint:					
October, 1923	67	24,755	122,073	124,894	21,934
September, 1923	67	24,694	110,209	110,240	24,663
August, 1923	67	22,243	132,604	129,173	25,674
July, 1923	67	19,791	125,768	124,322	21,237
June, 1923	65	18,133	133,692	132,311	19,514
Book (M. F., S. S. C. & Coated):					
October, 1923	63	20,903	52,480	51,348	22,035
September, 1923	64	24,919	51,205	50,453	25,671
August, 1923	61	22,935	59,744	58,708	23,971
July, 1923	56	23,053	45,156	44,995	23,214
June, 1923	48	24,570	50,964	48,569	26,965
Paperboard—total (Straw, Fibre, Leather, Chip, Box etc.):					
October, 1923	112	29,097	113,624	110,829	31,892
September, 1923	113	29,506	96,477	96,669	29,314
August, 1923	114	26,396	117,932	116,551	27,777
July, 1923	115	27,931	96,362	97,114	27,179
June, 1923	101	23,560	105,218	104,052	24,726
Wrapping (Kraft, Manila, Fibre, etc.):					
October, 1923	87	46,238	52,458	52,769	45,927
September, 1923	91	47,291	49,678	48,473	48,496
August, 1923	89	43,598	50,563	47,348	46,813
July, 1923	87	38,647	47,796	43,038	43,405
June, 1923	83	35,533	54,966	50,951	39,548
Bag (All Kinds):					
October, 1923	30	6,464	9,609	9,905	6,168
September, 1923	29	6,354	6,230	6,938	5,646
August, 1923	28	6,400	8,720	8,306	6,814
July, 1923	28	6,280	5,210	5,907	5,583
June, 1923	25	5,788	9,247	8,174	6,861
Fine (Writing, Bonds, Ledgers, etc.):					
October, 1923	86	36,820	25,312	23,717	38,415
September, 1923	86	37,621	23,395	22,783	38,233
August, 1923	86	37,417	22,859	23,097	37,179
July, 1923	86	37,482	21,650	21,347	37,785
June, 1923	88	35,179	27,637	26,500	36,316
Tissue (Toilet, Crepe, Fruit Wrapper, etc.):					
October, 1923	50	8,307	11,052	11,168	8,191
September, 1923	48	8,838	9,457	9,900	8,395
August, 1923	47	9,813	9,192	9,917	9,088
July, 1923	46	9,520	8,366	8,403	9,483
June, 1923	44	8,080	10,328	9,217	9,191
Hanging (No. 2 Blank, Oatmeal, Tile, etc.):					
October, 1923	10	4,749	6,745	7,209	4,285
September, 1923	10	4,236	5,513	5,000	4,749
August, 1923	10	3,266	5,284	4,314	4,236
July, 1923	10	2,713	5,370	4,623	3,460
June, 1923	9	926	4,158	3,617	1,467
Felts and Building (Roofing, Sheathing, etc.):					
October, 1923	16	3,398	13,142	13,541	2,999
September, 1923	16	4,054	12,073	12,453	3,674
August, 1923	16	2,550	11,320	11,452	2,418
July, 1923	16	2,255	13,361	13,168	2,448
June, 1923	15	2,170	9,707	9,508	2,369
Other Grades (Specialties not otherwise classified):					
October, 1923	61	15,163	16,012	15,679	15,496
September, 1923	65	15,896	14,469	14,743	15,622
August, 1923	65	16,319	15,288	14,429	17,178
July, 1923	64	13,134	14,572	12,993	14,713
June, 1923	60	11,351	17,439	16,794	11,996
Total—All Grades:					
October, 1923		195,894	422,507	421,059	197,342
September, 1923		203,409	378,706	377,652	204,463
August, 1923		190,937	433,506	423,295	201,148
July, 1923		180,806	383,611	375,910	188,507
June, 1923		165,290	423,356	409,693	178,953

Comparative Report of Operations in Identical Mills for the Months of October and September, 1923

GRADES	Number of Mills	Stocks on hand first of month	Production during month	Shipments during month	Stocks on hand end of month
Newsprint:		Net tons	Net tons	Net tons	Net tons
October, 1923	59	24,536	117,846	120,691	21,691
September, 1923	59	24,586	110,006	110,041	24,551
Book:					
October, 1923	62	20,689	52,018	50,881	21,826
September, 1923	62	21,004	46,430	45,618	21,816
Paperboard:					
October, 1923	95	23,422	106,970	104,603	25,789
September, 1923	95	24,105	92,091	92,514	23,682
Wrapping:					
October, 1923	86	46,238	51,918	52,229	45,927
September, 1923	86	45,003	47,454	46,229	46,228
Bag:					
October, 1923	28	5,687	8,089	8,380	5,396
September, 1923	28	6,354	6,050	6,758	5,646
Fine:					
October, 1923	86	36,820	25,312	23,717	38,415
September, 1923	86	37,621	23,395	22,783	38,233
Tissue:					
October, 1923	49	8,307	10,847	10,963	8,191
September, 1923	49	8,838	9,457	9,900	8,395
Hanging:					
October, 1923	10	4,749	6,745	7,209	4,285
September, 1923	10	4,236	5,513	5,000	4,749
Felts & Building:					
October, 1923	13	2,530	12,443	12,888	2,085
Septembre, 1923	13	3,210	10,009	10,428	2,791
Other Grades:					
October, 1923	58	12,599	15,142	14,825	12,916
September, 1923	58	12,550	12,634	12,738	12,446
Total—All Grades:					
October, 1923		185,577	407,330	406,386	186,521
September, 1923		187,507	363,039	362,009	188,537

Percentage Changes in Production and Shipments of Identical Mills in October, 1923, as Compared with September, 1923.

	Production	Shipments
Newsprint	+ 7%	+10%
Book	+12%	+12%
Paperboard	+16%	+13%
Wrapping	+10%	+13%
Bag	+35%	+24%
Fine	+ 8%	+ 4%
Tissue	+15%	+10%
Hanging	+22%	+44%
Felts and Building	+24%	+24%
Other Grades	+20%	+17%
Total—All Grades	+12%	+12%

The National American Wholesale Lumber Association was among those petitioning the National Chamber of Commerce to issue a referendum on the question of national forestry policy, and is now giving careful study to the several recommendations involved. The latest statement issued by this organization says: "Generally speaking, practically all of the recommendations meet with approval, but realizing the desirability of the lumber industry voting as a unit on this important matter, the association is co-operating with the National Lumber Manufacturers Association and others, and before finally recording itself will await an expression from the board of directors."

Wood Pulp Review for October, 1923

THE American Paper and Pulp Association in cooperation with the U. S. Pulp Producers association submit herewith statistics on pulp production, consumption and stocks for the month of October, 1923, and previous months.

Pulp Production

The statistical table following gives the number of mills reporting stocks as of the first of the month and end of the month, production during month, amounts used by mills producing same with amounts shipped to concerns other than those producing same.

GRADE	Number of Mills	On hand first of month	Production for month	Used during month	Shipped during month	On hand end of month
Ground Wood Pulp:						
October, 1923	106	63288	74091	87428	5243	44708
September, 1923 ...	103	79633	60777	71893	4677	63840
August, 1923	106	103297	66919	85708	7145	77363
July, 1923	113	116277	80721	87589	4211	105198
June, 1923	102	85810	100760	85103	4759	96708
Sulphite, News Grade:						
October, 1923	42	16730	52907	47204	5194	17239
September, 1923 ...	39	15800	37573	35226	3336	14811
August, 1923, ...	42	21091	47482	45059	5578	17936
July, 1923	38	15505	37224	36100	2817	13812
June, 1923	39	13780	44098	44684	2216	10978
Sulphite, Bleached:						
October, 1923	20	4725	20515	16667	5033	3540
September, 1923 ...	20	5529	16845	13891	3743	4750
August, 1923	20	5294	19179	14829	4140	5504
July, 1923	16	1211	11407	8864	2389	1365
June, 1923	13	2573	13497	11372	1674	3024
Sulphite, Easy Bleaching:						
October, 1923	9	1071	7771	6530	776	1536
September, 1923 ...	7	853	6532	5572	933	880
August, 1923	9	1183	7057	6501	695	1044
July, 1923	9	1699	5458	5078	501	1578
June, 1923	5	1070	4100	4132	145	893
Sulphite, Mitscherlich:						
October, 1923 ...	6	2347	6005	5020	951	2381
September, 1923 ...	6	2494	5030	4376	782	2366
August, 1923	5	1143	4915	3421	863	1774
July, 1923	6	1875	5462	4202	1179	1956
June, 1923	6	1156	5857	4572	840	1601
Sulphate Pulp:						
October, 1923	12	13051	12711	10398	4596	10768
September, 1923 ...	12	7055	10739	9039	1915	6840
August, 1923	14	8266	14527	10239	1877	10677
July, 1923	13	4365	13150	9472	3576	4467
June, 1923	14	5925	17662	11126	4203	8258
Soda Pulp:						
October, 1923	12	4695	12497	8460	4935	3797
September, 1923 ...	12	5816	12309	7789	5643	4693
August, 1923	11	1317	11946	8140	3399	1724
July, 1923	11	5761	8588	3890	4678	5781
June, 1923	9	6567	7291	3998	4110	5750
Other than Wood Pulp:						
October, 1923	3	239	143	117	137	128
September, 1923 ...	3	178	194	...	133	239
August, 1923	3	152	270	107	135	180
July, 1923	3	70	236	...	156	150
June, 1023	3	183	217	168	162	70
Total—All Grades:						
October, 1923		106146	186640	181824	26865	84097
September, 1923 ...		117358	149999	147786	21162	98409
August, 1923		141743	172295	174004	23832	116202
July, 1923		146763	162246	155195	19507	134307
June, 1923		117064	193482	165155	18109	127282

Waste in Pulp and Paper Industry

White Water—The Goose That Lays the Golden Eggs

By **B. T. McBain**

Assistant General Manager Nekoosa-Edwards Paper Co.

SINCE time began, it seems, there has been an unwritten law among paper and pulp mill men that it is a crime to even consider using all white or waste water created or formed in the manufacture of paper and pulp.

When I first undertook to stop this enormous waste in a large western mill of which I was then resident manager, the Superintendent, John Lewthwaite, dean of western paper mill operators and favorably known everywhere as "Uncle John", said: "Bert, you are right, stay with it. They'll claim it can't be done, that slime forms, that the results are not worth the effort, that the waste isn't much anyway and ten thousand other reasons why. Then they will buck you if you stay with it and try to prove it can be done."

As I have said so many times, and I'm not so sure but what that same gentleman coined the phrase, "Water is only a conveyor in the manufacture of paper". You never throw away any other kind of conveyor when once used, why throw away this one? How can water used once or more than once in the process be dirty? If a mill uses unfiltered water from a river, well or spring, it might and is almost sure to contain impurities. After going through the process once, much of these impurities have been removed and the more times the water is filtered through the pulp or paper, the cleaner it must surely be. This, therefore, should remove that objection.

As to slime: Any process using water without filtration chemicals is sure to form some slime in dead ends of pipes or in pipes little used, but with properly designed piping that can be and is cleaned regularly, as any properly regulated and managed pulp or paper mill should be, there will be little trouble with slime.

As to plugging shower pipes: It is true that a different type of shower pipe and outlet must be used; but if the amount of saving is from 4% to 10% of the amount of raw material consumed, where is the mill that cannot afford to buy a Kelley, Bird or other type of shower pipe designed and manufactured especially for the use of white water?

As to the use of white water ridging and spoiling wires, we have had some wires in use longer since we started this white water campaign than before and the average is not any worse than before.

True, white water isn't good to wash the floor with and is not good for felt showers, but who wants to wash floors or felts with the dollars this white water contains and with water that can be used at screens, head box, mixing box, flow box and on wire showers besides in the make-up.

It should be considered a crime not to use white water and there should be a law and an inspector following up the enforcement of that law, that would make the wasteful manufacturer, the wasteful superintendent, the wasteful foreman, the wasteful pulp maker and manufacturer use this valuable water which really can be termed "The Goose that Lays the Golden Eggs", because the saving of all white water being wasted in most mills will be sufficient to pile up the gold in the treasury of just the companies now either almost in the hands of the receivers or wondering why they cannot make ends meet.

Use your white water and save dollars.

The Northampton Paper Stock & Mill Supply Co., at 106 Hawley Street, Northampton, has been purchased by Burt Michelman. He will continue the business at 1 Isabella Street.

Transportation Within Papermills

Economies and Savings Made by Application of Electric Hoists to Movement of Materials and Refuse

By Russell B. Williams*

TRANSPORTATION, since the beginning of time, has been a problem of major proportions. The ability to move objects, people and thought from one place to another has, in a large measure, governed the progress of all peoples. Indeed, it can be said that transportation, in its broad sense, is basic in all things industrial and social.

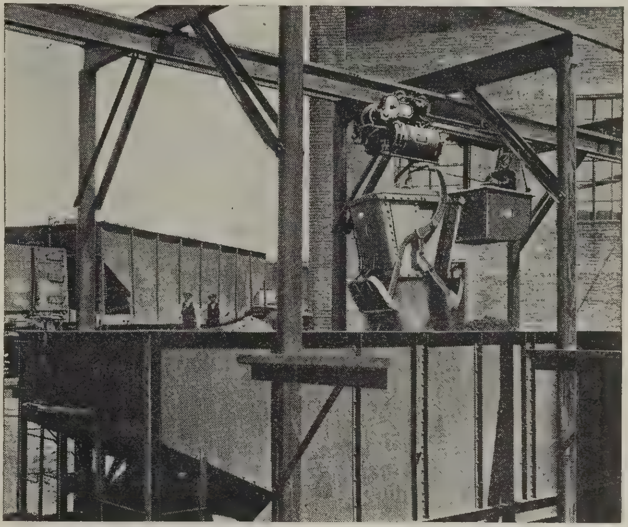
It is only reasonable to believe that many of the lives lost and much of the energy and time expended in the building of the pyraminds by the Pharoahs would have been saved if the rulers of that day had possessed facilities for transportation equal to our present day railroads. And in similar strain, the Revolutionary War would have endured for no such period as eight years had George Washington possessed a small fleet of airplanes and a few sets of radio.

But neither the Pharaohs, Washington, Alexander the Great, nor any other of the historical figures, had access to anything comparable to the modern implements designed for the transportation of people, things and thought.

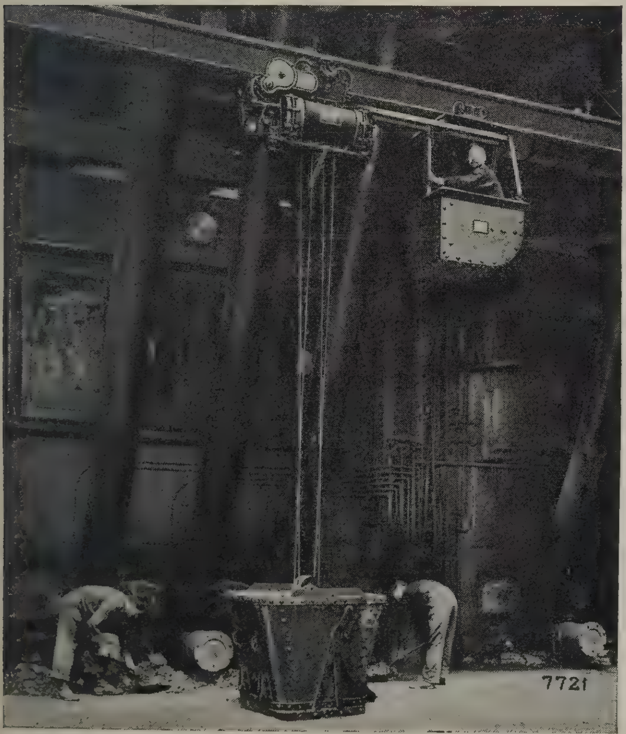
And we are poor prophets. We plan and work for the future—only to leave behind costly abandonments. Time was when men laid their business foundations, created their commercial enterprises and mapped their future successes on river boats, wagon haulage and warehouses. But the steam railroads came, and every plant, every enterprise, every success was altered and revised.

Thereafter, people tacked their faith to the steam propelled utility. But to little avail, for we now have electricity. And electricity has revolutionized industrial and social life from stem to stern.

Thus we constantly seek better methods of transportation. The bicycle, once the acme of speed and convenience, is now too slow. The tractor is supplanting the wheel-barrow; the elevator the hod; the automobile the chaise; the truck the dray. We realize, ever more fully, that given our modern appliances, hand labor and rule of thumb methods are not only obsolete but ruinous. With the result that we trim here, and pare there, the application of hand labor in all things pertaining to transportation. Moving it mechanically is better, cheaper and faster than moving it humanly.



Delivering ashes from the boiler room to gondola cars at plant of Philadelphia Paper Mfg. Co., with Link-Belt Electric Hoist.



Link-Belt Electric Hoist in power plant of Philadelphia Paper Mfg. Co.

In the solution of our transportation problems we spent many years striving to eliminate the human element from vertical handling. Though a man might more or less promisingly move an object along the floor, it required doubled and redoubled effort when necessary to reach new levels. So we invented continuous bucket elevators, spiral "Helicoid" conveyors, skip hoists, endless belt conveyors, platform elevators and other devices for the lifting and lowering of objects. And of these inventions few indeed have failed to far more than pay their way.

Now, there yet remained the problem of horizontal transportation. This presented difficulties, for in almost every instance, obstacles to progress were numerous. Machinery, work benches, piping, motors, everything on the floor, presented just that many reasons why the transportation of objects horizontally, by mechanical means, would be difficult.

So, in the solution of this problem—in the very act of scratching our heads and looking upward—we discovered the ceiling! With practically nothing on it! We had built them on every house, barn and factory, but had failed to consider them good for anything but shelter and the suspension of a light or two. After the discovery of our own ceiling, the rest was comparatively easy.

Thus it was that the modern electric hoist was made possible, a thing of rapid and ready transportation in so many plants and in so many duties. For, with the electric hoist, everything mechanical is out of the way, yet instantly available. And the act of transporting objects is identical with that of man power. The electric hoist lifts the objects from the floor, carries them to the desired place and sets them down.

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* Link-Belt Co., Chicago.

Electric hoists, as other machines designed for the transportation of objects, have proven an unqualified success. The economies effected through their wide application are on every hand, for they have long since passed the experimental stage and have received quite universal use.

Mr. Buhler, Chief Engineer for the Philadelphia (Pa.) Paper Manufacturing Company, for instance, employs two electric hoists; one in the removal of ashes from the boiler room, which hoist has been in constant use for over nine years, and one in the disposition of rubbish—carrying it from the mill to the incinerator.

In considering the savings or economies effected by the rubbish hoist, Mr. Buhler says: "It can safely be said that did we not have the electric hoist and were compelled to dispose of the rubbish by hand, it would be necessary to add two men to our payroll. This extra help, at prevailing prices, would run into a $12 daily labor cost. Saving twelve dollars a day totals $3600 annually, considering that we operate 300 days in the year. This is the gross saving effected by our electric hoist handling rubbish from the mill to the incinerator.

"Of course, to arrive at the *net* annual saving, it is necessary to deduct all expenses incident to the maintenance of this hoist. These expenses can be calculated as follows:

Interest on investment at 6 per cent	$ 72.00
Depreciation on 10 year basis (conservative)	120.00
Repairs (estimated)	160.00
Maintenance—oil and attention	50.00
Total expense, yearly	$402.00

Thus we have an expense of $402.00 for a piece of equipment that is saving us in labor costs alone $3600. The difference, $3,198, is the net annual saving."

New Houses For Mill Workers

The construction work on the ten new houses that are being erected in the village of Port Edwards, Wis., is progressing very rapidly. The work was started some two months ago and some of the smaller houses are nearing completion.

By letting the contract for ten houses at one time the Nekoosa Edwards Paper Company was able to secure the very lowest price for work of this kind. There are four different styles of houses ranging from a 4 room, one story to an 8 room, two story. These are all constructed on concrete foundations, the houses are of tile with stucco finish. There is a full sized basement and each dwelling is equipped with a furnace.

The prices range from $2,500 to $4,500. These prices include plumbing and heating, lighting, sewer, water connection and sidewalks.

The men will purchase these from the company through the Nekoosa Port Edwards Building and Loan Association which was recently organized to finance such things.

To date six of the houses have been sold and the rest are spoken for so that by the time the last house is completed some will already be occupied.

The necessity for these new houses was caused by the installation of two new paper machines at the Port Edwards plant of the Nekoosa Edwards Paper Co.

The formation of the Nekoosa Port Edwards Building and Loan Association makes it possible for every man in the Nepco employ to own his own home and it is expected to start the construction of another lot after the completion of those now under way.

A great many of the Nepco employes are stockholders of this building and loan association as well as quite a few in the paper mill itself.

The addition of these very attractive houses adds to the appearance of the village of Port Edwards, better known as the White City.

Athletics at Nekoosa-Edwards Mill

For many years the mills of the Nekoosa-Edwards Paper Company, Port Edwards, Wis., have sponsored baseball and basket ball teams. The baseball season is over for this year and the boys are looking forward with considerable interest to indoor baseball, basket ball, bowling and other winter sports.

The indoor baseball season has started; the first game played between the Port Edwards mill employees and the office force of the same mill resulted in a victory for the former. It has been proposed to start a four team league.

In bowling a league is also under way, the Superintendents having already started plans for their team. The season is young yet for this sport as well as basket ball but when the time arrives teams will be in good shape.

There are also wrestlers within the ranks. The home of the famous Strangler Lewis is at Nekoosa, and some of his first matches were with Dave Sharkey, pipe fitter foreman of the Port Edwards mill.

Two exhibition matches have been staged the past week by Strangler Lewis, one at Nekoosa, the other at Port Edwards. Dave Sharkey again toppled with the world's champion at the Port Edwards match and Dave gave the champ a stiff workout for a while. Most of the employes who were not on duty turned out to see these matches.

Many other winter sports will be resorted to when Jack Frost covers the ground and it is the intention of the management of company to provide good sport when the boys are not at work or in the Industrial Education school, which is very popular and for which the men are very appreciative.

The South as a Paper Center

"The southern states will be the paper producing states in the future," writes R. H. Laftman, assistant general manager of the Bogalusa Paper Co., Inc., of Bogalusa, La., in a letter in reply to an inquiry regarding the progress of kraft paper manufacturing in the South.

"In 1912, when I came South and the mill at Moss Point, Miss., was constructed," continues Mr. Laftman, "there were only about thirty tons of kraft paper made in Dixie. Today we have a productive capacity of somewhere around 600 tons per day. We are right in the midst of the construction of a new mill and there is no telling what our capacity will be in the next two or three years.

"I have just returned from a trip through the western part of Louisiana, where I visited the Bastrop Pulp and Paper company at Bastrop, which is producing about 30 tons of kraft per day on their 144 inch trim machine. They are making a good sheet and have a fine mill.

"The Brown company, of Orange, Texas, have started construction work on there new plant at West Monroe, La., but I do not think they will get in operation before the latter part of next year.

"The Industrial Lumber company, at Elizabeth, La., have started to manufacture kraft paper and will have a capacity of about 30 tons per day.

"'The Southern Paper company, of Moss Point, Miss., is installing a 144 inch trim machine, and will get in operation about the same time our new mill is ready—about May of next year."

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

Final Session of Senate Committee

Chairman R. S. Kellogg of National Forestry Program Committee Sums Up Situation and Suggests Scope of Plan

The final session of the United States Senate committee on reforestation for the taking of testimony was held at Washington, D. C., November 22 and 23, and was marked by a general summing up of the situation in behalf of the National Forestry Program Committee by its chairman, R. S. Kellogg, secretary of the Newsprint Service Bureau.

The National Forestry Program committee, formed in 1920 by the American Paper and Pulp Association as the moving spirit in the effort to unite great American industries in support of a rational forestry program, includes the National Lumber Manufacturers Association, the Association of Wood Using Industries, the American Newspaper Publishers Association, the Society For Protection of New Hampshire Forests, the American Forestry Association, the American Tree Association and the Western Forestry and Conservation Association.

This committee's activities really gave momentum to the national movement for a general forestry policy, and its representatives have been heard at various sessions of the United States Senate committee. In the west, for instance, E. T. Allen appeared before the committee; in the east, Dr. Hugh P. Baker appeared by request at the opening meeting in Washington, and again as representative of the paper industry at Bangor, Maine; finally, at the closing session in Washington, Mr. Kellogg summed up the entire situation as it has been viewed by the National Forestry Program Committee.

Kellogg Summarizes Adequate Plan

Mr. Kellogg said that the Senate Committee hearings have demonstrated in the weight of evidence submitted from coast to coast that any adequate plan for the maintenance of our timber supply must include:

Effective fire prevention on both public and private forest land.

Scientific utilization of forest products.

Forest planting upon large areas of public land.

A substantial proportion of well-distributed forest land in public ownership upon which there may be grown the older classes and larger sizes of timber which we cannot expect in sufficient quantity from private initiative.

It is futile to think of depending upon foreign sources for any considerable future supply of wood products. We must grow more timber at home or alter the entire plan of American life and industry.

It is helpful to state a few truths as to the methods of forestry:

Forestry is not a law compelling the planting of a new tree for every one cut.

Forestry is not a law limiting the cut to certain sizes and kinds of trees.

Forestry is not arbitrary control by any public body over the operations of private enterprise.

Forestry is not fire prevention—though this is everywhere necessary.

Forestry is the application of definite scientific principles to the growing and using of timber crops.

Forestry is and must be practiced by Government upon public property in order to insure some supply of forest products for the people.

Because of the long time investment and comparatively small return thereon, together with hazards of fire, insect, fungus and storm, a considerable area of publicly owned forest will always be needed although public ownership of the entire forest area of any country is neither necessary nor desirable.

The proportion of total forest area in public ownership of some form in the leading European countries in the practice of forestry is 35% in France, 53% in Germany and 24% in Sweden. Private capital engages in the growing of timber and cooperates with the public authorities in so doing in those countries, because capital gets a fair return therefor.

Forestry is and will be practiced by the private owner in the United States when he can see that it will pay him to do so.

Since the larger proportion of the forest area of the United States is likely always to be in private ownership, any adequate forestry program must include measures which will promote permanent timber production on such land.

Any practical solution of the problem of continuous forest production must be based upon the principle of Federal leadership and cooperation with the States and timber land owners.

The Ultimate Program

The ultimate program must include:

1. The determination for each forest region of the essential requirements for the maintenance of forest productivity.
2. Sufficient national appropriations to be expended in co-operation with State and other agencies to make such requirements effective.
3. A survey of forest resources and land classification to determine:
   What timber we have
   How much we need
   How much can be grown
4. Provision for extensive research into problems of timber growth and utilization.
5. Forest planting upon a large scale, by both Federal and State agencies.
6. The divising of better methods of forest taxation and their adoption by the States.
7. The continual building up of publicly administered forests through purchase, exchange, transfer from the public domain and the several forms of public reservation until 40% of the ultimate forest area of the United States is permanently devoted to timber growing or watershed protection under public control.

At present 20% of the forest area of the United States is publicly owned, but the situation is badly unbalanced. From the Rocky Mountains West, 70% is in public ownership and from the Rockies East, but 3%.

The Immediate Program

The immediate program should include:

1. A Federal appropriation of not less than $1,000,000. yearly for co-operation with the States in fire prevention, the National Government to spend no more for this purpose in any State than the State itself spends therefor, including the expenditures of forest owners required by State law.
2. A Federal appropriation of $5,000,000. yearly for the purchase of forest land upon the watersheds of navigable streams.
3. A Federal appropriation of $1,000,000. yearly for forest research and investigation, including studies in forest taxation.
4. An initial Federal appropriation of $100,000. yearly for forest planting in cooperation with the States and otherwise with provision for increases up to a total of $1,000,000. yearly within 10 years as planting facilties and forest protective measures are improved.
5. A relatively small initial appropriation with reasonable yearly increases for co-operation with the owners of forest land, similar to the present appropriations for cooperation with the owners of farm land. The Secretary of Agriculture recommends $50,000. to start this work.
6. Authorization for determination by the Secretary of Agriculture of what lands, owned by the United States and not now embraced in National Forests or National Parks, are valuable chiefly for the production of timber or the protection of watersheds and provision for their ultimate inclusion within the National Forests or such other protection and administration as will promote their best use in the public interest.

None of these items can be rightly charged to the national expense account. They are investments in the future and permanent welfare of the country—an insurance upon one of our greatest and most necessary natural resources.

A New Northeast Experiment Station

An important statement on the purpose of the new Northeastern Forest Experiment Station at Amherst, Mass., was given by its director, S. T. Dana, at the last meeting of the New York section, Society of American Foresters.

This station which will, more than any other of the forest service stations, study problems of the paper industry's timber supply, was established at Amherst, Mass., because the forest service considered it advisable to tie up the Forest Experiment Station with the Agricultural Experiment Station for the better handling of utilization work. Amherst also is centrally located and meets necessary requirements for the Adirondacks in New York, the Green mountains in Vermont, the White mountains in New Hampshire and the extensive area of Maine. The station will develop a form of cooperation similar to the Madison, Wis., station, but will also cooperate with all agencies.

Mr. Dana requested the advice and suggestion of the New York section in relation to a plan for organization of a Forest Research Council in the Northeast. It was his idea to have the experiment station engage one of its agents in obtaining information on forestry projects and lay such information before the council. The council itself would act as a clearing house, advise where duplication of effort exists, round out a program of efficient work, and be advisory in relation to all organized activities in forest research.

The method suggested for getting the council under way was as follows:

The New York and New England sections of the society should take the leadership; they should suggest the council members, taking care that all of the various agencies be represented. There should perhaps be frequent changes in the make-up of the council brought about through short terms of office for convenience in obtaining representation of the different interests.

Some of the interests concerned in the council should be the following: The State Forestry departments, the schools, the agricultural stations, the lumber and pulp companies, and so on.

Mr. Dana's address was followed by general discussion during which the following points were brought forward: (1) If council can cooperate with the experiment station without formality its work will be effective, otherwise it would be better for the experiment station to have a free hand. (2) There is a certain psychology in the idea of a council—the interests concerned would be grateful for the privilege of making suggestions to the experiment station and would take pride in extending their cooperation. (3) Recognition for the station as an important part of the forestry effort of the region would be more general as a result of the work of the council. (4) Appropriations would be more easily obtained as a result of the assistance of the council.

The section endorsed the idea of an advisory council.

To Fight Southern Pine Beetle

The appearance of the southern pine beetle in various portions of the South is followed by the offer of assistance in fighting this pest by the Bureau of Entomology of the Department of Agriculture.

This beetle at times finds conditions ripe for its rapid multiplication, and unless care is taken the pest may spread widely. Cutting the infested trees will aid in the fight against the spread of the pest, and the timber can at the same time be saved.

The Bureau of Entomology offers to send men into the South where the insect is reported and advise the owners as to what trees should be cut and what other steps are necessary to prevent the spread of the insect to untouched areas.

The damage has been felt in many states, including Virginia, West Virginia, the Carolinas, Georgia, Alabama, Mississippi, Louisiana, Texas and Florida. The range of the beetle is further north and south than at any time since 1893.

Governor Pinchot Suggests a Lumber Tax

In searching for a way to force timberland owners to handle their timber operations in conformity with forestry ideals, Governor Pinchot of Pennsylvania has offered to the U. S. Senate Committee on Reforestation the suggestion that all lumber be taxed, and the proceeds from this tax be used to pay a bonus to those lumbermen who operate scientifically.

He urges that the tax laws be thus used to aid the man who handles his lands with a view to future production. and to penalize the man who handles his land otherwise.

He made this suggestion at the Harrisburg hearing of the Senate committee, just prior to the final session in Washington.

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Paper Industries Exchange Closed

At a meeting in the offices of the Robert Gair company at 350 Madison avenue, New York, on November 22, the Board of Directors of the Paper Industries Exchange voted to close the exchange both in Chicago and New York on December 1.

This news came as a distinct surprise in the trade. No one, perhaps aside from those in very close touch with the exchange, had any inkling that such action was contemplated, as it was understood that the group of board manufacturers who had organized the exchange was entirely satisfied with the results achieved by the operation of the exchange since it was opened in Chicago about three months ago, and in New York City approximately six weeks later.

It was found, however, according to information secured following the announcement that the Exchange would be dissolved and its operations discontinued, that those members of the box board manufacturing industry who were behind the exchange had become somewhat discouraged because they were not able to enlist the co-operation of a good many board mills in the proposition. The Exchange membership comprised about 50 per cent. of the box board manufacturers of the United States, and it was realized that in order to make the trading body a complete success it would be necessary to have at least 80 per cent. of the board mills as members. Finding that it would be difficult to induce this, many board manufacturers to join, it was decided on the suggestion of some of the members to close the exchange and to organize a new board manufacturers' association along the orthodox lines of the usual trade organization.

George A. Gair, president of the Paper Industries Exchange, and president of the Robert Gair company, who was one of the prime movers in organizing the exchange, stated that it was deemed advisable to close the exchange rather than attempt to conduct the trading body with only about half the board manufacturers of the country co-operating in its functioning. In officially announcing the closing of the exchange, Mr. Gair said:

"It is the belief of those who proposed the exchange and who lent their efforts to establish it in New York and Chicago that the idea of an exchange in the paper, board and paper stock industry was introduced a little too early; that the industry was not ripe for this method of doing business just yet. Of course, we had no way of telling this beforehand, and we felt that once the exchange was established, and paper and board manufacturers and suppliers of raw material to these mills were acquainted with the benefits to be derived from an exchange they would all readily become members."

"However, we learned that many in the industry were not in favor of the exchange system of trading although operations on the exchange both in New York and Chicago—particularly in the latter city—met with what we considered a fair degree of success. We feel confident that the exchange idea will be revived in this industry in the not distant future, and that in time a Paper Industries Exchange will be established which will perform a great service to the industry at large and to its individual members."

Trading on the exchange in New York was discontinued on November 23. Once the news that the Exchange would be closed leaked out, traders failed to make an appearance in the exchange room in the Pershing Square building, 100 East Forty-second street, in this city, and no transactions were recorded after that date. Trading continued on the Chicago Exchange, however, until November 30, with a fairly large volume of business consummated in waste paper during the final week.

In the place of the Paper Industries Exchange, box board manufacturers plan the organization of a new trade association to be known as the Board Manufacturers' association. This body, it is intended, will perform the usual services of a trade organization, and will continue the statistical service of the exchange. A meeting is scheduled to be held in Chicago on December 10 at which the new association will be formed.

Thanksgiving Day Shutdown

The officers of the Nekoosa Edwards Paper company at Port Edwards, Wis., arranged for the shut down of all its mills on Thanksgiving Day which is the first time in their history that they have shut down other than 4th of July and Christmas.

This is the first shut down for the year of 1923 and while other mills in Wisconsin have had one or more machines down for a considerable period, business has been good with the mills at Port Edwards and Nekoosa.

The shut down continued through the week starting Thursday morning and gave many a chance to get a few days rest. The weather is good—the best Fall of record for many years and the roads fine in all directions.

It was hoped that the resumption of operations Monday, December 3rd, would find conditions so improved that no further shut down this year or winter will be necessary.

New Finishing Room for Marinette Mill

Ever since the installation of number three and four machines at the Marinette plant of the Marinette and Menominee Paper company, the need of a larger finishing room has been felt and finally decided upon.

Work is now being rush on the new building, which will be 210 feet long by 50 feet wide, consisting of basement and one story, of steel and concrete construction.

This is all being done by the company's own men under the supervision of D. G. Moon, the company's construction engineer, and is expected to be ready by January first.

The Rockingham Paper Co. has been incorporated in Rockingham, N. C., with a capital of $75,000, and will erect a plant with a capacity of eight to ten tons of paper per day. H. C. Wall is president, and F. L. McCall is secretary and treasurer.

Construction News

Kalamazoo, Mich.—The Kalamazoo Vegetable Parchment Co., River road, has plans in preparation for the erection of a new one-story plant addition, 100x200 ft., estimated to cost about $85,000. Billingham & Cobb, Press building, are architects.

Appleton, Wis.—The Riverside Fiber & Paper Co., is planning for the installation of a new filtration plant, estimated to cost $50,000. Work is in progress on enlargements and improvements in the mills, including the installation of additional equipment, estimated to cost $400,000.

Manchester, Conn.—The Rogers Paper Mfg. Co., has commenced improvements at its West mill on Charter Oak Street, to include the installation of a new circulating system, for which a contract has been awarded to the J. O. Ross Engineering Corporation, New York.

Bruce, Wis.—The Chippewa River Power & Fibre Co., has disposed of its power rights between Bruce and Radisson, Wis., to the Byllesby Engineering & Management Corporation, Chicago, operating electric utilities in this section, which purposes to use the property in the near future for hydro-electric power construction.

Anacortes, Wash.—The Consolidated Paper Co., has tentative plans under consideration for the construction of a new paper mill, estimated to cost in excess of $100,000.

Royalton, Minn.—The Pike Rapids Power Co., St. Cloud, Minn., has plans for the construction of a new hydro-electric power plant at Blanchard Rapids, Mississippi river, near Royalton, with initial output of 24,000 kw. to be used primarily for paper mill service in this section.

Port Huron, Mich.—The Dunn Sulphite & Paper Co., Detroit, Mich., has acquired a local tract of land on the St. Clair river, as a site for the construction of a new pulp and paper mill. It will consist of a main unit and auxiliary structures, with power house and machine shop, and is estimated to cost approximately $500,000, with equipment. It is purposed to complete plans at an early date.

Dayton, Ohio—The Elam Paper Co., Marion, Ind., will soon lay foundations for its proposed new two-story mill on local site. It will total about 70,000 sq. ft. of floor area. The company proposes to remove its Marion plant to this location, and install additional equipment for increased output.

Three Rivers, Mich.—The Eddy Paper Corporation, has purchased a tract of property in the vicinity of its local mills Nos. 1 and 3, for future expansion. This makes a total of 23 acres now being held in this section for reserves by the company.

Chicago, Ill.—The Meyercord Co., 5339 West Lake Street, manufacturer of paper decalmanies, etc., has awarded a general contract to F. G. Bear, 19 South La Salle Street, for the erection of an addition to its plant on West Lake Street, to be 110x155 ft., estimated to cost $200,000, including machinery. J. Floto, 53 West Jackson Boulevard, is architect.

Indianapolis, Ind.—The Hoosier Paper Specialty Co., will operate a new local works at 1115 South Meridan Street.

Ballston Spa., N. Y.—The Saratoga County Paper Co., Inc., manufacturer of boxboard, etc., contemplates the installation of additional equipment, including four beaters and auxiliary apparatus. Purchases will likely be made early in the coming spring. F. A. Talbot, Jr., is treasurer.

Paterson, N. J.—The Van Ness Paper Box Co., 104 Gray street, has completed plans for the erection of a new one-story addition, 40x140 feet, estimated to cost $25,000. J. C. Van Vlandern, 140 Market street, is architect.

Levis, Que.—L. N. Haurd, 129 Commerciale street, is at the head of a project to construct and operate a paper and pulp mill in this section, to be used primarily for the production of newsprint, estimated to cost $1,500,000. A site has been selected on the Megiscane river in Temiscaminque county. The same interests propose to construct a hydro-electric generating plant in this same district, with initial capacity of about 15,000 hp.

New Orleans, La.—The Seinzhenier Paper Co., is planning for the reconstruction of its building on St. Peters street, recently destroyed by fire with loss of about $100,000, including equipment. The new structure will cost approximately a like amount.

Smooth Rock Falls, Ont.—The Mattafma Pulp & Paper Co., Ltd., is planning for the installation of equipment for the production of unbleached sulphite pulp, in connection with proposed expansion.

Arlington Heights, Ohio—The Arlington Heights Paper Co. has awarded a general contract to the Ferro Concrete Construction Co., Cincinnati, for the erection of a one-story addition.

Hickory, N. C.—The Hickory Paper Box Co. has acquired a local site and plans for the erection of a new plant. Details will be arranged at an early date.

Tomahawk, Wis.—The Tomahawk Kraft Paper Co. will commence the erection of a new addition to its mill to be equipped as a digester building. It is estimated to cost about $85,000.

Kingsport, Tenn.—The Mead Fibre Co. is pushing construction on a new local mill to be used for the manufacture of magazine and book papers, and plans to have the plant ready for operation at an early date. It will cost in excess of $225,000, with machinery.

Muskegon, Mich.—The Central Paper Co. is completing the construction of a new mill addition, and will inaugurate production at an early date. It will provide for extensive increase in output.

Chicago, Ill.—The Western Bag & Paper Co. has filed plans and will commence the immediate erection of a new two-story works at Sixty-fourth street and Wentworth avenue, to be 60x100 feet, estimated to cost close to $50,000.

New York, N. Y.—Fire recently damaged a portion of the plant of the Newland Paper Box Co., 103-5 Greene street. The estimated loss has not been announced. The damaged will be replaced.

Hopewell, Va.—The Hummel-Ross Fiber Co. has work nearing completion on its new local pulp and paper mill, and plans to place the unit in service on a capacity basis at an early date.

New Companies

Brooklyn, N. Y.—R. A. Bonime, Inc., has been incorporated with a capital of $100,000, to manufacture paper boxes and containers. The incorporators are D. Kraus, F. Frasch and R. Margolies. The company is represented by Gordon, Tally & Gordon, 347 Fifth Avenue, New York.

Perth Amboy, N. J.—The G. M. Agreen Co., has been incorporated with a capital of $50,000, to manufacture and deal in paper products. The incorporators are Gustave M. Agreen and Edward Lembcke, both of Perth Amboy.

Buffalo, N. Y.—The Buffalo Envelope Co., has been incorporated with a capital of $200,000, to manufacture paper specialties. The incorporators are F. McB. and A. M. Dorris, and L. G. Reineman. The company is represented by F. J. Knorr, attorney, Albany, N. Y.

Indianapolis, Ind.—The Indiana Paper Co., has been incorporated with a capital of $125,000, to deal in paper products. The incorporators are Fred J., Harry C., and Elmer H. Ostermeyer, all of Indianapolis.

Wilmington, Del.—The Blanche Brothers Envelope Co., has been incorporated with a capital of $25,000, to manufacture and deal in paper specialties. The company is represented by the Colonial Charter Co., Ford building, Wilmington.

New York, N. Y.—H. B. Wadsworth, Inc. has been incorporated with a capital of 100 shares of stock, no par value, to manufacture paper products. The incorporators are E. Stern, M. Lieberman and S. Reitberg. The company is represented by Boskey, Schiller & Sterling, Bar building, New York.

St. Charles, Ill.—The St. Charles Paper Box Co. has been incorporated with a capital of $25,000, to manufacture paper boxes and containers. The incorporators are Louis Rockwell, J. W. Chaffee and Harry G. Hempstead, 22 East Main street, St. Charles. The last noted represents the company.

Brooklyn, N. Y.—The Amherst Paper Co. has been incorporated with a capital of $20,000, to manufacture and deal in paper products. The incorporators are C. Littlefield and W. Matthews. The company is represented by J. J. Hegt, 126 Liberty street, New York.

Wilmington, Del.—The Acme Paper Board Co. has been chartered under state laws with capital of $2,100,000, to manufacture paper and pulp products. The company is represented by the Corporation Service Co., Equitable building, Wilmington.

Jersey City, N. J.—The New York Folding Box Co., 8 Bates street, has filed notice of organization to manufacture and deal in paper boxes. The company is headed by Harry Kaplan, 85 Van Winkle avenue, Jersey City.

Financial

New York, N. Y.—The American Paper Forming Co., 152 West Forty-second Street, a Delaware corporation, has arranged for an increase in capital from $350,000 to $650,000, for expansion.

New York, N. Y.—An involuntary petition in bankruptcy has been filed against the Freedom Paper Co., 121 Sullivan Street. The liabilities are stated to be about $90,000, and the assets, $70,000. James S. Wemyss has been appointed receiver.

Detroit, Mich.—The collector of customs has been advised by the Treasury department, Washington, D. C., that the proper rate of duty on woolen paper machine endless felts is 7½ cents per pound. The department, it is pointed out, concurs in the practice at the Port of New York in assessing the duty on this commodity as woolen rags, under paragraph 1105 of the Tariff act.

Phillipsburg, N. J.—The receivership recently appointed for the Durham Pulp & Paper Corporation, with local mill and branch plants in a number of places, has been dismissed by Federal Judge Lynch. The company's assets are estimated at $2,000,000, and liabilities at $1,000,000.

Reading, Pa.—A case is under way in the local court to decide the possession of the plant and business of the Doty & Scrimgeour Co., 319 River street, manufacturer of paper products, now in receivership.

Plant Operations

The International Paper Co., New York, has resumed operations on a capacity basis at its plant at Glens Falls, N. Y., for the first time since last July. Recently, the mill has been running on a three-day week basis. It is proposed to continue on the full operation basis for an indefinite period.

Paper box manufacturing plants at Buffalo, N. Y., are maintaining operations on a capacity basis and practically every factory of this kind in the city has booked orders to insure a continuance on this schedule for some time to come. Normal business for this time of year has been exceeded, it is stated, in a number of instances, running as high as 25 percent in advance of regular sales. The call is for boxes and containers of all kinds and no one variety is taking a pronounced lead over others.

Paper manufacturers at Philadelphia, Pa., are operating at about 75 percent of normal capacity, and fall business, it is stated, has come below the general average expected. The demand, however, is noticeably increasing, and a number of mills expect to advance the present basis of operation in the near future.

Election of Officers for 1924

Ferris J. Meigs was reelected president of the Empire State Forest Products Association for 1924, with W. L. Sykes of Conifer, N. Y., vice-president. The directors include Geo. N. Ostrander of Glen Falls, E. A. Sterling of New York City, T. H. Stirling of Mechanicsville, J. N. Carlisle of Watertown, W. C. Hull of Tupper Lake and C. L. Fisher of Lyons Falls.

While enjoying a game of golf in Montreal a few days ago, T. P. Howard, comptroller of the Howard Smith Paper Mills and general manager of the Phoenix Bridge and Iron Works, was seized with a violent illness which nearly caused complete collapse. Although still under treatment Mr. Howard is considered out of danger. He is a cousin of C. Howard Smith, head of the organization.

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Felts and Jackets

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For thirty-two years we have supplied America's leading paper mills with Pulp, Cylinder, Harper, Fourdrinier and Press Felts.

Let us show you how we can help you. Write—

Appleton Woolen Mills
Appleton, Wisconsin

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WIRE WORKS

Green Bay
Fourdrinier
Wires

Can't Be Beat

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**BRASS
AND PHOSPHOR
BRONZE**

You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

Write us for prices and samples

GREEN BAY
WIRE WORKS
GREEN BAY
WISCONSIN

Improvements in Fine Papermaking

(Continued from page 4)

many years ago that prices were estimated by some rule-of-thumb method; when rags were put through on a guessed cost and when a convincing argument in the mill might change costs and figures. Mills that have installed good systems have since ascertained that certain grades which seemed to bring in a fair return were really sold at a great loss, while seemingly poor priced papers were bearing the stockholders' dividend burden.

One method of estimating costs years ago was to take the price of a rag and multiply it by a number. If at the end of a period the profit and loss statement did not come up to expectation this number was changed. When cost systems began to multiply mill men started working on how to keep the quality and still sell paper at a lower price. Cost systems, among other things, give the value per unit of each process for comparison and impress the advisability of trying to lower costs in the different departments.

We may note in passing that improvements are being made in the use of liquid chlorine for bleaching, wire guides, press rolls, oil feeding to machine bearings, handling of materials, machine hoods, mill ventilation, temperature control, and others too numerous to mention. The boiler plant comes in for its share.

Enclosing steam dryers to recover heat was proposed at the Appleton convention in October and the trade journals are carrying advertisements showing devices for putting on a machine wire in an hour, which is convincing proof of the fact that the industry is progressing and will continue to advance in the future.

John C. Schmidt

Following an operation at St. Luke's hospital in New York City, John C. Schmidt, president of the Schmidt & Ault Paper Co., died November 15 at the age of 64 years.

Mr. Schmidt had been in failing health for several weeks but was able to be about his home at York, Pa. His ailment was not definitely diagnosed until early in November, when an operation was declared necessary.

Surviving him are his wife, Mr. Anna M. S. Schmidt; one son, Henry D. Schmidt of York; two daughters, Mrs. Luther Eisenhart of Princeton, N. J., and Miss Mary D. Schmidt of York; one brother ,George S. Schmidt, attorney of York; one sister, Mrs. Mary Parrot of New York City, and two grandchildren.

Lewis Hallock Nash

Announcement of the death of its president is being sent out by the Nash Engineering Company, of South Norwalk, Conn.

The death of Mr. Nash occurred November 17th and its announcement will be received with great regret and sorrow by the paper industry, in which he was well known and greatly esteemed.

Northwest Superintendents Active

A committee of the Northwest division of the Superintendents Association met at the Whiting hotel, Stevens Point, Wis., on Sunday, November 18th, to consider location for the next spring meeting.

Those present were: L. E. Smith, chairman, Nekoosa; A. G. Stone, vice chairman, Marinette; Wm. Kraske, secretary, Wisconsin Rapids, Wis.; J. H. Slater, Escanaba, Mich.; F. C. Boyce, Brokaw, Wis.; John Adams, Stevens Point; D. B. Davies, Green Bay; B. T. McBain, Port Edwards.

The committee selected Marinette, Wis., for the next convention and set the dates as Friday and Saturday, May 2 and 3, 1924.

A. G. Stone of Marinette and Menominee Paper Co., Marinette, Wis., was appointed chairman of the committee of arrangements and requested to name his own assistants for appointment by the chairman.

The officers were appointed for the program committee.

Arrangements will be made to visit mills at Shawano, Peshtigo, Oconto and Marinette in Wisconsin; Menominee and Escanaba in Michigan.

A committee was appointed consisting of Chairman Smith, Slater and McBain to arrange and report regarding the 1924 Fall convention to see if Beloit and Madison, Wis., would be desirable places, the former on account of the paper machinery plant of Beloit Iron Works and the latter on account of the Forest Products Laboratory and State capital.

When a Canadian Pacific freight train was ditched at Woodstock, Ont., a large quantity of newsprint paper was destroyed. Many rolls of the paper and a quantity of printing machinery were smashed up and some of it dumped in a plowed field near the road bed.

BUREAU OF CANADIAN INFORMATION

The Canadian Pacific Railway through its Bureau of Canadian Information, will furnish you with the latest reliable information on every phase of industrial and agricultural development in Canada. In the Reference Libraries maintained at Chicago, New York and Montreal are complete data on natural resources, climate, labor, transportation, business openings, etc., in Canada. Additional data is constantly being added.

DEVELOPMENT BRANCH

If you are considering the establishment of your industry in Canada, either to develop Canadian business or export trade, you are invited to consult this Branch. An expert staff is maintained to acquire and investigate information relative to Canadian industrial raw materials. Information as to such raw materials as well as upon any practical problem affecting the establishment of your industry, including markets, competition, labor costs, power, fuel, etc., is available.

No charge or obligation attached to the above service. Business men and organizations are invited to make use of it.

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Madison Ave. at 44th St.
New York

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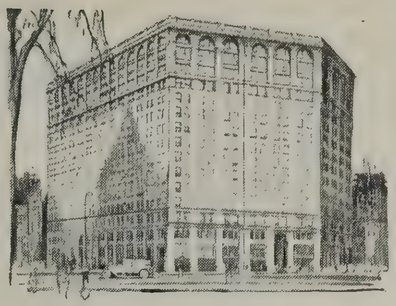


New York Headquarters for Paper

TO those leading manufacturers and selling representatives who maintain their New York offices and salesrooms in The Fifth Avenue Building and with whom, as tenants, we have the good fortune to be associated, we extend the season's greetings. It is our wish and belief that 1924 will be, for them, a Happy and Prosperous Year.

THE FIFTH AVENUE BUILDING
Broadway and Fifth Avenue
at Madison Square, New York
"More than an office building"

Doings in Canadian Paper Field

Riordan to Be Liquidated

The Riordon Company has gone into liquidation. This does not mean that the plan or reorganization on which those interested have been working for some time will not be carried through. On the other hand, it is said that liquidation was a step that would have to be taken anyway prior to reorganization. It was hastened by the fact that the time extension granted by the creditors expired November 19, and that under the Bankruptcy act, as amended, further extension was impossible.

In order that the receivership might be a friendly one, the bondholders themselves took the step that placed the company in liquidation. Gordon W. Scott of P. S. Ross & Sons, Montreal, was appointed provisional liquidator.

An agreement has been arrived at between the reorganization manager and the committee representing the first mortgage to bondholders, subject to the approval of the latter on December 6th.. Under the reorganization it had been proposed to pay these bondholders at least $1,500,000 in cash for their past due interest and interest up to June, 1924. The committee has now agreed to accept second preferred stock in lieu of cash. This saving of $1,500,000 will give the company a working capital of $6,000,000, and the arrangement generally is believed to have removed the last important obstacle to the carrying out of the reorganization.

It is now proposed to go ahead with the development of the Chelsea, Ore., power scheme within six miles of Ottawa, which will increase Riordon's earning power. The plants of the company are working to capacity.

It is understood that the Chesea scheme, which is to be carried on under the Gatineau Power company, it to have the same capacity as that of Laurentide Power. It is understood also that already financial houses have undertaken to provide the money required. The common stock of Gatineau Power will be held by the Riordan company.

October Pulp and Paper Exports

According to the report issued by the Canadian Pulp and Paper association the total value of the exports of pulp and paper in October was $12,289,952, an increase of $574,083 over the total for September and of $1,884,519 over October 1922.

Details for the various grades of pulp and paper are given below:

	October 1923 Cwts.	October 1923 Value	October 1922 Cwts.	October 1922 Value
PAPER:				
Newsprint	2,014,438	$7,505,041	1,631,042	$5,811,954
Book Paper	4,307	34,415	6,983	49,035
Other Paper and Mnfrs.		632,029		607,977
		$8,171,485		$6,468,966
PULP:				
Sulphate	277,413	$ 903,974	281,777	$ 875,876
Sulphite Bleached	216,685	871,873	361,497	1,432,687
Sulphite Unbleached	386,750	1,061,432	368,215	885,601
Mechanical	699,836	1,281,188	528,705	742,303
	1,580.664	$4,118,467	1,540,194	$3,936,467

The distribution of these exports in October was as follows:

To:	Paper	Pulp	Total
U. S. A.	$7,491,691	$3,526,828	$11,078,519
United Kingdom	143,129	351,711	494,840
All Other	536,665	179,928	716,593
	$8,171,485	$4,118,467	$12,289,952

Pulpwood exports in October amounted to 102,138 cords valued at $1,078,707, this was a decline from the previous month when the amount exported was 112,366 cords valued at $1,172,814. There has been a large increase in pulpwood exports for this year compared with the last two or three years.

In the first ten months of this year there were exported 1,260,871 cords compared with 860,936 cords in the same months last year.

For the twelve months ending October 31st, 1923, there has been a considerable increase in the exports of pulp and paper over the figures for the previous twelve months. A glance at the table given below shows that this increase has taken place in practically every grade of pulp and paper. In the case of sulphate pulp while the actual quantity exported has been slightly less the value was greater, denoting better prices. The values for total pulp and total paper are well above the totals for the previous twelve months.

Details for the principal grades are as follows:

	12 Mos. to Oct. 31-1923 Tons	12 Mos. to Oct. 31-1923 Value	12 Mos. to Oct. 31-1922 Tons	12 Mos. to Oct. 31-1922 Value
Newsprint	1,119,981	$83,644,006	919,192	$66,549,354
Book Paper (cwts)	46,778	341,772	29,019	211,332
Bond & Writing (cwts)	22,062	233,600	12,125	125,903
Kraft & Wrapping	19,972	2,972,090	17,304	2,623,371
Mechanical Pulp	346,290	$11,498,029	324,799	$ 9,593,181
Sulphite Blchd	156,263	13,489,992	144,828	11,735,152
Sulphite Unblchd	237,518	12,605,676	205,321	10,682,751
Sulphate	147,201	9,568,028	149,166	9,133,797
Total Paper		$91,446,279		$72,822,828
Total Pulp		47,161,725		41,142,881

May Prohibit Spruce Export

Chairman Picard of the Canadian Pulp Wood commission says that whatever might be the decision of the commission on the question of the placing of a general embargo on exports of pulp wood, at least a recommendation will have to be made for the placing of it on certain varieties of timber, notably spruce, nor does he think that it would be strongly opposed by such timber holders.

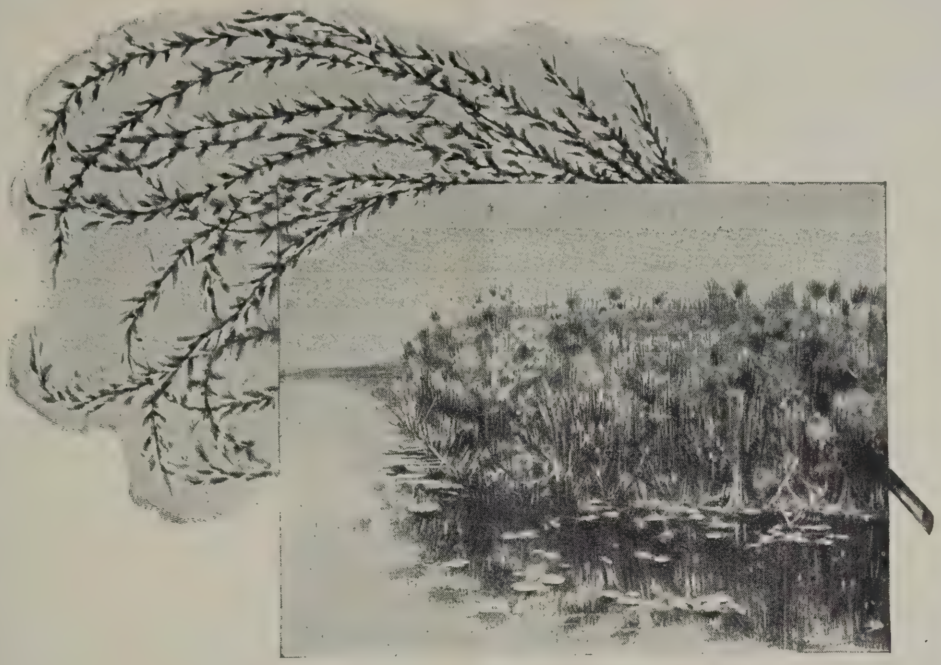
At the Toronto sittings, he threw out the suggestion that it might be advisable to place an export tax on shipments of pulp wood going out of the country, but this has not been received with favor.

His statement respecting an embargo on exports of spruce is important, for while he may not have spoken officially for the Commission still due weight must be given to his opinion as chairman.

Favors Notice of Embargo

An alternative to an immediate embargo on the exportation of pulpwood from Canada which aroused the interest of the commission in session in Toronto, was put forward by A. H. Howard, pulp buyer and operator of South River, Parry Sound district, Ont.

Mr. Howard suggested that the United States mills should be given two or three's years' notice if the Dominion decides in favor of an embargo. That delay, he said, would give the United States mills an opportunity to establish plants on this side of the line and establishment of these mills would do much to alleviate the difficulties which he feared would confront the settlers if an embargo were made effective immediately.



Papyrus, as it still grows along the Nile. In the background a photograph of a stalk of the plant, (about one-third actual size.)

Paper's Ancestor

Paper was used for kings only, in the days when the Nile's deposit of silt supported the world's greatest civilization. Skilled workmen, slaves, turned reeds into reading matter.

The average business man throws more paper into his waste basket in an average business day than a deified Pharaoh owned in his whole reign. And paper today is a better product than the best the Egyptian paper maker could boast.

Skilled men, choosing their own vocation and proud of it, meet today's paper needs with a product as good as it is plentiful.

Hammermill Paper Company
Erie, Pennsylvania

Doings in Canadian Paper Field

Interest in Daily News Mill

While the question of an embargo on the export of pulpwood is being discussed, construction is going ahead on the Daily News Corporation's plant at North Tonawanda, N. Y. This plant intends to produce paper from poplar and birch from the north shore of the Gulf of St. Lawrence, which will be carried to the plant on the company's own steamers.

There has been a considerable amount of interest concerning this new paper development in Canada because of the fact that it has been located in the United States just across the border from Canada and not far from the paper mills of the Chicago Tribune at Thorold. Both plants are owned by the same people, the Patterson-McCormick group, which owns the Chicago Tribune and the Daily News of New York City.

The new mill will turn out 60 tons of book paper a day, which will be used in printing the Daily News. On this class of paper there is a duty in the United States, which may account for the mill being located on the American side. In the event of the embargo on the export of pulpwood form Canada, it is possible that the pulp would be manufactured in Canada, either at Thorold, or elsewhere, and turned into the finished paper at the Tonawanda mill.

Rumors of U. S. Control

Will the pulp and paper mills in eastern Canada now controlled by English capital be acquired by United States pulp and paper interests?

Reports that some of the properties will be taken over by United States capital are current. Since the collapse of two of the best known English pulp and paper firms, namely, Charles Marsden and Sons and Beeker and Company, these reports have been given much credence. A receiver was appointed for both of these firms recently, on petition of debenture holders, as represented by the National Provincial and Union Bank of London. Offers are said to have been made for some of the mills owned by Beeker and Company and Charles Marsden and Sons.

The news that Beeker and Company and Charles Marsden and Sons had been petitioned into receivership created consternation in Canada among Canadian pulp and paper men. It had been supposed that both of these companies were in sound financial condition. The failures are attributed to the general trade depression in England. In the words of the receiver, "the business will be carried on by me with a view to reconstruction and it is hoped the creditors will eventually receive payment." The same receiver is acting for both companies.

Becker Tells His Side

Sir Frederick Becker is evidently very sore over some of the recent developments in connection with pulp and paper properties in Canada in which he is interested.

In a statement made in the United Kingdom he said that he and his associates had invested in Canada, in preference and ordinary shares, £1,250,000 actual cash. "It seems," he added, "that this is to be wiped out and our properties acquired by Canadian interests for nothing. We have struggled through a difficult time. We have created the biggest sulphate and mechanical pulp mills in North America, and have reached a time when both enterprises are on a profitable basis. This is the moment to acquire what we have created by a stroke of the pen.

"Becker's made advances to Chicoutime company of $500,000 during the shutdown brought about by an unparalleled drought last winter, raising the sum owed by the Chicoutimi company to nearly £300,000. These advances were made under definite promises of adequate security, but the security had a trick of evaporating in the same way as apparently our interest sand investments are to be made to evaporate, and my endeavors in Canada were frustrated by an unconscionable effort to set off our claims for cash advanced by claims for old delinquencies unproven and largely unprovable."

Progress on Great Lakes Mills

Erection of the huge plant of the Great Lakes Paper company at the western limits of Fort William, Ont., has passed the preparatory stages and actual work is under way on the foundations. With a continuation of good weather the work will be so well advanced by Christmas that it can be carried forward through the winter, as is the present intention.

In the meantime the Hydro commission is carrying forward the work of delivering hydro power. Material is being ordered and some special work is being done on the main line which connects the Cameron Falls development with the head of the lakes.

Steel for the lower yards at the plant of the Great Lakes Paper company at Port Arthur has been ordered. The order is for 10,000 feet, and it is expected that the company will accept delivery of pulpwood this winter. The rails, which will be placed on the ties as soon as received, will also make possible the economical reception of much of the mechanical equipment which is on order for winter delivery.

Wilson Executive of Abitbi

On the shoulders of L. R. Wilson, until now secretary of the Abitibi Power and Paper company, falls the burden of running the big newsprint enterprise.

Alexander T. Smith, head of the Chicago investment firm of Peabody, Houghtaling and company, that has been associated with the financing of Abitibi, Spanish River and other Canadian paper firms, assumes the presidency in succession to the late Frank H. Anson, but the actual executive control will be invested in Mr. Wilson.

Mr. Wilson has been the late Mr. Anson's right hand man and adviser from the start and of late has exercised a large share of the functions that he now officially assumes. Mr. Wilson came to Canadian industrial life after wide experience in the United States. Also, like Mr. Anson, he long since became a Canadian by adoption and naturalization. On the death of Mr. Anson he became that industrial leader's natural successor. W. A. Black, of the Ogilvie Flour Mills, Montreal, has been chosen as vice-president of Abitibi and E. L. Pease, vice-president of the Royal Bank, has been added to the board.

It is announced that California and Iowa capitalists have purchased a saw mill and large timber tracts held by the Prince Rupert Holding company, Limited, the intention being to build a pulp and paper mill in Northern British Columbia.

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BLEACHED SULPHITE

Using "Eastco" Bleached Sulphite ourselves, testing it day by day, in producing our line of "Eastco" Fine Writing Papers, we have complete control—because we have complete knowledge—of its quality, uniformity and adaptability to the requirements of the paper maker.

"Eastco" Bleached Sulphite is good pulp; it makes good paper. Furnished in Bales, Rolls or Laps as required. Write for Samples and Prices.

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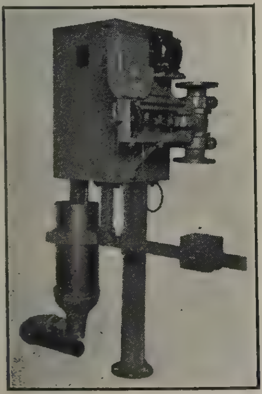

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More than 210 in use - - - Ask us about it

Also "Made in Canada"

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CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE			
Bond	8.00	@	40.00
NEWS			
Contract Basis	3.75	@	
BOOK			
S. & S. C.	6.50	@	7.25
M. F.	6.25	@	7.00
Coated and Enameled	8.00	@	12.00
TISSUE			
White	.85	@	.90
Manila No. 1	.80	@	.90
WRAPPING			
No. 1 Domestic	6.75	@	7.25
No. 1 Jute	8.25	@	8.75
No. 1 Wood	4.75	@	5.25
Butchers	4.00	@	4.25
BOARD			
News	50.00	@	55.00
Chip	45.50	@	50.00

Paper and Board

New York, Dec. 4—Demand for most kinds of paper continues spotty to an extreme. Buyers are operating on a reserved scale and seldom show interest in other than supplies for which they have direct need, and while the aggregate movement of paper from mills into consuming channels is of fairly heavy volume, there is at the same time much room for improvement in some branches of the market. Manufacturers are keenly competing for business, and their anxiety to corral all orders that they can, naturally makes for some easiness in prices of certain kinds of paper since concessions are being granted to buyers in some instances to induce them to buy or to wean away orders from competitors.

Another factor of importance in the market is that of foreign competition. It is no secret that large quantities of paper are being imported into the United States at the present time. This applies not only to wrapping paper and newsprint, which have been coming into the country from outside sources in record-breaking volume all this year, but also to other descriptions of paper. For example, some sizable shipments of book paper have recently arrived from abroad, and there have been larger imports than normally of fine papers and fancy papers. The low level of exchange of nearly all the European countries is enabling importers to bring in paper and to market it at lower prices than domestic manufacturers quote. While this competition is chiefly noted in wrapping and print paper, it is also observable to lesser degree in other lines of paper, and tends to unsteady the price situation.

Newsprint continues firm in price and is moving into consumption in tremendous volume. Publishers are using newsprint at a rate never before equalled, and any mill making this class of paper is having no difficulty disposing of its entire output; in fact, about the only trouble experienced by manufacturers is in keeping all their customers fully supplied with paper. That consumption will likely keep up at prevailing levels is indicated by the heavy tonnage publishers are contracting for over the first part of 1924. Contracts lately entered into are said to call for a substantial increase in tonnage over the current year, and everything would seem to forecast another banner year for the newsprint industry in 1924. No change in quoted prices has been noted in any part of the trade but it is quite apparent that manufacturers are holding firmly to their established prices and are refusing flatly to book orders at even a fraction of a cent below the quotational basis of 3.75 cents per pound f.o.b. mills for standard newsprint in rolls.

A little better demand for box board has developed and it is reported that board mills, especially those in the Middle West, are running at larger capacity than they were up to a few days ago. The report of the Box Board Research Bureau shows that board mills in the West operated on an 80 per cent scale during the week ended November 17, when 23 mills reporting to the Bureau made a total of 8,627 tons of board, and booked new business totaling 10,146 tons, while mills in the East ran at a 43 per cent of capacity basis, made 1,807 tons of board during the week and secured new business amounting to 2,479 tons, 15 mills in the East reporting.

Board quotations hold at about $45 a ton f.o.b. New York for plain chip, and $50 for news board. In exceptional cases perhaps these prices are being shaded, but with waste paper stiffening in cost, manufacturers are less disposed to accept orders at reduced prices as their cost of production is on the rise. Board business during the present pre-holiday season has been rather disappoint-

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WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

ing but there are pleasing prospects of better times ahead or soon after the turn of the year.

Fine papers are steady in price and it is reported that mills are securing more business than in some time. At any rate, statistics show that manufacturing operations are on the increase. Book paper is moving in a steady manner and in fairly heavy volume, but most mills are still on the lookout for additional orders, not having enough commitments on file to warrant full production. Coarse papers are in moderate demand and quotations are well maintained. Tissue papers have moved freely recently, reflecting the holiday trade. Specialties of most kinds are in good demand, with the price tendency in an upward direction.

Quotations are as follows:

Bond	.08	@	.40
Ledger	.09	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superior	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.75	@	
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.75	@	7.25
No. 2 Domestic	6.00	@	6.75
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.25	@	7.75
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.50	@	7.25
M. F.	6.25	@	7.00
Lithograph	9.00	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	3.75	@	4.00
Boards, per ton, f. o. b. N. Y.—			
News	50.00	@	55.00
Straw, in sheets	50.00	@	55.00
Binder Board	75.00	@	80.00
Chip	45.00	@	50.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

Mechanical pulp is in a steady market position and is provided with a good outlet in consuming quarters. One of the strongest factors in ground wood is that stocks are low, consumers apparently are going along with less than normal amounts in store, while grinders have but limited quantities unsold, demand in recent months having been of such breadth as to absorb practically all the output, especially since production was curtailed by low water. Domestic ground wood is selling at around $42 a ton f.o.b. pulp plants, with quotations ranging several dollars on either side of this level, depending on the air dry test and the freight to consuming points. Canadian producers are securing about $40 a ton at pulp mills for ground wood though some sales at $37 and $38 have been reported in cases where the buyer was situated reasonably close to the grinding plant.

Foreign and Domestic Chemical Pulp

Despite the fact that importations of pulp from Europe have shown a marked increase recently, and notwithstanding that paper manufacturers are buying in a restricted manner, the tone of the chemical pulp market exhibits increased steadiness. The reason for this apparently is that sellers are becoming firmer in their attitude as the winter draws nearer and are less disposed to sell at other than the full prices they quote, feeling that by waiting they will obtain more favorable prices for pulp later on. It is stated that most of the pulp reaching here from foreign sources lately constitutes supplies bought on

Autumn Wedding at Parchment Hall

On this occasion, the first wedding to be formally celebrated by Parchment folks in their Community House, Miss Catherine Hassing of the office staff and Mr. Roy Snyder of the Parchment Division, were united in marriage by the Rev. O. R. Gratton, Community Pastor. After the ceremony, supper was served in the dining room below.

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KVP PRODUCTS
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Kalamazoo, Michigan, U. S. A.

Daily Capacity of 600 Air-Dry Tons

The extent
of our production of
High Grade
BLEACHED
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insures uniform quality, prompt
shipments and market prices

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire
NEW YORK CITY
Woolworth Bldg.
CHICAGO
110 So. Dearborn St.

CURRENT MARKETS—Continued

contract by consumers which shippers in Sweden have been rushing out prior to the closing of the Baltic, and the receipt of these large supplies therefore has failed to have ill effect on the market. Quotations on an ex dock New York and f.o.b. pulp mill basis are as follows:

Sulphite, foreign—			
Bleached No. 1	3.90	@	4.25
Unbleached No. 1	2.80	@	3.25
Unbleached No. 2	2.70	@	3.00
Easy Bleaching	3.25	@	3.50
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.85	@	3.15
Unbleached news grade	2.75	@	3.00
Easy Bleaching	3.15	@	3.30
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.75	@	3.00
Kraft, domestic	2.75	@	3.00
Sulphite, screenings, refined	1.75	@	2.00

Domestic Rags

The papermaking rag market displays a firming undertone. Prices of low grades as used principally by roofing felt mills have stiffened, and there is an upward trend to quotations on most kinds of new cuttings and of old white rags. Dealers contend that higher prices will be witnessed for nearly all kinds of rags before the winter is far advanced, it being asserted that supplies are not coming in from collection sources in normal amounts and that stocks in Europe are no where near as large as earlier in the year. Roofing rags are selling at 1.45 cents a pound f.o.b. New York for No. 1 grade, and 1.30 cents for No. 2 packing. New No. 1 white shirt cuttings are quoted at 13 cents per pound New York, washables at 5.25 to 5.50 cents, new unbleached muslins at 11.50 cents, fancy shirt cuttings at 6.25 cents, and blue overall cuttings at 8.25 cents. Old thirds and blues are moving well at about 3 cents a pound at shipping points for repacked, and 2.40 to 2.50 cents for miscellaneous packing. Quotations f.o.b. New York are:

New Shirt Cuttings,			
No. 1	13.00	@	13.50
No. 2	6.25	@	6.75
Fancy Shirt Cuttings	6.25	@	6.50
No. 1 Whites, repacked	6.75	@	7.50
No. 2 Whites, repacked	4.00	@	4.50
White Lawns	11.00	@	11.25
New Muslin unbleached	11.25	@	11.50
Light Silesias	8.00	@	8.25
Black Silesias	5.00	@	5.25
Overall Cuttings, Blue	8.25	@	8.50
Washables	5.25	@	5.50
New Black Mixed	4.75	@	5.00
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.65	@	2.90
Thirds and Blues, repacked	2.85	@	3.10
3rds & Blues, misc.	2.40	@	2.50
Black Cotton Stockings	3.25	@	3.50
Roofing Rags No. 1	1.40	@	1.50
Roofing Rags No. 2	1.25	@	1.35

Imported Rags

Quotations on some grades of foreign rags have strengthened slightly. Importers ask 1.40 cents a pound or higher ex dock for dark colored cottons, and blue cottons tend to rise in price. Demand for imported rags from other sources than paper mills is said to be creating a firmer price tone. Ex dock New York prices are:

Lins., White, No. 1	12.00	@	13.00
Ger. Blue Cottons	2.50	@	2.75
French Light Blues	2.75	@	3.00
New Light Prints	5.50	@	5.75
New Unbleached	9.50	@	9.75
German Linen, blue	4.00	@	4.50
German Linen, grey	6.00	@	6.50
German S. P. F.'s	6.00	@	9.00
German Light Prints	2.50	@	2.75
Dk. Colored Cottons	1.35	@	1.40

Bagging, Rope, Etc.

Further advances in prices of old rope have been recorded, and this commodity seems likely to reach higher levels before the present rise is checked. There is a keen

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STANDARD AND MULTIPLE PLY
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English Weave in Two, Three, Four, Five and Six Ply
60 Inches to 176 Inches in Width
FINE FACED FELTS FOR FINE PAPERS
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JONES BROTHERS CO.
BARRE, VT. BOSTON, MASS.

CURRENT MARKETS—Continued

demand for old rope from paper mills, and domestic manila rope of No. 1 quality is selling at 7 to 7.25 cents a pound f.o.b. New York, with sales at the higher figure reported. Old bagging is quiet and roofing bagging has eased off to about 80 cents a hundred pounds f.o.b. New York. No. 1 scrap bagging is quoted at 1.25 cents or less New York. F.o.b. New York prices follow:

Gunny, No. 1	1.25	@	1.40
Foreign	1.25	@	1.35
Wool Tares, heavy .	1.50	@	1.75
Scrap Bagg. No. 1.	1.15	@	1.25
Roofing Bagging ..	.80	@	.90
Wool Tares, light ..	1.25	@	1.50
For. Manila Rope..	6.50	@	6.75
Domestic Rope	7.00	@	7.25
Mixed Strings	1.00	@	1.25

Old Paper

Prices of old paper tend to rise and there have been additional slight advances on some grades. It would appear, however, that the firmer tone is due more to conditions at the supply end than to any appreciable increase in demand, since board mills are buying in a cautious way and in limited volume. Dealers state low prices have greatly diminished collections and that therefore there is much less supply available, thus causing values to harden. No. 1 mixed paper has risen to 60 cents a hundred pounds f.o.b. New York, and folded newspapers to 85 cents New York. Flat magazines are higher, with 1.50 cents per pound New York about the minimum price quoted and with some sales of extra quality packing at 1.75 cents reported. Shavings are quoted at around 3.90 cents New York for No. 1 hard white, and 3 cents for No. 1 soft white shavings. Old kraft paper is firm at 2 to 2.15 cents a pound, and white blank news is freely bringing 2.10 to 2.20 cents New York. F.o.b. New York quotations are:

No. 1 Hard White Shavings	3.85	@	4.00
No. 2 Hard White Shavings	3.00	@	3.25
No. 1 Soft White Shavings	3.00	@	3.10
Box Board Chips .	.70	@	.75
No. 1 Colored Shavings	1.65	@	1.75
Magazine flat stock.	1.50	@	1.75
No. 1 Crumpled ...	1.25	@	1.40
Solid Ledger Books	2.00	@	2.25
Ledger Stock	1.90	@	2.15
White Blank News.	2.10	@	2.20
Common Paper	.40	@	.45
Kraft No. 1	2.00	@	2.15
New Manila Cuttings	2.25	@	2.50
New Manila Env. Cuttings	2.75	@	3.00
Bogus and Mill Wrappers	.80	@	.90
News, strictly overissue	1.00	@	1.10
Folded News	.85	@	.90
No. 1 Mixed Papers.	.60	@	.65

Twines

Increasing strength in raw materials is making for firmness in twines, and some slight advances in price have been quoted. Jute twines are a cent per pound higher, with papermakers' twine quoted at 11.50 cents a pound. Manila grades also are firm, owing to a stiffening of hemp prices. Quotations are as follows:

Sisal Hay, pure ...	13.25	@	14.25
Manila Hay, pure..	16.25	@	17.25
Sisal Lath Yarn ..	12.25	@	13.25
Manila Rope, pure, ¾ inch diameter .	15.25	@	16.25
Hardware rope	12.25	@	13.25
Jute rope, ¼ diam. and over, coils ..	13.00	@	15.00
Sail twine, A grade.	20.00	@	
Jute Wrapping Twine, A grade	20.00	@	
Papermakers Twine.	11.50	@	
B. C. Hemp, 18 ...	.39	@	.40
B. C. Hemp, 24 ...	.38	@	.39
B. C. Hemp, 36 ...	.36	@	.37
American Light India— No. 6	19.50	@	
No. 7	18.50	@	

Chemicals

Papermaking chemicals are in fair demand and prices generally hold at last reported levels. Most of the current activity in the markets is against contracts, but transient buyers are doing some operating. Casein is quoted at around 14 cents per pound, duty paid, while bleaching powder is available at 1.40 cents a pound and perhaps at a trifle less.

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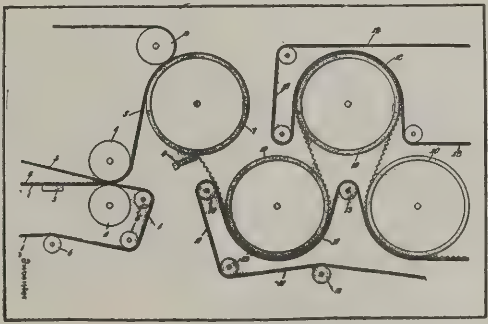

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CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of November 26-December 1

Paper

Str. Berengaria, Southampton—Whiting-Patterson Company, 11 cs.; A. C. Dodman Jr. & Co., 15 bls. hanging; F. J. Emmerich & Co., 6 bls. hanging; Order, 30 cs. cigarette.

Str. Mongolia, Hamburg—Bendix Paper Company, 12 cs. pasteboard; F. G. Prager & Co., 12 cs. pasteboard; Metropolitan Import & Mfg. Company, 28 cs. pasteboard; Order, 158 bls.; from Antwerp—C. W. Williams & Co., 13 cs.; P. J. Schweitzer, 104 cs. cigarette; Gevaert Company of America, 2 cs. photo; Order, 6 cs. hanging.

Str. Port Elliot, Liverpool—F. C. Strype, 6 cs. tissue.

Str. President Harding, Bremen—Birn & Wachenheim, 15 cs.; Hudson Trading Company, 144 rolls newsprint; C. B. Richard & Co., 3 cs. cardboard; Order, 65 cs. printing and 9 bls. hanging.

Str. Stockholm, Gothenburg—Newsprint Paper Corporation, 130 rolls newsprint; Peoples Trust Company, 5,404 rolls and 40 bls. wrapping; H. Reeve Angel & Co., 7 cs.; Great Eastern Paper Company, 134 bls. wrapping; Japan Paper Company, 16 cs.; J. P. Heffernan Paper Company, 20 bls. wrapping; C. K. MacAlpine & Co., 85 rolls and 29 bls. wrapping; E. A. McAdam & Co, 1,259 rolls and 100 bls. wrapping; Chatham & Phoenix National Bank, 39 rolls wrapping; Bernard, Judae & Co., 6 cs.; Order, 365 rolls wrapping.

Str. Celtic, Liverpool—W. H. S. Lloyd & Co., 6 cs. hanging; F. J. Emmerich & Co., 4 bls. hanging; A. C. Dodman Jr. & Co., 42 bls. hanging.

Str. Sierra Ventana, Bremen—F. Henjes, Jr., 1 cse.; C. Steiner, 22 bls. wrapping and 1 cse. printing; Globe Shipping Company, 123 cs. photo.

Str. La Savoie, Havre—Guibout Freres, 17 cs.; DuPont Cellophane Company, 9 cs.; Bankers Trust Company, 5 cs.; F. J. Emmerich & Co., 1 ble. printing; P. J. Schweitzer, 1 cse. cigarette.

Str. Samaria, Liverpool—F. C. Strype, 8 cs. tissue; B. F. Drakenfeld & Co., 20 cs. printing; Keuffel & Esser Company, 4 cs. drawing.

Str. Valfiorita, Marseilles—Defiance Manufacturing Company, 14 cs. writing; E. Waters, 19 cs. cigarette.

Str. Bremen, Bremen—A. Frankan & Co., 6 cs.; Phoenix Shipping Company, 7 cs. pasteboard; Globe Shipping Company, 112 cs. photo; Martin & Bechtold, 22 cs.; C. B. Richard & Co., 3 cs. cartboard; F. Henjes, Jr., 10cs. photo; Birn & Wachenheim, 93 bls.; Irving Bank-Columbia Trust Company, 9 bls.; Order, 68 bls. wrapping.

Str. Resolute, Hamburg—Phoenix Shipping Company, 7 cs.

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Appleton Wires Are Good Wires
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New York

Western Sales Office
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CURRENT IMPORTS—Continued

Str. Thuringia, Hamburg—O. G. Hempstead & Son, 18 cs. writing; P. H. Petry & Co., 14 cs.; Quality Art Novelty Company, 9 cs.; New York Label & Box Works, 7cs. cardboard; Keuffel & Esser Company, 43cs. and 26 rolls drawing; C. H. Young Publishing Company, 141 rolls newsprint; Steiner Paper Corporation, 7 cs. printing; International Acceptance Bank, 182 rolls newsprint.

Str. Tarantia, Glasgow—Perry, Ryer & Co., 78 cs. printing; Order, 16 bls. printing.

Str. Independence Hall, Havre—Standard Products Corporation, 41 cs. cigarette.

Wood Pulp

Str. Mongolia, Hamburg—M. Gottesman & Co., 200 bls.; A. J. Bracher & Co., 880 bls.; Castle & Overton, 600 bls.

Str. President Harding, Bremen—United States Lines, 508 bls.; H. Hollesen, 12,382 bls.; American Woodpulp Corporation, 220 bls.

Str. Stockholm, Gothenburg—E. M. Sergeant & Co., 254 bls. sulphite; Johaneson, Wales & Sparre, 1,400 bls. sulphite; Scandinavian Pulp Agency, 127 bls. sulphite; Central Union Trust Company, 600 bls. ground wood; R. F. Hammond, 1,125 bls. sulphite.

Str. Sierra Ventana, Bremen—Castle & Overton, 150 bls.; W. Wiese & Co., 810 bls.; H. Hollesen, 3,535 bls.

Str. Bremen, Bremen—H. Hollesen, 503 bls.; Castle & Overton, 1,650 bls.; Bukley, Dunton & Co., 1,625 bls.

Str. Topdalsfjord, Greaker—New York Trust Company, 1,500 bls. sulphite; Mechanics & Metals National Bank, 1,000 bls. sulphite; E. M. Sergeant & Co., 500 bls. sulphite; National City Bank, 250 bls. sulphite; J. Andersen & Co., 750 bls. sulphite.

Old Rope

Str. Sorriso, Marseilles—Brown Bros. & Co., 50 coils; from Barcelona—National City Bank, 37 bls.; W. Schall & Co., 29 bls.

Str. Mongolia, Antwerp—Internatioal Acceptance Bank, 97 coils.

Str. Hellig Olav, Copenhagen—Goldman, Sachs & Co., 251 coils.

Str. Valfiorita, Marseilles—Brown Bros. & Co., 50 coils; from Barcelona—W. Schall & Co., 45 bls.

Str. Thuringia, Hamburg—Brown Bros. & Co., 51 coils.

Str. Tartantia, Glasgow—International Acceptance Bank, 57 coils.

Str. Idaho, Hull—Brown Bros. & Co., 157 coils and 29 bls.; Order, 224 coils.

Str. Independence Hall, Havre—Ladenburg, Thalman &

Marathon Paper Mills Company

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WALTER ALEXANDER, Vice-Pres.
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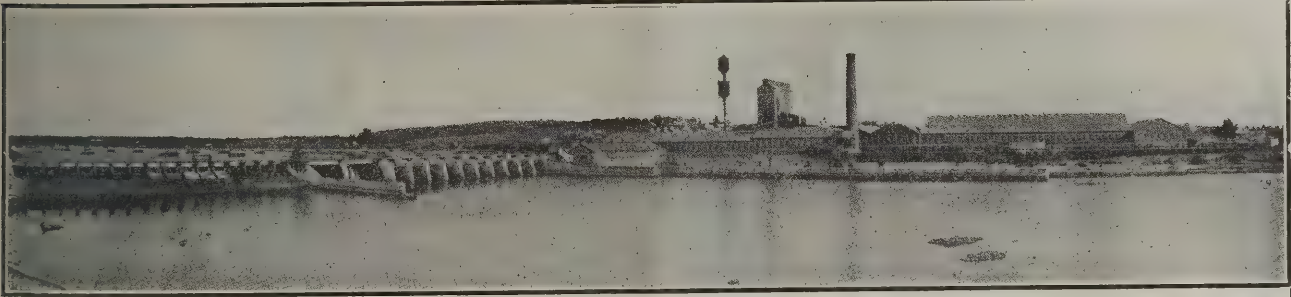

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Bleached Sulphite Pulp	150,000 lbs.
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Paper	200,000 lbs.

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Rags

Str. President Harding, Breman—Order, 39 bls.

Str. Aldecoa, Marseilles—New York Trust Company, 157 bls.

Str. Celtic, Liverpool—Albion Trading Company, 20 bls.

Str. Sierra Ventana, Bremen—Goldman, Sachs & Co., 189 bls.

Str. Thuringia, Hamburg—International Acceptance Bank, 50 bls.; Second National Bank of Boston, 69 bls.

Str. Tartantia, Glasgow—American Express Company, 49 bls.

Str. Balsam, Belfast—Order, 136 bls.

Str. Independence Hall, Havre—Stone Bros. & Victor Galaup Company, 58 bls.; Ladenburg, Thalman & Co., 187 bls.; J. E. Lodge, 21 bls.; from Dunkirk—First National Bank of Boston, 13 bls.

Str. Innoko, Antwerp—E. J. Keller Company, 24 bls.; Order, 101 bls.

Paper Stock

Str. Sorriso, Marseilles—Equitable Trust Company, 24 bls.

Str. Mongolia, Antwerp—Irving Bank-Columbia Trust Company, 288 bls.; Equitable Trust Company, 176 bls.

Str. London Mariner, Dundee—Equitable Trust Company, 41 bls.

Str. Thuringia, Hamburg—International Acceptance Bank, 166 bls.; Order, 721 bls.

Str. Tarantia, Glasgow—International Acceptance Bank, 56 bls.

Str. Balsam, Dublin—Brown Bros. & Co., 445 bls.

Casein

Str. Vestris, Buenos Aires—Brown Bros. & Co., 667 bags.

Str. Southern Cross, Buenos Aires—Kalbfleisch Corporation, 834 bags.

Str. Canadian Constructor, Aukland—Bankers Trust Company, 350 sks.

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Nash Engineering Co., South Norwalk, Conn.

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Bachmeier & Co., Inc., New York.
Heller & Merz Co., New York.
National Aniline & Chemical Co., New York.

ARCHITECTS AND ENGINEERS

Carey, James L., Chicago, Ill.
Ferguson, Hardy S., New York.
Hardy, George F., New York.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

BEARINGS

Link-Belt Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BEATING ENGINES

Black-Clawson Co., Hamilton, O.
Dayton Beater & Hoist Co., Dayton, O.

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BLEACH

Penn. Salt Mfg. Co., Philadelphia, Pa.

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Manitowoc Eng. Works, Manitowoc, Wis.

BOX BOARDS

Standard Paper Co., Kalamazoo, Mich

BOARD MACHINES

Black-Clawson Co., Hamilton, O.

BOND PAPER

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

BRASS WIRE CLOTH

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, O.

BRIMSTONE

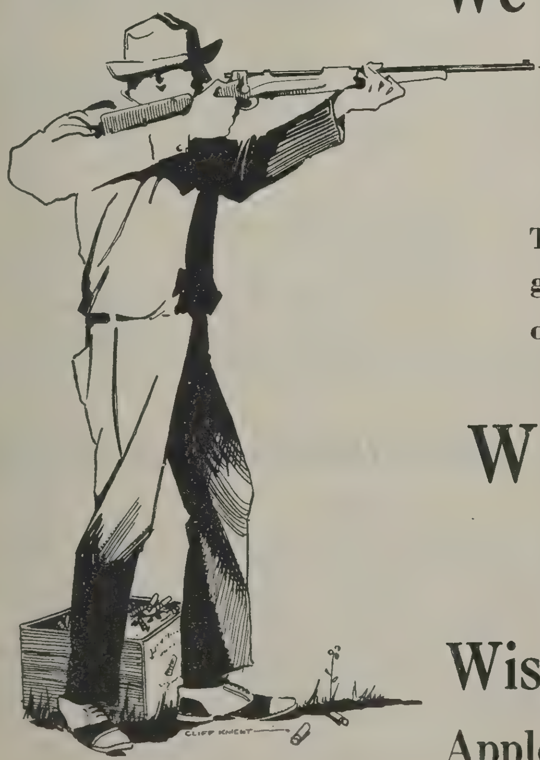
Union Sulphur Co., New York.

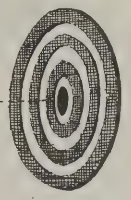
BRONZE WIRE CLOTH

Appleton Wire Works, Appleton, Wis.

CHAINS AND WHEELS

Link-Belt Co., Chicago, Ill.





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Wisconsin Wire Works
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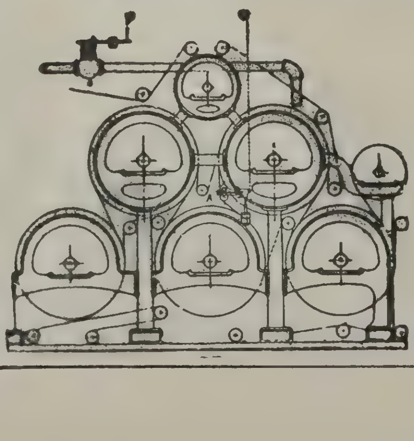

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Vol. XXXIII DECEMBER 13, 1923 No. 8

Treatment of Grindstones

Quality of Newsprint and Book Paper Influenced by Character of Mechanical Pulp Which in Turn Depends on Burring of Stone

By WILLIAM A. MUNRO
Washington Pulp and Paper Corporation, Port Angeles, Wash.

A FEW years ago the manufacture of groundwood pulp was considered a most simple and unskilled process. The groundwood mill was a cold, wet place where wood was ground, a place to be forgotten when the paper machines were running well, but an ever present place to "pass the buck" when trouble developed and production did not come up to expectations.

The increasing cost and scarcity of wood together with the desire for safe and satisfactory operation of the paper machines at higher speed caused more attention to be paid to the groundwood mill and greater thought and care to be given to operation and the selection of personnel.

It is now conceded that the quality and the running ability of the paper, at least those papers with a considerable proportion of mechanical pulp, depend almost altogether on the quality of stock produced by the groundwood mill.

Factors in Production of Good Newsprint

The paper machines, no matter how well clothed or skillfully operated, can not make a good sheet of paper out of inferior groundwood. With this in mind, the progressive mills are making a study of the factors that have a direct bearing on the quality of the stock and are endeavoring to so arrange and standardize them that a uniform stock of a good quality will be delivered to the paper machines twenty-four hours of the day.

The several factors that affect quality and production, some to a greater degree than others but all contributing to the final result, are peripheral speed, pressure of the wood against the stone, temperature of the grinder pit and the cutting surface of the stone. The last named consideration is far more important than the others and more difficult to keep constant. This condition arises from the difference in grit of the several pulpstones in use and also to the fact that it is difficult for different stone men to dress each stone in the same way.

Advances in Stone Dressing

When groundwood was first manufactured the stones were then dressed by means of a hand pick shaped not unlike a small adz and many peculiar and fantastic designs were cut into the face of the stone. Each pulpmaker had his own design and it is told of a man in charge of a mill that he kept his design a secret and never allowed any one else to see him at this work or help him in the least.

At present a small round metal cylinder with a hard patterned surface, commonly known as a burr is revolved against the stone and the pattern on the face of the burr thus transmitted to the stone.

This stone dressing is more often called stone sharpening but sharpening is a misnomer and should not be used because of its inaccuracy. Correct burring or jigging a stone consists of giving it a dress with a burr that opens up or prepares the grit of the stone in such a way that the desired grade of stock is produced. Sometimes the pulpstone's rate of production or degree of sharpness is reduced, while in others it is increased, all depending on the nature of the pulpstone or the quality of the stone's binding particles. If the binding particles break down first, exposing more and rougher cutting particles, the stone becomes rough, the stock coarser and more uneven and generally full of fiber bundles or shives instead of true fiber. If, on the other hand, the cutting particles break down first the result is a smoother, duller stone with a decreased production and slower, finer stock.

The most satisfactory and uniform grades of stock are produced by the cutting action of a pattern made on the stone by a burr rather than that produced by the cutting action of a stone's grit.

Types of Burrs for Dressing Stones

There are in general use three types of burrs, the solid burr, the shell or tube burr and the sectional or disk burr. The solid burr is the oldest type and consists of a solid steel cylinder about 3½ inches in diameter and 3 inches in width. The pattern or design is fashioned on the periphery or face by means of a lathe and after cutting the surface is hardened to prolong its life and to give greater wearing qualities. The center is drilled out to whatever size is desired so that the bolt of the lathe holder can be run through the burr.

The solid burr, provided there is no play between it and the lathe holder bolt, makes a good clear impression on the stone, there is no give or chattering as the burr is run across the stone and the results are generally satisfactory. The high initial cost together with the machine shop charge for recutting and hardening has resulted in the more general use of the shell burr type that is discarded when the teeth are worn to an undesirable extent.

The standard shell burr is made out of seamless steel tubing cut into suitable lengths for burrs. The blanks are then put into a special machine called a bobbing machine and the desired pattern cut on them. After the burr is fashioned it is case hardened to the point that gives the best results.

The bevel type shell burr is a recent invention and improves the results formerly obtained by the square shouldered or older type. This bevel acts on the same principle as a set of pipe cutting dies and allows the teeth of the burr to work themselves gradually into the stone. This eliminates the chipping or digging action of the leading corner of the square-shouldered type and results in a cleaner and more uniform impression on the face of the pulpstone.

The sectional burr is a hardened cast iron disk with teeth on its periphery. The type of this burr depends on the number of teeth to the inch, generally running from four to six. The sectional burr is not widely used in burring stones but is generally employed in turning up stones after they are hung and in turning down and smoothing off stones that have shelled out or developed a bad hole.

Types of Mandrels or Burr Holders

Several types of mandrels or burr holders have been developed to use with shell burrs. The first type consists of a plain round cast iron casting with a center large enough to hold a roller bearing. The fork bolt or holder bolt fits through the roller bearing.

The outside diameter of the mandrel is a few thousandths of an inch less than the inside diameter of the burr and the burr is held from turning by an offset pin that fits through from the center of the mandrel and into a hole in the burr. The hole in the mandrel is of a larger diameter than that in the burr. The pin is made smaller in diameter at the burr end and the shoulder thus made prevents the pin from working out through the burr while the roller bearing prevents it from dropping back and disengaging the burr.

The more recent types of mandrels have done away with the pin and depend on expansion to prevent the burr from turning. This type consists of two bevelled parts which expand when forced together and grip the burr so tightly that it is impossible for it to turn.

The burr held securely in its mandrel is placed in the dressing stick or lathe holder when it is to be used on a stone. Some mills still use what is known as a dressing stick or pole. This stick is supported and guided on a pipe or round bar extending from one side of the grinder pit to the other and the stick with the burr attached pushed across the face of the stone, the pipe or bar acting as a fulcrum for the sharpening pole. The success of this method depends too much on the skill of the operator and tends to cause uneven wear on the stones, especially on the starting side.

Dressing Sticks Replaced by Lathes

The screw lathe and the hydraulic lathe are in more general use, give far better results and keep the stones truer and in better shape. In the screw lathe type, the burr carriage is moved across from one side to the other by means of the cross-feed screw and in the hydraulic type the carriage travel is accomplished by means of a hydraulic cylinder and piston.

Tooth Arrangement of Burrs

Burrs are made at the present time in four basic patterns or types of tooth arrangement. They are the thread, the spiral, the straight cut or straight fluted and the diamond. There are probably several hundred different variations and kinds but all can be grouped under one or the other of the four main patterns.

The thread burr pattern is very well described by its name and resembles the thread on a pipe or bolt. The number of threads to the inch determine the grade of these burrs.

The spiral burr has its teeth cut at an angle to its axis. The number of teeth to the inch is called the pitch or cut and the angle of the slope is called the lead.

The spiral is graded by both the pitch and the lead, as 8 cut, 1¼ inches lead. This means a burr with eight teeth to the inch and a tooth lead or advance, from where one tooth starts on one side of the burr to where it ends on the other, of one and a quarter inches.

The straight cut burr has the teeth in a straight line across the face of the burr parallel to the axis of the burr. They are graded according to the number of teeth to the inch on the burr's periphery.

Diamond Burr

The diamond burr pattern is a combination of the thread and the straight cut patterns and is identified by the number of apexes or diamond points to the inch of the periphery, as they do not always have the same number per inch measured across the face.

There is no established rule for the selection of burrs to make a desired grade of stock since too much depends on the other conditions in the mill and the human element. The same quality of stock is very often obtained by entirely different burrs and pressures or a different combination of both. It has been practically demonstrated and is generally accepted in groundwood circles that the finer the cut of the burr the finer the pulp, all other conditions being constant. Also, that a coarser burr with a lower pressure will give a pulp of the same general nature and freeness as a finer burr with a higher pressure. In a discussion of the comparative results produced by the different types it will be necessary to consider all other elements as speed; pressure and temperature as constant and to have the stone's surface as the only variable, as a change in the others would make comparison of the stock from the different burr types inaccurate and useless.

Effect of Burrs on Pulp

The stock or groundwood pulp produced by a thread burr is short, and fine fibered, with a minimum of sliver waste; on the other hand, especially with the finer cuts as the No. 10 and 12 thread, the white water consistency becomes unduly high and in a mill without a closed system the loss in fine fiber or flour is considerable. This burr is difficult for the inexperienced stone man to use successfully as it has a tendency to jump its groove or double pattern in its travel across the stone, producing a very uneven stock and a large amount of waste. The best results are obtained by using this type of burr lightly and as often as the grit of the stone and freeness desired requires. The fine thread burr is used largely in book stock and sometimes in news.

The straight fluted burr produces a maximum of long fibered stock together with a large amount of slivers. This type gives a greater production per stone and a lower power consumption per cord of wood than any other type, the number of teeth to the inch being the same. The straight cut burr pattern on the stone being parallel to the wood fiber has a tearing action on it so that while pulling out and causing a longer fiber it also produces a larger number of shives or fiber bundles which are of no use in the better grades of groundwood. This condition is improved and modified as the pitch increases but the production per stone drops off at the same time. The coarse straight cut is used to make wall board stock and some mills use a 10 to 12 straight cut for news stock.

When quality and not production is the paramount consideration the spiral burr is widely used. In the case of burrs of the same pitch or cut the amount of sliver waste is less as the lead increases; the fiber becomes shorter and the production less.

The Two Kinds of Spiral Burrs

There are two distinct types of spirals, the right and left hand, distinguished from each other by the direction of the angle or slant of the tooth. In one case the leading part of the tooth or toe of the burr that should always go first across the stone, is on the left side and in the other on the right. These burrs producing the same grade of stock are used alternately in sharpening, the advantage of using both being that the stone is kept evener and that new grit is continually being opened up. The spiral pattern on the stone has an easier effect on the wood than the straight cut and results in fewer slivers and less waste. The best results in strength of fiber are obtained by using a fairly low lead. A high lead spiral tends to give a thread burr stock fairly fine, short and weak, lacking the felting qualities of a stock ground with a shorter lead burr. The ideal spiral burr would be the one that would give, combined with other mill conditions, the greatest production and strength of fiber with the least waste.

The spiral type of burr is used considerably in newsprint mills and the most popular type is the eight cut with leads running from one to three inches; however, on very high speed machines there is a leaning to finer cuts and the results obtained in many instances have justified the action.

The diamond burrs can be used to produce all grades of stock from free wall board as made by a No. 4 or 6 cut diamond to the fine slow stock used in book paper made by the much finer diamonds as the 12 to 14.

A coarse diamond burr is often useful in opening

(Continued on page 19)

An Improved Save-All

The accompanying figures show a save-all which is patented in French patent No. 559,749 and which is used in recovering pulp from the white water in factories which make paper, cardboard or wood pulp.

The process consists essentially in making the waste waters pass through a decanting device, in other words an apparatus for removing solid, suspended matter from water, in such a manner that the rapidity of flow of the water through the apparatus decreases constantly from the moment it enters. This progressive diminution in the speed of the circulation permits the solid matter to settle to the bottom of the apparatus with the minimum risk that it will flow out with the water through the overflow.

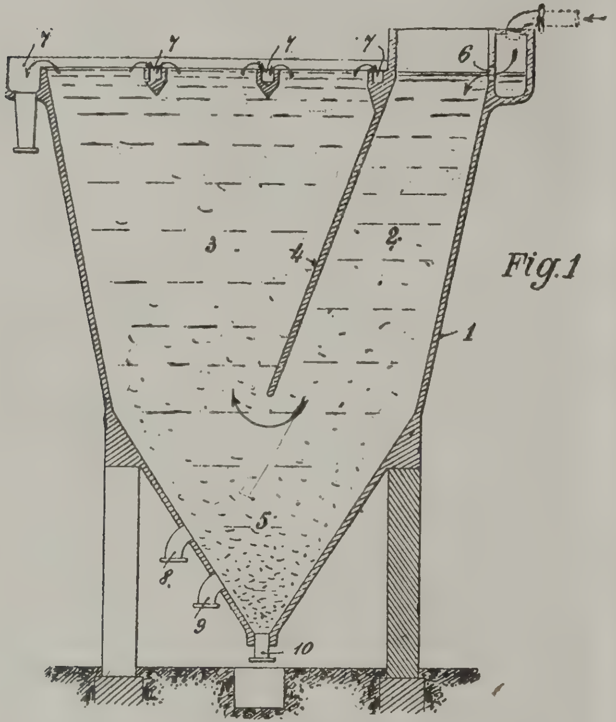

Fig.1

Figure 1 shows a vertical section of the apparatus while figure 2 is a plan view.

The apparatus consists of a tank 1 the upper part of which is divided into two unequal parts 2 and 3 by a partition 4. The lower part 5 serves as the depositing device. The waste waters that are to be treated, enter the apparatus at 6, which is in part 2 and leave the apparatus again at the upper section of part 3 by the overflow 7, after having passed around the partition 4. The latter is arranged in the tank in such a manner that the areas of the transverse sections that are passed through by the waters from their entrance at 6 to their departure at 7, increase continuously. This causes a continuous diminution in the speed of circulation as the waters travel through the save-all.

The materials that are held in suspension, being heavier than water, collect in the lower part of the apparatus 5, from which they are withdrawn in a continuous stream through the outlets 8 and 9, and carried over into the beaters, then to the proper machine where they are mixed with new pulp. A blow-off outlet is seen at 10 for cleaning out the save-all.

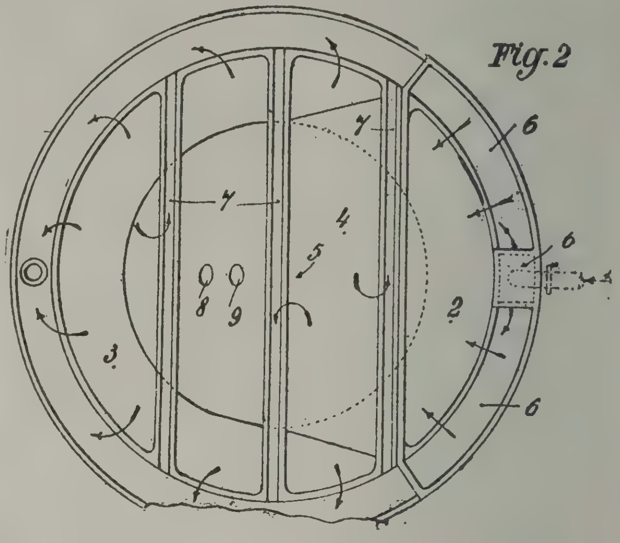

Fig.2

The apparatus is constructed from any suitable material, such as sheet metal, reinforced concrete, etc.

There is no channel or any other part within the internal structure of the apparatus which is capable of retaining the deposited matter. The walls are made all in one piece and all points within the apparatus are easily accessible to a stream of water for cleansing purposes.

The advantages of an apparatus which can be easily and quickly cleaned are readily appreciate in those plants where it is necessary to recover waste waters from paper making machines where different kinds of paper are made. Such waters contain different kinds of pulp in suspension and it would not do to have these pulps mixed with one another. This also holds good for those plants in which frequent changes are made in the manufacturing process.

The dimensions of the apparatus are dependant on the quantity of water that is to be treated.

World's Largest Micrometer

A micrometer measuring 60 inches, and said to be the largest in the world, has just been completed by the Bagley & Sewall company, of Watertown, N. Y. It was tried out at the plant last week, and worked to perfection, officials of the company said. It will be used to measure rolls on paper machines, and will not be manufactured commercially, being employed only by the Bagley & Sewall company.

The giant micrometer works on precisely the same principle as a micrometer six inches in span, except that owing to its size it has to be mounted on a center pin. Its accuracy is marvelous, it was said at the factory today. It will measure down to one-thousandths of an inch easily, and for even finer work could be adjusted to record fractions of that space.

At Pittsburgh, Pa., there is a micrometer measuring 40 inches, and at Manchester, England, in a machine shop there is one measuring 48 inches. Engineering journals and records, however, fail to reveal that one so large as that now in use by the Bagley & Sewall company has ever been turned out in the world.

Rapid Analysis of Paper

French Technologist Explains Method for Quickly Determining Constituents of a Paper Sample for Purposes of Duplication

By Jacques Crolard

(Continued from last week)

IN the previous article on this subject it was shown how the character of the paper can be determined by certain chemical tests. Particular attention was paid to the determination of the proportion of wood pulp that may be mixed with the paper. The mechanical wood pulp content of the paper is given special consideration owing to the fact that different makes of this pulp differ radically in appearance, chemical composition and mode of treatment. This ingredient should really be considered as a paper filler, possessing certain very marked characteristics. But it must be remembered that mechanical wood pulp is an organic mixture of rather complex character containing cellulose, lignin, oxycellulose, pentosans, etc. All these ingredients are affected differently by atmospheric agents. The cellulosic filler is far from being a neutral substance. It changes, oxidizes, alters its color, etc., as the paper ages. Papers that contain mechanical wood pulp lose their strength comparatively early and attain a disagreeable yellowish tone.

Analysis of Fibers

There are two methods for analyzing the paper both quantitatively and qualitatively to determine the proportions of various fibers in it. One of these methods makes use of the microscope and the other is dependent on the microscope only for the qualitative determination, the quantitative estimation being carried out by chemical means.

The microscopic method of analysis, which is well-known to paper chemists, is based on color reactions which are characteristic of a certain fiber and which take place in the presence of solutions of certain mineral salts or organic coloring matters.

From the qualitative standpoint this method possesses certain difficulties. Something more than a knowledge of the chemical characteristics of the fibers, their physical aspect and their average dimensions is required in order to successfully carry out a microscopic qualitative examination of the paper sample. It is, moreover, necessary to take into consideration the chemical transformations that have taken place in the structure of the fibers as a result of various treatments that the cellulose is subjected to during the processes of digestion, bleaching and beating. A partial hydrolysis of the cellulose fiber may bring about quite an appreciable change in the color that is obtained when the former is treated with various color reagents.

It is, therefore, advisable to separate visibly all the different fibers of the paper into various groups according to their origin. This operation is fairly simple, as very clear differences exist, for example, between chemical pulps and rag pulp, etc. But after the grouping of the fibers has been carried out in this fashion it requires a considerable degree of skill to distinguish between the various fibers that are included in the chemical pulps or, more exactly, the wood fibers, both chemical and mechanical. This is particularly the case when the pulp has been beaten for a comparatively long time and partially hydrolyzed.

The operation is especially difficult when it becomes necessary to estimate quantitatively the proportions of the various kinds of wood fibers in the paper.

Use of Coloring Reagent

A good method consists in first evaluating the importance of each group of fibers in the paper, and in doing so it is necessary not only to take into consideration their number, but their volume and density as well. It is also convenient to determine the relative proportions of the various kinds of fibers.

In making a colorimetric examination of a paper the chemist seeks to use that coloring reagent which will give the fibers maximum visibility under the microscope. It is a known fact that the fibers color with entirely different intensities according to their inherent nature. Certain colors, furthermore, produce a stronger physiological impression on the eye than others. There is no doubt, for example, that in a mixture consisting of equal parts of a very vivid yellow and a garnet, the eye which is not particularly skilled in picking out colors will see more yellow than garnet. There are, morever, certain color reagents which color only a certain kind of fiber, the remainder remaining grayish in tone. In such case an error in the estimation of the fiber present in the mixture is almost inevitable.

A simple means of avoiding the errors referred to is to examine the paper after treating it with different color reagents, giving more than one coloration. The determination of the percentage of different fibers in a mixed paper is an operation which requires considerable skill. It is really a very delicate operation, laborious and tiring to the eye. It requires considerable patience and great care on the part of the paper chemist as the method is based solely on observation.

In what follows there will be described conditions under which it is possible to avoid using the microscopical method and employ a more exact chemical method, giving more constant results.

Finding Proportions by Chemical Tests

Under the generic expression "cellulose" is classified all the chemical substances which constitute paper fibers. These can be divided into the following classes in accordance with their definite chemical characteristics.

1. Normal celluloses; cotton, linen, hemp, ramie.
2. Celluloses isolated from the oxycelluloses of cereal plants: straw, esparto.
3. Celluloses isolated from the ligno-celluloses, the ligno-cellulose of jute, the ligno-cellulose of wood.

It is impossible to give here a detailed description of the chemistry and chemical properties of these celluloses. Time and space are available only for the discussion of the various processes or treatments to which these celluloses may be subjected to differentiate one class from the other, so that quantitative results on the proportion of each present in a mixture may be ascertained with a satisfactory degree of accuracy.

The first matter to be considered is the determination of the furfuraldehyde index of lignin, of a pulp or of a paper.

Natural oxycelluloses are the principal ingredients of the straw, esparto and bamboo fibers. These organic substances possess the important property of yielding considerable quantities of furfurol when they are subjected to hydrolysis with acid under certain conditions. The cellulose products that are isolated from ligno celluloses are likewise oxycelluloses, but the quantities of furfurol obtained are much less and vary with the nature of the wood.

The furfuraldehyde index expresses the percentage of furfurol that is obtained from a pulp or paper by hydrolysis with acids.

From numerous experiments and practical observations it has been determined that there are a number of constituents which produce furfurol, such as the pentosans and the beta celluloses, that may disappear during the course of the treatment that paper pulp is subjected to during its manufacture into paper. It is, therefore, necessary for the paper chemist to know the furfuraldehyde indices of various kinds of crude and bleached paper pulps with the utmost degree of accuracy.

Furfuraldehyde Indices

Rag cellulose	0.5 percent
Crude jute	8.0 percent
Bleached jute	5.0 percent
Bleached sulphite pulp	4.0 percent
Crude straw pulp	16.0 percent
Bleached straw pulp	13.0 percent

Operating Method

Very important experiments have been made by the paper chemist, Tollens, on the principal condensation products of carbohydrates which can produce furfurol. Furthermore, detailed researches have been carried out by Cross and Bevan and numerous other paper chemists on the hydrolysis of lignocelluloses. It has been determined from these experiments that the formation of furfurol, the aldehyde of the furfurane group, is quantitative; this reaction may therefore be used to determine the exact percentage of oxycellulose in a paper.

Ten grams of the paper or pulp that is being examined are placed in a flask or beaker and covered with an acid mixture containing 56 percent of sulphuric acid and six percent of hydrochloric acid and 38 percent of water. A very thick paste is formed which is vigorously agitated. It is then diluted with two hundred cubic centimeters of a solution of hydrochloric acid of 1.06 density, corresponding to 8 degrees Be.

The mixture is then transferred to a flask which is provided with a two-holed stopper. Through one hole the glass tube of a separatory funnel is introduced and through the other a glass tube with a suitable bend to connect it with a condenser.

The mixture is then distilled, the flask being heated in an oil bath. The rapidity of the distillation should be such that about two cubic centimeters of liquid are obtained per minute. The liquid in the distilling flask is maintained at a constant level by the addition of hydrochloric acid of 8 degrees Be through the separatory funnel from time to time.

The distillation is stopped when a drop of the distilled liquor no longer gives a rose colored reaction with a crystal of aniline acetate. In making this test it is well to wait a little for the reaction to take place, as the aniline acetate indicator does not react quickly.

Methods for Determining Furfurol

The methods of determining the furfurol in the liquor distilled over from the flask are numerous. Among these may be cited precipitation by ammonia, the volumetric determination of the furfurol with the aid of standard solution of phenylhydrazine, the transformation of the furfurol into hydrazone, the precipitation of the furfurol by means of a silver salt, its titration with a solution of phloroglucine chlorhydrate, colorimetric methods of determining the furfurol, and so on.

From the scientific viewpoint the colorimetric methods must be disregarded, for they do not give results with a sufficient degree of accuracy, and in the present case they do not possess any particular advantage as far as rapidity of determination is concerned. On the other hand, of all the methods which have been enumerated above, there are two which always give good results. These are the transformation of furfurol into hydrazone and its titration by means of a standard solution of phloroglucin.

The next step in the analysis, then, is to convert the furfurol into phenylhydrazone. To do this the distilled liquor which contains the furfurol and hydrochloric acid is neutralized with carbonate of soda. A slight excess of this is added and the solution is acidified again with acetic acid. In order to obtain constant results it is necessary to make sure that the concentration of sodium chloride are sensibly the same in each operation.

The general reaction of the formation of hydrazones by the coupling of a hydrazine on an aldehyde makes it posible to obtain phenylhydrazone by the reaction of furfurol with phenylhydrazine. In this case the phenylhydrazone is insoluble and easily separates out from the solution. The phenylhydrazine solution that is used for this purpose is obtained by dissolving 12 grams of that substance in 7.5 grams of acetic acid and then making up the solution to a volume of one hundred cubic centimeters.

To this solution the liquor containing the furfurol is added and the whole mass is vigorously agitated in order to facilitate rapid precipitation of the hydrazone. The reaction is complete when a drop of the mixed liquid no longer gives a rose colored reaction with acetate of aniline. The hydrazone is then separated by being filtered on a tarred filter paper, washed and dried in a vacuum oven at a temperature of approximately 60 degrees C.

The weight of the furfurol originally present in the distilled liquor is obtained from the weight of the hydrazone by means of the following equation:

Weight of furfurol—Weight of hydrazone x0.538.

The theoretical factor which must be multiplied into the hydrazone to give weight of furfurol is 0.516 according to numerous tests which have been made to fix it exactly, but other experiments have shown that this figure is too low owing to the slight solubility of the hydrazone, and accordingly the factor 0.538 is adopted as giving results which are closer to the actual truth.

Example of Calculation

An example of the way in which the analysis is carried out will serve to explain perhaps more clearly the method which has just been described. Suppose it is desired to analyze a paper which contains a mixture of rag and straw fibers. The weight of hydrazone is found to be 12 percent in accordance with the described method. From this it is found that the furfurol formed by the hydrolysis of the paper or the furfuraldehyde index of the paper is 12x0.538 or 6.45.

In the preceding table it is seen that the furfuraldehyde indices of rag pulp and bleached stray pulp are 0.5 and 13 percent respectively. Hence the proportions of rag stock and straw stock in the paper are found from the following calculations:

(Continued on page 19)

Plans for 1924 Paper Exposition

THE Paper Industries Exposition has reserved the entire first floor of the Grand Central Palace for its 1924 exhibition, and has made tentative reservation of the mezzanine floor in addition, if the number of exhibitors warrants this expansion of the paper show which will be held the week beginning April 7th.

The success of the first exposition held in April, 1923, was such that the change to first floor space with its greater facilities for showing and viewing exhibits was justified. Already there have been contracts for space received from the 123 of those who exhibited in the 1923 exhibition, so the exposition can now be considered as an annual event in the paper industry.

The attendance at the 1923 exposition was surprisingly large, there being 63,155 in attendance, and this in spite of the fact that it was the first paper show of national extent ever to be held in the United States. The endorsement of the exposition by the paper industry was largely responsible for this success, and the conduct of the show is such that the association in the indutry which endorsed the exposition in 1924 have already announced their endorsement of the Paper Industries Exposition as a recognized annual affair.

The attendance at the 1923 exposition was surprisingly distributed between technical men, superintendents, plant executives, jobbers, printers and the general public interested in the story of paper. The second show, with more exhibits and an even greater variety will undoubtedly attract even greater attention than the first "Paper Show" as it came to be generally known.

As was the case with the first show, the exposition will be held during the week when the American Paper and Pulp and National Paper Trade Associations and their affiliated organizations are holding their annual meetings at the Waldorf Astoria.

These conventions bring together paper manufacturers and merchants from all parts of the country, and as was the case last year, some special sessions of paper organizations will be held at the exposition. Both of these organizations have officially endorsed the Paper Industries exposition, and are represented on the advisory committee selected to consult with the exposition management. Other such organizations as the Salesmen's Association of the Paper Industry, the Technical Association, are included on the committee, as well as representatives of colleges whose work leads students to enter the paper industry. As was the case last spring, there will be special attention paid to the forestry problem as the basis of the raw material of the industry, and the exhibits already arranged for next spring include displays ranging all the way from chemicals to the machinery supply house, the mills themselves, and the jobbers who market the products of the paper machines.

A department to which special attention will be given is that of the converted products of paper, such as sanitary packages for food, special use papers, boxes and bags and the like.

In the arrangement of the week's program every effort will be made to hold special feature program of the exposition at times which will not conflict with the convention program of the paper manufacturers and merchants. Plans for a special technical program are already under way, and as last spring, the 1924 program will be replete with special features for each day of the exposition week.

Changes in Marinette and Menominee Mills

During the past year many improvements have been made at the two plants of the Marinette & Menominee Paper company.

At the Marinette mill, a concrete loading platform has just been completed which is nearly 300 feet in length, making it possible to spot nine cars for loading paper.

A new water system has been installed on all four machines so that they are now using white water for the showers, etc. Four large save-alls have also been put in, making practically a closed system for the mill.

A new sizing system was recently adopted and they are now making their own size.

A new Marshall drive has been installed on the number four machine to replace the old one and six more dryers have been added to this machine.

The installation of governors for the water wheel has just been completed and a new boiler put in at the power plant. In addition a Worthington boiler feed pump has been added and a hydro-electric steam turbine installed for auxilliary use.

A 700 foot well has just been sunk which will supply drinking water as well as water for the acid plant.

Three rope drives have been put in which has made obsolete about 500 feet of shafting and concrete has replaced practically all the old wooden floor throughout the entire mill.

At the Menominee plant, the old sulphite wet room has been torn down and the wet machines moved into the groundwood wet machine room. A new decker has been added for both sulphite and groundwood, also a knotter and two centrifugal screen. A concrete hot pond has been built which will be heated by waste steam and liquor from the digesters.

In the machine room a new rewinder has taken the place of the old one, and a big save-all installed in the basement.

Visitors at Association Headquarters

Among the callers at the American Paper and Pulp Association offices were the following:

Hon. Axel Wallenberg, Swedish Minister to the United States.

G. P. Genberg, a Swedish student who has been sent to the U. S. to study paper under the auspices of the American Scandinavian Foundation, which exchanges its scholarships with American students who study in Sweden.

D. A. Smith, District of Columbia Paper Manufacturing Company, Washington, D. C., visited Dr. Baker to discuss government specifications for paper, as he represented the association at a recent hearing at Washington on this subject.

Henry W. Stokes, President of the association, was in for a visit to discuss association affairs.

J. L. Coker, Carolina Fibre Company, Hartsville, S. C., and D. A. Crocker, Eastern Manufacturing Company, Bangor, Me., were among other visitors of the past.

Stream Pollution

Recognition of the position of the paper manufacturers that there should be a thorough investigation of the principal phases of the water pollution problem before an attempt is made to legislate on this matter has been given by the National Coast Anti-Pollution League in a suggested program which recommends a detailed survey as to present physical conditions, research as to methods of eliminating pollution with reasonable conferences of particular industries involved. Sedley Hopkins Phinney, representing the league, has discussed this matter with Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp association, and has shown that the program of the Anti-Pollution League is not such as to mean improper legislation without a definite knowledge of all the conditions involved.

At the 1921 Congressional hearings, Secretary Hoover urged that there be an investigation of an exhaustive character and declared that any general prohibition of pollution as against all forms of pollution was undesirable at the present moment without more information. He added, "We might be doing in some localities infinitely more damage to industry and to commerce than the value of any fishery that could be established would warrant."

Dr. Baker, in appearing at some of the hearings, said that the paper industry was greatly interested in this subject because of its own need for large quantities of good, clean water, but that before any legislation is enacted, there should be a more definite knowledge than there now exists as to the actual effects of what the ignorant casual observer might suppose to be pollution.

Valley Electric Builds New Dam

The Wisconsin Valley Electric company has started the erection of a new dam and power house at Rocky Carry on the Wisconsin river, three miles northwest of Merrill, and expectations are to develop 5,600 horsepower to be added to their present capacity of 11,000 horsepower generated in its power plant at Tomahawk, Merrill, Wausau and Stevens Point. The power from the new plant will be joined to the system and distributed among the four cities, according to H. L. Geisse, secretary and general manager of the company.

About thirty men are employed clearing away the brush and timber so that the dam proper may be started within a short time. The camp is also being built. As the work continues the number of employees will be increased to at least one hundred.

The dam will be constructed of concrete, being known as a complete gate section across the river and consisting of nine gates, each twenty-six feet in length.

The plans for the power house are not completed. However, the equipment will include three wheels and generators, capable of developing 5,600 horsepower.

Mr. Geisse says that the dam and plant will be completed and ready for operation within one year. Henry Lorge of Wausau is the construction foreman.

The backwater from the dam will create a large lake which it is believed will beautify the shores of the river and will be close to the Grandfather Falls road, increasing the beauty of that splendid drive.

Paper Company Adds Bag Unit

Operations were commenced recently by the Angelus Paper company, of Los Angeles, in its new plant on East Twenty-fourth street. The concern is the first to undertake the manufacture of paper bags in this section of the West, according to its officials.

The products of the company consist of all types of paper and paper bags. The bags are made on five machines which comprise the first battery to be placed in operation. These machines have a capacity of one hundred and eighty bags per minute. All paper used by the concern is made in Los Angeles.

The product of the organization will be sold directly to the Nelson-Parr Company, a Los Angeles firm, which has been distributing between three and four carloads of eastern-made bags each week.

The officials of the company are: Frank P. Taylor, president; J. Nixson Gregory, vice-president; Charles W. Churchill, secretary and treasurer. William Parr and Brinton Gregory are other members of the firm's board of directors.

Electric Drying Cheaper Than Coal

By **B. T. McBain,** ***Assistant General Manager, Nepco***

SOME years ago I had something to do with some experiments with the drying of paper with electricity as the heating agent; but those tests were made with electrical elements on the inside of a cast iron dryer and were not a success even with electrical power costing very much less than steam, in fact only 1-10 as much. The chief reason for the failure, in my opinion, was the use of the cast iron drying cylinder, or, in other words, doing what others have always done and thinking that the only and correct way.

At that time my idea, like most all paper mill men, was that in order not to produce a cockelled sheet it was necessary to have the paper alternate from one side to the other over various drying surfaces and I turned down the idea submitted at that time to try a cylinder like a wet machine cylinder mould with electrical elements on the inside and alternate the paper from one to the other.

Now, we are all liable to learn if we keep on studying and investigating and many times the ideas of men outside the industry prove of even greater value than those of men working in a certain groove, as it were.

For the past two or three years a young chemical engineer has been working on an entirely new procedure and has secured patents on his method of drying paper with electricity. He built a small experimental machine, making a sheet of cylinder formed paper 20 inches wide and 90 feet per minute. His tests proved beyond a possibility of a doubt that he can dry paper cheaper with electricity than with steam and without cockelling. Besides, his paper is from 15 to 25% stronger than by the old stretch drying process by steam and in many other particulars the sheet is superior to the old method.

A practical demonstration will soon be made. A 90 inch Fourdrinier machine is now being built with drying capacity up to 500 feet per minute and within the next three or four months the idea will have been thoroughly demonstrated to the world that there are other ways of doing even these things than the old trodden paths of our forefathers in the pulp and paper industry. Then, to dry paper with steam will be as great a waste, if not greater, than the old waste of running all the white water into the sewer, which is still being done in so many mills.

Here's a vote of thanks to John E. Alexander the inventor, for his thoughtfulness and effort, also an assurance in writing that I thoroughly believe his practical test will prove not only the success that I know it will be but the means of putting those mills with electrical power on the top of the heap.

New Kraft Mill in Portland

A papermaking plant, representing an investment of $1,250,000 will be erected in Portland near the Monarch mill after the first of next year. An option on the site has been secured from the Peninsula Investment company. The size of the new factory will be approximately 80 feet by 300, and will be equipped with two paper machines. The estimated cost of the machines and installing them is given as $250,000 for each machine.

The corporation plans on making kraft paper only, made from mill refuse obtained from nearby plants. The paper mill will thus utilize a grade of waste timber that previously was not used. When completed the mill will have an output of 50 tons daily.

At a meeting of the promoters the following board of directors was named: F. D. Thielson and Hugh G. Boyer, Salem, Ore., D. J. Fry, R. H. Mills, E. M. Fouch, N. J. Sykes, and R. R. Clark, of Portland.

Mr. Mills has gone east to order machinery for the factory.

Huge Paper Plant Completed

Built at a cost of more than $1,250,000, the new paper mill, felt mill, asphalt refineries and roofing factory of the Pioneer Paper company, occupying sixteen acres in Vernon, California, a suburb of Los Angeles, began operation recently. The capacity of the new plant will be one million eight hundred thousand square feet of roofing paper per twenty-four-hour day. A feature of the factory is special machinery which will manufacture waterproof chip board and case lining under a new process.

In addition to the felt mill and roofing plant, large warehouses have been constructed for storing rags, paper and pulp, as well as the finished products of the factory. Spur tracks with direct connection with the three continental railroads running out of Los Angeles have been run into the property.

The Pioneer Paper company was founded in 1888 by Will G. Hunt, who is still president of the concern. At the inception of the company manufacture was conducted on a small scale. Henry Eichelberger is secretary and treasurer of the organization and William Henry, vice-president and general manager.

Products of the plant are shipped to all points in the West, Alaska, Mexico, South America, and the Orient. In addition to roll roofings of various types, slate-surfaced shingles, insulating and waterproofing papers, as well as fruit and butter wrappers, are manufactured by the company.

The felt mill is declared to be the only one in the southwest. The machinery was built in the East. It has sixty dryers and four cylinders, operated by electric motors, and turns out roofing felt, sheating paper and lightweight chip. All the buildings are of brick.

Engineers Open Atlanta Office

Dwight P. Robinson & Company, Inc., of New York, have opened an Atlanta office in the Healey building, with W. Rawson Collier in charge. Mr. Collier was for many years with the Georgia Railway & Power company. He joined the Dwight P. Robinson forces several months ago, coming to them from the Poughkeepsie Gas & Electric Co.

The opening of the Atlanta office gives the company a total of eight branches. Other branches are at Chicago, Pittsburgh, Youngstown, Philadelphia, Montreal, Los Angeles and Rio de Janeiro.

Among the company's recent activities in the south are the new wet-process cement plant of the Lehigh Portland Cement company at Birmingham, Alabama; extensions to the steel plant of the American Rolling Mill company at Ashland, Kentucky; extensions to the power generation and distribution systems of the New Orleans Public Service Inc., New Orleans, and the design and construction of the fifth sulphur mining plant which they have built for the Freeport Sulphur company at Hoskins Mound, Texas. The company is also arranging to build a 300 room club-hotel at Palm Beach, Florida.

Kraft Pulp vs. Bi-Products

The Kraft Bi-Products association of Minnesota, Wisconsin and Michigan kraft pulp manufacturers met in Chicago at the Union League club on Friday, Nov. 30th, 10:30 A. M.

Those present were:

Wausau Sulphite Fibre Co. represented by C. Bache-Wiig.
Nekoosa-Edwards Pa. Co. represented by L. M. Alexander and B. T. McBain.
Marinette & Menominee Pa. Co. represented by J. H. Delbridge.
Minn. & Ontario Power Co. represented by B. G. W. Forrester.
Stevens Point Pulp & Pa. Co. represented by E. G. Goodell.
Ontonagon Fibre Co. represented by Gus Enderlein.
Prof. A. H. White of Ann Arbor, Michigan.

The meeting was called to order by B. T. McBain, chairman.

The purpose of the meeting was for discussion of Dr. White's reports and recommendations and arrangements were completed for a committee composed of O. Bache-Wiig and B. T. McBain with Dr. A. H. White as third and consulting member, to immediately plan and erect a lime sludge recalcining plant and to employ a competent engineer for the purpose. The names of two experienced lime plant engineers were suggested and, no doubt, one of these will be selected. This is only one of the waste saving schemes to be gradually worked out.

It is said that the bi-products in some industries are of more value than the original product. The Kraft Bi-products association hope to prove this in the case of the kraft pulp industry.

First Issue of Commerce Yearbook

Aiming towards the ultimate stabilization of business and industry through the reduction of economic losses resulting from the recurrent extreme of the business cycle, the Department of Commerce announces something entirely new in the way of government service to business in the form of the first issue of the Commerce Yearbook.

As outlined in the director's letter of submittal to Secretary Hoover, the Commerce Yearbook has been prepared by the Bureau of Foreign and Domestic Commerce, with the cooperation of the Bureau of the Census in response to the demands of American business men, bankers, economists, trade association executives and the trade press for an authoritative review of the economic year throughout the world prepared from the point of American industry and commerce. This first issue covers not only the year 1922 but also the early part of 1923.

Commerce Yearbook is published to meet the need not merely for a reference source to be consulted only for the specific facts on the recent past of business but for a book that can be read for general commercial information and for a survey of the most important economic developments of the year.

Summarizing a review of the pulp and paper industry, the Yearbook says:

"After the decline in 1921 the pulp and paper industry made a general recovery in 1922. Production of pulp and paper rose to 23 per cent and 31 per cent, respectively, above the production for 1921 (which, it may be noted, was about the same as in 1914) and was only 9 per cent and 4 per cent, in each case, below the output for the peak year, 1920. Preliminary figures for 1923 indicate that production for the first quarter exceeded the high average which prevailed in 1922.

"Prices continued the 1921 decline during the first half of 1922, but rose during the remainder of the year and the first quarter of 1923. Imports and exports decreased 3 per cent and 7 per cent, respectively, in comparison with 1921."

Statistics are given showing the total production of pulp and paper in the United States from 1914 to 1922, inclusive, and there is a brief but comprehensive review of price movement and market conditions from January, 1913, to April, 1923.

A section is also devoted to foreign trade, including tables showing imports and exports of pulp and paper manufactures and printed matter.

Copies of the Yearbook may be obtained for 60 cents each from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Utilization of Waste Paper

How the junk dealer's truck is a means of forest conservation is told by a writer in the November number of American Forestry, when it is pointed out that the waste collection industry claim a rank in the billion dollar class. "One thing is certain," says this article, "the paper manufacturers of the United States pay the waste paper men the surprising figure of $50,000,000 a year, representing about two million tons of waste paper.

"Were it not for the utilization of waste paper, there would be a depletion of the forests amounting to some 300,000 acres of virgin timberland every year. This is when account is taken of the fact that every six tons of waste paper produces the equivalent in pulp of an acre of virgin timberland.

"Two chief branches of the paper industry use waste paper—the paper board and the book paper mills. The book paper mills are dependent in large measure for waste paper of good grade for their mills. Old magazines, books, clippings, etc., are in demand for the manufacture of paper for magazines and book publishers. A large amount of new wood pulp is used in the manufacture of this paper but such book paper centers as the Kalamazoo, Mich., valley are consumers of huge quantities of waste paper.

"The paper board industry represents the largest total tonnage of any branch in the paper industry, with a total of over 2,000,000 tons of board manufactured in 1922.

"The Forest Products Laboratory at Madison, Wis., has been doing extensive experimenting with the de-inking of waste paper for the making of newsprint paper and this can be done economically, producing at the same time a satisfactory grade of paper."

D. H. Newell Returns To A. W. P. Co.

D. H. Newell, formerly manager of the Philadelphia office of the American Writing Paper company and later connected with the sales department of the general office at Holyoke, is again with the big fine paper manufacturing organization.

Mr. Newell, who is well known among paper men, will devote his efforts to selling Eagle-A papeteries especially with the trade formerly served by his predecessor, George Holbrook, who recently resigned.

With this new appointment, the American Writing Paper Company also announces the resumption of the management of its Chicago office by A. N. Forsythe, who successfully held that position for many years, as heretofore announced in these columns.

Paper Imports Break All Records

That paper imports during 1923 will break all records is shown by a compilation of Department of Commerce figures made by the American Paper and Pulp association of the import statistics for the first nine months of the year.

With nearly $35,000,000 worth of paper imported for the nine months ending with September, it is evident that the year's total will, if this rate of import is continued, reach $113,000,000. The nine months total is about equivalent to the highest previous year.

The totals are as follows, by months and by grades:

	By Months
January	$ 8,908,326
February	7,710,512
March	9,440,723
April	9,563,912
May	10,582,733
June	9,710,893
July	9,165,907
August	10,140,431
September	9,664,829
Total	$84,888,266

	By Grades
Newsprint	$72,493,213
Book	831,674
Board	2,367,649
Wrapping	3,147,864
Fine	467,629
Tissue	688,279
Hanging	426,172
All Other	4,465,786
Total	$84,888,266

Eddy Paper Co. Annual Meeting

Felix Pagenstecher, president of the Bryant Paper Company, Kalamazoo, Mich., and Charles A. Blaney chairman of the Michigan state prison commission, were elected members of the board of directors of the Eddy Paper Corporation at the annual meeting of the stockholders in Chicago. At the same meeting, Oscar Gumbinskey and Nathan Gumbinskey of Chicago and Arthur L. Pratt, former president of the King Paper Company of Kalamazoo, were retired from the directorate.

Excellent business during the last twelve months was reported by the secretary and treasurer. Improvements to the equipment and additions to the plant at Three Rivers and White Pigeon, it was said, resulted in a marked decrease in the cost of production.

The outstanding financial development of the annual meeting was the cancellation of 3,500 shares of preferred stock with a valuation of about $350,000. The increase in business in the last year was held to be so satisfactory that the directors could cancel the entire issue of preferred stock lying idle in the vaults of the company. This places the company's outstanding common stock, 125,000 shares of no par value common, in a much more satisfactory position with respect to the market.

Farmers To Use Lime Waste

Announcement has been made that an arrangement has been reached with the Nekoosa-Edwards Paper Company making available at Nekoosa, Wis., to the farmers of Wood county limestone suitable for agricultural purposes to be the amount of approximately 7,000 tons per year. This is regarded by farmers in the southern and southeastern parts of the country as promising the greatest impetus to the agricultural development of that region since it was first cleared for cultivation.

The acid condition of the light soils of central Wisconsin has long ago been recognized as the principal handicap to the successful and profitable cultivation of the region. Individual farmers have at times purchased commercial limestone and applied it to their fields, but the excessive cost has prevented this being carried on to any great extent. Beds of marl, a limestone clay, have been found in lakes and swamps in Portage, Waupaca, Waushara, Adams and Juneau and other neighboring counties, but so far as has been discovered there is none in Wood county and the difficulties of transportation made it unlikely that these deposits would be of much use to farmers in and around Nekoosa.

For these reasons the decision of the Nekoosa-Edwards company to make its limestone waste available to the farmers is of particular importance, and it is expected that the opportunity to obtain the material for the cost of hauling, with possibly a nominal charge in addition, will be taken advantage of throughout the region within easy hauling distance.

Under the arrangement reached by the country a with L. M. Alexander, president of the company, and Len Smith, general sulphite superintendent of the Nekoosa mill, the limestone waste will be deposited at a point where it will be available to farmers. The necessary equipment to make this change is now being installed by the company and will be in operation in about three weeks, it is expected. The Nekoosa mill is the only one in Wood county which uses limestone. About 20 tons are used there each day, amounting to about 7,000 tons per year.

Similar mill waste limestone from the mills of the Stevens Point Pulp Co., at McDill, and the Wausau Sulphite Fibre Co., at Mosinee, has been used for agricultural purposes to a certain extent, and has been found fully as satisfactory as any other form of lime. Inasmuch as commercial limestone costs Wood country farmers about $3 per ton, the annual saving, if the whole Nekoosa supply is made use of, will be about $20,000.

One of the chief immediate benefits which is expected to be derived from the newly available supply is the impetus it will give to alfalfa cultivation.

Tractor Demonstration Plans

The snow motor demonstration being arranged by the Woodlands section of the American Paper and Pulp association will be held at Piercefield, N. Y., late in December or early in January, through the courtesy of Col. W. E. Haskell and the International Paper company.

The Woodlands section in planning this demonstration is endeavoring to help the woods superintendents of paper companies to find economical methods of hauling pulp wood from the woods to rail heads or drivable streams. The motor to be demonstrated is a powerful machine with unique traction, developed by egg-shaped screw threaded drums, which in revolving develop unusual tractive strength. The manufacturers claim that it will negotiate six feet of snow without previous road making, that it can handle heavy loads on steep grades, and that it will revolutionize winter pulpwood operations.

Whether these claims can be substantiated will be demonstrated at the Piercefield test. The International Paper company has a 4,500 cord job with a stiff uphill haul at Piercefield, and another near by at Tupper Lake.

The paper mill men and woods superintendents who wish to see the demonstration can find hotel accommodations at both Piercefield and Tupper Lake.

The date has not been definitely set, dependent somewhat on the fall of sufficient snow to make the test a real try-out for this machine.

Final announcement of the test will be made in these pages.

It is semi-officially reported that the Crown-Willamette Paper company is planning to establish a small cut-up mill and a pulp plant on its holdings at Youngs river falls. This new plant is to utilize the small trees and the waste timber from its logging operations. If this plan is carried out electric power will be developed at the falls to operate these plants, the company's unloading facilities at tidewater and provide lights at the logging camps.

Durham Co. Receivership Dissolved

The Durham Paper & Pulp co., of Durham, Pa., has successfully had the appointment of a receiver for them dissolved by Judge Hand and Judge Lynch and a committee is now working out a plan of reorganization. Therefore, there is no receivership existing.

The company expects in the near future to have all their financial matters satisfactorily arranged.

This company owns and operates six different mills located at Hadley, N. Y., Napanoch, N. Y., Forestport, N. Y., Seymour, Conn., Rising Sun, Md., and Durham, Pa., and they specialize in kraft paper.

At the present time three of the mills are in full operation, Hadley, Napanoch and Durham.

Standards Committee of Fifteen

Many meetings were held during November by the five committees of three each, representing Superintendents, Technical and Cost associations and it is expected that the report to be made at the annual meetings of the three national associations in 1924 will be of great value to the industry.

General Chairman B. T. McBain is now checking up the results of the work to date done by the five separate committees.

New Type of Industrial Tractor

An internal gear drive for industrial tractors has been perfected by the Mercury Manufacturing company, Chicago, and after three years of experimental operation, a new model, the Type H, has been announced, featuring this drive. The results are striking in comparison with the worm drive models that have always been standard in tractor design.

The most important advantage is an increase—as demonstarted by elaborate tests—of 25 per cent to 35 per cent in efficiency compared with the Type L, the best of the worm drive models. These tests showed, for example, that at 200 pounds draw bar pull, the new model was developing an efficiency, indicated by speed and current consumption, 23 per cent greater than the Type L; at 600 pounds draw bar pull, 28 per cent; at 800 pounds draw bar pull 40 per cent, and so on. This increase in efficiency means an ability to run longer on one change, or handle heavier loads during the same length of time, or reduce the amount of the charge without reducing the reserve capacity of the batteries.

Type H Tractor

The second vital advantage of the new tractor is its remarkable serviceability. Five of the new tractors in service over two years have not required a single replacement part for the drive. It is claimed that this is a record never approached by worm drive tractors.

The elimination of the friction losses inherent in the worm drive has been the goal of Mercury engineers for a number of years, but it was only reached by solving many problems in the application of internal gear drives to this type of equipment. The most noteworthy feature of the new drive are the balanced arrangement of the driving years within the wheels; the method used to position these gears in relation to one another; and the successful attainment of an oil and dust tight enclosure for every moving part.

Collapsible Core For Newsprint

The Sherman Paper Company, at Felts Mills, N. Y., has been trying out a collapsible core in rolls of newsprint made at the mill, with extremely satisfactory results. The core was invented by George W. Dingee of Utica, president of the Empire Collapsible Core Company.

When the core is used the first few turnings of paper around it are pasted, making a paper core at the center. When the roll is completed the core is collapsed and removed, and the paper is shipped without a core. When the roll reaches the newspaper plant for which it is intended a duplicate of the collapsible roll is inserted in it, and the roll is run off on the printing press as at present.

Glue in Coated Paper

Warren B. Bullock, director of the information service of the American Paper and Pulp association, is sending out a bulletin in connection with the casein situation giving the following excerpt from information received by the bureau from Washington:

"The Bureau of Standards is carrying out some experiments dealing with the use of glue in coating paper. During the past month nine runs have been made on the experimental coating machine, using two makes of bone glue for eight of the runs and a French casein glue for one. The clay used for all runs was Lee Moor, a good grade of English coating clay, The results indicate that the water resistance of glue-bound coating containing chrome alum compares favorably with that of casein-bound paper containing no formaldehyde.

"It is believed that the degree of waterproofness will prove sufficient for most of the papers used for halftone printing. Difficulties have been experienced in obtaining a uniform coating, because of variation of the fluidity of the coating mixture and mechanical defects in the machine, so that additional work will be necessary before paper suitable for printing tests can be produced.

Paper Pulp from Straw

Considerable interest has been aroused in England over experiments at Northfleet, Kent, for the chemical treatment of waste straw for conversion into paper pulp.

In connection with this scheme, Sir Frederick Becker, who has introduced much Canadian pulp on the British market ,is now in Canada making further investigations.

In a statement on the subject before leaving England Sir Frederick Becker pointed out, as a striking fact concerning the millions of Canadian acres under cultivation, that practically the whole of the enormous yield of straw is a waste product, a good proportion of which is annually burnt. If, however, the experiments to be carried out in Kent are as successful on the big scale as they have been in France, he estimates that it will be possible to buy all the straw from the Canadian farmer and convert it into pulp in the prairie provinces for the manufacture of high grades of paper.

L. W. Sutherland, president of the Sutherland Paper Co., Kalamazoo, Mich., has been elected a director of the local Chamber of Commerce.

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

Chamber of Commerce Referendum

Results Show that Seven of the Eight Proposals for National Forest Policy Carried by Wide Margin

To assure a permanent future supply of timber, the Chamber of Commerce of the United States has advocated the adoption of a broad national forestry policy. The chamber's position is taken as a result of a referendum vote just completed among more than 1,300 business organizations making up the national organization's membership.

A preliminary canvass of votes cast shows that seven out of eight specific proposals contained in the referendum carried by a wide margin. The recommendation which was not endorsed provided for the setting up of a national forest advisory council, and more than 700 votes were cast in favor of even this paragraph.

Commercial and industrial organizations in forty-seven states, the District of Columbia, Hawaii, Cuba and Haiti participated in the referendum.

The paper industry is in the position of having carried its forestry campaign through this central organization of American industry, as the referendum is the outgrowth of a program for a forestry policy inaugurated in the fall of 1920. It was the paper industry's action that led to the formation of the National Forestry Program committee, which in turn was largely responsible for inducing the national Chamber of Commerce to make a study of the forestry question. Prominent paper men served both with the National Forestry Program committee and as members of the committee which made the investigation for the Chamber of Commerce, as pointed out in recent issues of Paper.

The recommendations submitted and vote on each follow:

I. "That the federal government should, for protection of headwaters of navigable streams and to the extent permitted by existing law, acquire, reseed, and replant waste lands on which reproduction of forest growth cannot be obtained by natural means, with discretion in the Secretary of Agriculture to prefer lands in states which provide at least an equal amount of funds for acquisition of such lands. FOR 1887; AGAINST 201.

II. "That states and municipalities should acquire, reseed, and replant the remainder of such waste lands. FOR 1887½; AGAINST 196½.

III. "That Congress should exact new legislation with reference to other classes of timberland, to make provision for cooperation of federal government, state governments, and timber owners in protection and reproduction of timber. FOR 1724; AGAINST 356.

IV. "That such new federal legislation should condition use of federal funds upon the state:

Having a forestry or conservation commission:

Formulating a code of forest management acceptable to the federal Department of Agriculture and aimed to secure continuous forest production, observance of the code to be obtained through voluntary agreements entered into between the proper public authorities and the land or timber owners of considerable areas within the state.

Maintaining adequate protection of timberlands from fire, with funds coming from state and private sources at least equal to federal funds used for this purposes.

Basing taxation of growing timber upon the principle of the yield tax, with reasonable uniformity among the states in such taxation. FOR 1556; AGAINST 523.

V. "That Congress should create a national forest council to have functions of advice to administrative officials and a membership of nine, one to be the federal forester and the others to represent views of public, timber men, and foresters, members of the council to serve without remuneration. FOR 1358½; AGAINST 701½ NECESSARY TO CARRY 1373; NOT COMMITTED.

VI. "That Congress should provide for a national survey and inventory of forest resources. FOR 1761½; AGAINST 292½.

VII. "That Congress should increase the federal appropriations available for protection of timber lands against fire. FOR 1987½; AGAINST 98½.

VIII. "That Congress should provide for enlargement of federal research and experiment in forest products. FOR 1908½; AGAINST 164½."

Our Forests That Were

Under the above title, B. T. McBain, assistant general manager of the Nekoosa-Edwards Paper company of Port Edwards, Wis., presented a statement on forestry as related to the paper industry, before a conference held at Wausau, Wis., on November 24th. It will be recalled that Mr. McBain was recently elected secretary-treasurer of the new Wisconsin Protective association the purpose of which is to develop a program of scientific forest taxation, adequate fire prevention and reforestation.

Wide reading and investigation have enabled Mr. McBain to concentrate, in a comparatively short paper, a wealth of information on what this country originally possessed, and the chief causes leading up to the decline of that heritage to one-sixth of its former grandeur. He frankly states that there is needless waste of wood in all wood-using industries and that the pulp and paper industry is no exception.

The statement contains some sound recommendations on forestry policy, among which the following may be quoted as indicating the viewpoint of a man long engaged in the paper and pulp industry.

"It has been proven that correct handling of private forests cannot be secured by education alone. It is necessary that suitable measures be adopted to induce private owners to preserve and protect their woodlands.

1st. The timber must be protected against forest fires.

2nd. Timber must be so cut as to aid natural reforesting.

3rd. Cut over lands must be reforested either naturally or by tree planting.

4th. Tax laws must be changed to induce owners to go into the wood growing business.

"The lumberman should practice forestry. They can do so by practicing better methods. They can harvest their crop without so much injury to the future generation. They can do more toward prevention of fires. They can and should plant trees.

"The pulp and paper mill owners who also own timberlands come within this class. Those who use timber products, but own no timber, should aid in the work of reforestation because by that means alone can they perpetuate the forests and their supply of raw material.

"The farmer should practice forestry because a tree crop is a profitable crop. Farmers should prize their woodlands because they not only provide building material for fences but supply fuel for the farm house. Any surplus can always be sold in the form of standing timber, saw logs, posts, poles, ties, or pulpwood in cordwood or bolts."

In conclusion Mr. McBain quotes a trite sentence from C. L. Pack's book on forestry:

"If we are to remain a nation of timber users, we must become a nation of wood growers."

Good Argument for Seed Trees

Experiments conducted by the Forest Service, United States Department of Agriculture, show that in the southwest yellow pine seed trees left after logging grow about twice as fast as similar trees in virgin forests.

In marking timber on departmental sales in the western yellow pine region in Arizona and New Mexico large mature trees are often retained to produce seed. A great many of the trees of this type are also defective in some way because of past fires or some injury from other causes.

In order to determine the rate of deterioration in trees of this type, the Fort Valley Forest Experiment Station in Arizona began a study in 1910. Thirty-three trees ranging between 26 and 42 inches in diameter were selected in old growth stands near the experiment station, and 34 trees between 32 and 38 inches in diameter on a nearby area which had been cut over 25 years previously were measured at the same time.

These areas were reexamined in the fall of 1922, and it was found that eight trees or 24.2 per cent of the total number in a virgin stand, had died during the 12-year period, while only one, or 2.9 per cent of the total number on the cut-over area, had died. The lower mortality on the cut-over plot was ascribed chiefly to the fact that the trees were more thrifty than those in the virgin stand.

Wisconsin Forest Protective Association

A meeting of the board of directors of the Wisconsin Forest Protective association was called by President D. C. Everest and the meeting was held at the Bellis house, Wausau, Wis., on Thursday, November 22nd.

The main subject for discussion was the proposed Article of Association and after careful consideration the draft was made up. Secretary McBain was instructed to send copy in duplicate of these to each and every member of the association, requesting their signature, the return of one copy together with a statement of their last year's consumption of pulpwood or logs or both.

The problems of forest protection were thoroughly discussed and it was decided that the president would call a meeting in Chicago of the association members as soon as all had returned their signed articles of association and consumption figures.

The following is a synopsis of the Articles of Association:

A voluntary association of timber owners and users of the State of Wisconsin in view of the rapid depletion of the forest resources within that State and the importance of conserving the forest resources on the remaining timbered area, and the further importance of encouraging the growth of timber on cut over areas in this section of the United States, the undersigned persons or corporation interested in the production or consumption of forest products within the said State of Wisconsin band themselves together.

That the directors shall meet on call of the president and have power to assess the membership up to a maximum amount per cord of consumption per annum.

That the membership may be corporate or individual.

The purposes as set forth are the protection from fire and other protection of growing timber; to aid in the propogation of timber for the wood using industries of the State; and the directors are instructed to use any and all legal means for arriving at these desired ends. The association has also the power to transact any and all other business as may properly be the business thereof.

The annual meeting will be held in Wausau the fourth Tuesday of September.

There are the usual regulations for officers, including the bonding of treasurer, and membership is for one year under certain conditions.

Forestry Profession in New York City

With the summer's work in the field ended, New York City foresters organized as the New York Forest club have resumed their monthly luncheon meetings, and the first gathering held in November will be followed by another December 18 at the Canadian club. The club has a list of between 50 and 60 foresters in or about New York city, many of whom are actively practicing their professions. Others with forestry training are engaged in other lines of work, but still maintain their interest in the profession for which they were trained.

At the November meeting there were sixteen present, and the work of the American Forestry association was discussed by two of the directors, Ernest A. Sterling and N. C. Brown. Dr. Hermann Von Schrenk of St. Louis told of forestry work in Missouri, and the National Chamber of Commerce Referendum was discussed by Dr. Hugh P. Baker, who pointed out the divergent comments of Gov. Pinchot and Col. Graves.

A program committee to plan for the winter's meetings was named, consisting of Julian Rothery, chairman, W. E. Murchie and E. C. M. Richards.

Standing Timber in Oregon

A map of Oregon recently printed in one of the large daily newspapers of Portland, Oregon, was divided into north and south sections by a line running east and west but this line was a little south of the center of the state. The northern section was divided by a line east of the Cascade mountains which ran north and south parallel with the mountains.

In each of the three divisions thus made was placed an estimated amount of the timber therein. The northeast division has 43,933,000,000 feet of standing timber; the northwest division has 339,751,000,000 and the southern division of the state has 84,327,000,000 feet.

Atmospheric Humidity Restrains Fires

Atmospheric humidity discourages forest fires. This is the finding of E. F. McCarthy, silviculturist of the Appalachian Forest Experiment Station at Asheville, N. C., who has written an article on his investigations for the Monthly Weather Review. His studies are a verification of those conducted by the foresters on the Pacific coast.

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The Second Paper Industries Exposition

The pulp and paper industry of the United States is once more afforded the opportunity of emphasizing its extent, economic importance and position among the great basic industries of the country. During the week of April 7, 1924, in conjunction with the annual convention of the American Paper and Pulp association, it is planned to hold the second Paper Industries Exposition, at which will be shown the numberless productions of pulp and paper and related articles that are manufactured in the mills and converting plants of the United States and Canada. Not alone these, but the machinery, equipment, power devices, etc., that have been developed for the use of the industry during recent years.

The meeting of the association will be held at the Waldorf-Astoria hotel and the exposition will be held in the Grand Central Palace. Announcement is made by the exposition management that the entire first floor of the Grand Central Palace will be devoted to the exposition and, if necessary, the second floor will also be used.

About one-fourth of those who had exhibits at the first paper exposition have already reserved space in the second show.

An advisory committee from the paper industry has been formed and its first meeting will be held before December 22. In the meantime preparations are under way to inaugurate an active campaign that will bring the exposition to the attention of every paper manufacturer and every producer of equipment and supplies for the paper industry, with a view to making the second paper exposition a representative and comprehensive exhibit of everything connected with the production of paper.

The exposition has the active support and cooperation of all the progressive manufacturers of paper as well as that of the producers of machinery and equipment.

The far-seeing men in the paper industry recognize in the exposition a forceful means for laying before the general public concrete evidence of the vast magnitude of the industry and its importance to all lines of business.

The ancient idea that the interest and natural curiosity of the public, to say nothing of its exaggerated misconceptions, could be safely ignored, has been thoroughly exploded. The support of public opinion is necessary in order to secure legislation for the preservation of the industry and the exposition is one excellent channel through which the public may be reached. It is, therefore, incumbent on the progressive concerns engaged in papermaking to do their utmost to assist in this educational movement.

There is another phase of the exposition which should appeal with equal force to paper manufacturers and that is the opportunities it offers for examination and study of new equipment and processes as shown by the exhibits of machinery, etc. Opportunity will be offered for comparative study of various devices and processes that could only be secured otherwise by many trips to distant points and with little opportunity for comparison.

Dard Hunter—Master Craftsman

IN the succeeding number of PAPER will appear an article by Dard Hunter, of Chillicothe, Ohio, on the significance of early papermarking which will form a notable contribution to the subject.

As an artist, craftsman and historian of handmade paper manufacture, Dard Hunter has no rival among writers in English and few in any other language. For many years he has enriched the literature of papermaking with the results of his painstaking researches on handmade paper and its watermarks and he is, indeed, the only writer in English who has written on the subject from a technical standpoint.

Every student of the history of papermaking is deeply indebted to Mr. Hunter for the monumental bibliography of the art of handmade paper which he contributed originally to this journal in the form of a report to the Committee on Bibliography of the Technical Association of the Pulp and Paper Industry under date of April 14, 1917. This invaluable reference work will be found in PAPER for May 30, 1917, pp. 20-26.

New Developments in Paper Making

Manufacture of Glazed Paper

According to British patent No. 202,479 glazed paper is made by subjecting the sheet of paper to heat and pressure, during which period it is momentarily brought in contact with a thin sheet of copper which glazes and cools the paper.

* * *

Composition for Treating Paper

In United States patent No. 1,468,831, which is assigned to the S. H. Parrish Co., there is described the manufacture of a composition used in treating paper. This composition is made by mixing together one part of soya bean oil with three parts of tetrachloride of carbon, eight parts of fir balsam with four parts of turpentine and then adding the two solutions together.

* * *

Irridescent Coatings

British patent No. 202,835 is concerned with a process of producing irridescent coatings on paper. The coating consists of a film formed by the spreading and evaporation of a solution on the surface of water. The solution is composed of nitro-cellulose or cellulose acetate, to which gums or resins may be added, dissolved in a fatty acid or without the addition of alcohol or acetone. The paper to be coated is drawn upwards through the solution on which the film floats, so that the film adheres to the paper.

* * *

Paper Calender

In this calender the rolls are arranged side by side horizontally. Each roll has a pulley at one or both ends. A belt passes over and under the various pulleys. An idler pulley varies the tension on the belt. This arrangement relieves the rolls of their own dead weight, and enables pressure to be regulated and graduated according to requirements. Slitting knives are provided so that the paper may be cut to various widths while being calendered. For further details see British patent No. 202,753.

* * *

Waterproof Material From Paper

The cellulose material that is to be made waterproof is immersed in a concentrated solution of a chloride of an alkaline earth metal or of zinc or aluminum, to which solution a small quantity of zinc peroxide or sodium perchlorate, or a hypochlorite or a persulphate has been added. In the presence of such oxidizing agent, which acts as a catalyst, the cellulose present in the fiber is partially hydrolyzed to soluble amyloids when the saturated material is heated on rollers to a temperature of 90 degrees C.

The fiber is then treated with dilute caustic soda solution in order to coagulate the amyloids and thus render the whole waterproof, and well washed to remove the hydrolyzing salt and the catalyst. This process is patented in German patent No. 377,659.

* * *

Washable Printing Paper

The improved method of manufacturing paper for printing maps, charts, etc,, which is patented in British patent No. 202,883, consists in passing the paper, through a preliminary bath of size so as partly to impregnate it. Then the partially impregnated paper is passed between pressure rolls to complete the impregnation.

After a period of several hours a hardening solution is applied and the paper is rolled up and allowed to remain for several hours more. Before drying it is cooled in a current of air. An addition of alkali or acid to the sizing solution increases the absorption. After the hardening process the paper may be treated with glycerin to soften it and then it is finally varnished.

* * *

Purification of Cellulose

German patent No. 378,260, which is assigned to Dr. Schwalbe, is concerned with a process for the purification of cellulose from pentosans. Cellulose which has been bleached is heated with a sulphite solution, for example magnesium sulphite solution, in the presence of metallic oxides such as lime or magnesia. Pressure may or may not be applied. Practically all the lignin and most of the pentosans present are removed in this manner, especially if the above treatment be followed by a second short bleach. Hitherto there has been no ready method of obtaining cellulose almost free of pentosans.

* * *

Treating Waste Soda Pulp Liquor

The process which is described in United States patent No. 1,442,494, and which is intended for the purification of waste soda pulp liquor wherein a liquid waste material containing combined carbon is obtained and subjected to further treatment, is assigned to the Jessup and Moore Paper Co.

Waste material which contained combined carbon, such as the liquor from the soda pulp process, is evaporated in an incinerator evaporator of the usual type. The residues are leached in order to remove the soluble salts which are then recovered. The carbonaceous sludge which remains is dried by the hot gases which come from the incinerator. In passing through the dryer these gases are freed from any suspended matter that they may happen to contain and the latter is collected and returned to the incinerator.

The dried carbon is fed into a powdered coal apparatus of the usual type and the fuel obtained in this manner is used to heat the incinerator. It may be necessary to supply some outside heat to the process, especially to the dryer.

* * *

The Efficiency of Felts

To choose a felt intelligently it is necessary to have in mind the functions it has to perform. Its first function is that it should act as a transporting band, the second that it should absorb water easily from the paper, the third that the water should readily pass through it, and the fourth that its face should be a guard against felt marks. There are also other points, such as the life of the felt, its dirt resisting qualities, its ability to withstand the effect of roping and the effect of washing off the machine, etc.

The ideal felt would last as long as a drying cylinder and require no more attention, would never interfere with the production of good paper, or get dirty, or change its condition, or wrinkle, or run ashore, or out of square. From the standpoint of the machine man an ideal felt would be one that never required washing until the next shift, or changing until the week-end. It is easy to see that it is impossible to satisfy these requirements.

The author of this paper, which is abstracted in Paper Making and Paper Selling, describes a method for cleaning the felt and keeping it in constant good condition for paper making.

Rapid Analysis of Paper

(Continued from page 9)

$$\text{Straw stock} = \frac{100(6.45-0.5)}{13-0.5} \quad \text{or 47.6 percent}$$

$$\text{Rag stock} = 100-47.6 \quad \text{or 52.4 percent}$$

Determination of Furfurol by Phloroglucin

This method, which possesses a sufficient degree of accuracy, has the advantage of being rapid and is suitable for use in the great majority of cases.

It is based on the Kroeber reaction, that is the precipitation of furfurol in acid solution by phloroglucin. The standard solution of phloroglucin is prepared by dissolving five grams of the substance in one liter of a hydrochloric acid solution of 1.06 density. The distilled liquor which contains the furfurol is then diluted to give the same density reading on the hydrometer and is heated to a temperature of from 65 to 70 degrees C.

The standard phloroglucin solution is added from a graduated burette. A black precipitate is formed. The reaction is complete when a drop of the liquor containing furfurol gives a rose colored reaction on a spot plate. This denotes an excess of phloroglucin.

The standard phloroglucin is titrated beforehand with a solution of furfurol so that the value of each cubic centimeter in terms of furfurol is known. This factor is multiplied into the number of cubic centimeters used and in this way the weight of furfurol obtained from a unit weight of paper is obtained. This figure is then used in the same manner as indicated above to determine the proportion of different fibers in the paper.

(To be continued)

Treatment of Grindstones

(Continued from page 5)

up the grit of a stone that has glazed over and also for removing streaks from a stone that has been burned.

If the stock from any stone is too free or rough it is often improved considerably by running a fine diamond lightly over the face of the stone that is producing the undesirable stock. The groundwood produced by a diamond burr has the objection of containing a very large number of slivers and sawdust-like stubs, which show up plainly in the finished sheet of paper, causing cracks on the edges and spots or open places in the body of the sheet.

The Hall Process

Two types of burrs are often used in combination with each other and in this manner the good points of both types are brought out and a very desirable stock obtained. The best known combination of burrs is the No. 4 straight cut with a 10, 12 or 14 diamond, the diamond selected according to the freeness of the stock desired. This combination, employing a flat bottom straight cut, is known as the Hall process.

In the foregoing combination the diamond burr does the cutting and the straight cut provides a recess for the stock ground to escape from the stone and minimizes regrinding.

Good Business To Be the Rule

"Basic business conditions are good, and the paper industry should expect to receive its normal share of the business activity," says the monthly review of business by the Paper and Pulp Industry, the bulletin of the American Paper and Pulp association.

"Despite some uncertainty in the country's business—unjustified as such uncertainty is by basic conditions—the paper industry is not altering its belief that good business is to be the rule for months to come," says this review. "This sentiment, expressed during the fall business conference at Chicago, seems to be justified by the general improvement in the volume of business since the middle of October. The statistical report of production for September, compiled by the American Paper and Pulp Association, showed an unexpected falling off of production, following an increase in August to above normal for the summer months. It is probable, however, that the October summary will show an increase of production over September."

Work has been commenced on a new concrete dam to replace the old wooden one at the Sturgeon river mill of the Spanish River Pulp and Paper Mills company. The work will be carried on throughout the winter without interruption in manufacturing operations.

Modern Methods

in our mills constitute one of the reasons for Appleton efficient service and fine quality.

The latest and most improved machinery with skilled workmen and the best wool obtainable, guarantee Appleton superiority.

Appleton Woolen Mills
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TRADE MARK

Appleton
Felts and Jackets

BELT CONVEYOR
Properly applied, the belt conveyor offers an ideal solution of the conveying problem.

Do You Handle Your Coa

TIME, labor and money are saved in handling coal to the boiler house—to a greater extent than the average manufacturer appreciates.

Unloading, loading, storing and reclaiming coal, conveying it to the bunkers, and disposing of the ashes, involve problems that often bother him. It looks so simple and easy. He sees many standard systems and devices, the merits of which appeal to him as good solutions of his problem.

And yet, after the equipment he chose is installed and used, it becomes apparent that something is lacking. The plan would have been more effective if the equipment as a whole were especially selected, or designed, to fit his peculiar conditions.

That is why the experience of Link-Belt engineers, extending over more than 40 years in this work, can be of value to the average manufacturer, and his engineer.

Chain-and-bucket conveyors, belt conveyors, skip hoists, flight conveyors, screw conveyors, gravity-discharge elevator-conveyors, are all excellent types of equipment. Locomotive cranes, crawler cranes, bridge tramways, unloading towers, portable bucket loaders and portable belt conveyors, power hoes (drag scrapers) are all recognized standard machines for loading, unloading and storing coal. All are well-established standards. Yet, it is upon their application to the local conditions that their effectiveness and economical operation depend.

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1405

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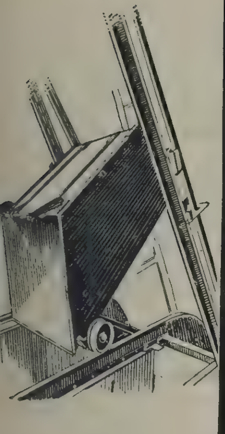
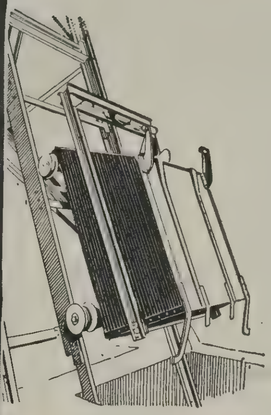


SKIP HOIST
The Link-Belt Skip Hoist is the result of 20 years' experience in building this type of equipment.



fficiently and at Low Cost?

t is here that the unbiased judgment of Link-
elt skilled engineers is, in the long run, a
afe thing to follow.

ur position is unique. We manufacture in
heir entirety, in our own plants, all of the
arious approved types of equipment used in
he handling of coal. Our designs, therefore,
re made without prejudice, and are unin-
uenced by a desire to force the use of some
articular type of equipment, to which we
ight be restricted by patterns or facilities, or
o which we are committed by costly exploita-
ion.

ocal and individual conditions have a very
nportant bearing on the determination of
hat equipment is most advantageous. For this reason standardization of general designs is desirable only to a limited extent.

We have carried to the highest point of standardization the design of the various types of equipment, so that we may insure the minimum cost of production; and our engineers adapt these various standardized devices in the best possible manner to the conditions of the purchaser.

Therefore, if planning to store coal, or change your present method of getting coal into the boiler house, let us work with you, and your engineer. Take advantage of our vast experience in designing and building hundreds of small and large plants throughout the world. It is yours for the asking.

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LINK-BELT MEESE & GOTTFRIED CO.
SAN FRANCISCO, 19th and Harrison Sts.
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SEATTLE, 820 First Ave. S.

LINK-BELT LIMITED
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TORONTO, 10 Gauvin Lane

INK-BELT

Doings in Canadian Paper Field

Victory for Bathurst Company

One of the most far reaching judgments effecting the pulp and paper industry in Canada was delivered recently when the appeal of the New Brunswick Workman's Compensation Board was dismissed.

The New Brunswick Workman's Compensation Board had appealed from the decision of the lower court that the board had not established a case against the Bathurst Company of Bathhurst, N. B., manufacturers of pulp and paper. The board had sued for $62,000, which it had levied against the company in compensation taxes. The company had refused to pay on the grounds that it had a compensation system of its own which the board refused to recognize; that the board was extravagant, and expensively operated; that the system was inefficient, inasmuch as the entire burden was placed on the employer.

The lower court had adjudged that the company had properly refused to pay the levies. The board took the case to the New Brunswick supreme court and the judgment of that court is that no appeal will be granted. The board may appeal to the supreme court of Canada, and to the privy council at London, if necessary.

For some years the pulp and paper industry has been carrying a very heavy burden in the New Brunswick Workman's Compensation Board which has been known as the most extravagantly operated compensation body in existence. The board seemed to single out the pulp and paper industry for special attention when desirous of increasing compensation taxes.

However, the Bathurst company, which is one of the most important of Canadian pulp and paper manufacturing concerns and which is controlled by U. S. capital, proved a worthy fee. The company has consistently refused to pay the levies and the executive of the firm was not discouraged by two rebuffs received at the opening of the legal warfare when two court decisions were recorded in favor of the compensation board.

The Bathurst company recently opened a new paper mill at Bathurst and enlarged its pulp mill. The company has also built tidewater decks and bought very large tracts of pulpwood land in northern New Brunswick and Quebec.

The company intends to fight the exorbitant levies to the end and will continue the litigation if necessary. That there must be relief for the pulp and paper industry is realized.

More Embargo Discussion

At a recent meeting in Dryden, Ont., of those interested in pulpwood a resolution was adopted to the effect that those interested in the sale of pulpwood would regard the proposed embargo as detrimental to their interests by restricting the market for wood. At the same time they recognized that if the duty at present imposed by the United States on kraft paper could be reduced or entirely removed, the resulting benefit to Canadian mills would go far to improve the lot of the settlers by providing a home market for their pulpwood and other products.

H. F. Bullard, general manager of the Dryden Pulp and Paper company, assured the meeting that as far as his company was concerned there was no desire to interfere with their freedom to deal wherever their interests dictated. The problem of the Canadian mills, he said, was not one of supply of raw material but one of wider markets for their products. Although they supplied a large portion of the western market that, after all, was a very restricted market compared to the immense market to the south. As long as raw material from Canada could reach American mills duty free and they were protected by a 30% tariff, the inequality would be to the serious disadvantage to manufacturers on this side.

Canadian Mill for American Company

Engineers of the Hollingsworth & Whitney Paper Co. of 185 Devonshire street, Boston, Mass., are making borings and tests for foundations for the pulp and paper plant to be erected at St. Stephens, N. B., just across the river from Calais, Me. The company recently made extensive purchases of property at the lower boundary of St. Stephen on both sides of Porter Mill stream and more recently purchased water rights at Milltown, N. B., to operate in connection with the project.

The company already has mills at Waterville, Me., and Gardiner, Me., owns extensive timber acreages around the head of Moosehead lake, Me., and also recently acquired extensive holdings of timberland on the Canadian side of the upper St. Croix river and elsewhere in the maritime provinces.

The Central Paper company, a corporation under the laws of Michigan, was recently granted an extra Ontario provincial license to manufacture and deal in pulp and paper in the province of Ontario and to invest any sum up to one million dollars. A. C. Boyle, of Fort William, is the Ontario representative of the company. H. E. Jones, secretary of the company at Muskegon, Mich., states that while the company has taken out an Ontario license they have not yet completed arrangements as to their operations beyond the development of the timber limits they have acquired.

J. W. Defoe, editor of the Manitoba Free Press, Winnipeg, was in Toronto last week on his way home after having attended the Imperial conference in England. Mr. Defoe stated that there was a great field in Europe for Canadian made papers which Canadian paper manufacturers should concentrate upon. He expressed some pessimism over the economic conditions of Great Britain and ventured the opinion that the present election campaign there would result in a stalemate.

The Quebec Official Gazette contains a notice that Messrs. Price Bros. & Co., Limited, of the city of Quebec, intend to apply for authorization to have constructed a dam and hydro-electric power house on the Chicoutimi river. Reports are also current to the effect that Price's may take over the Saguenay Pulp interests. Both are operating side by side in the Lake St. John and Chicoutimi and have much in common.

The Abitibi Power and Paper Co.'s mill set up a new record in September when a daily average production of 583 tons was established. This was the more noteworthy in that it was only a 27 day month.

Construction News

Boston, Mass.—The Hollingsworth & Whitney Co., 185 Devonshire street, manufacturer of paper, with mills at Waterville and Gardiner, Me., is perfecting plans for the construction of a new plant on site acquired some time ago at St. Stephen, N. B., on the St. Croix river, opposite Calais, Me. The mill will consist of pulp and paper units, with power house, machine shop and other auxiliary buildings, and is reported to cost about $500,000. Test borings for foundations will be made at once and it is proposed to break ground at an early date. The present plants will be continued in service.

Fort Miller, N. Y.—The Fort Miller Pulp & Paper Co., has plans for the construction of a new pulp mills, with initial capacity of 100 tons per day, to be operated by water power. It is estimated to cost close to $200,000, with equipment. S. A. Thorpe is general manager.

Dalton, Mass.—The Eaton, Crane & Pike Co., Pittsfield, Mass., has acquired the fine paper business of the Z. & W. M. Crane Co., Dalton, and will take over the property on January 1. It is understood that the transaction does not include the machinery and equipment at the Dalton mills, and that the plant will remain equipped, in its present condition, for the time being.

Astoria, Ore.—The Crown-Willamette Paper Co., Pittock building, Portland, Ore., has tentative plans for the construction of a new pulp mill on site selected at the Youngs River Falls, near Astoria. It will consist of a main operating unit, estimated to cost in excess of $125,000, including equipment.

Stillwater, N. Y.—The Wood-Flong Paper Corporation is planning for the installation of equipment for its machine shop, including lathe, pipe threading machine and other apparatus. The compnay is also said to be considering the installation of a number of beaters and auxiliary equipment at the mill. C. W. Townsend is general manager.

Freeport, Me.—The Baxter Paper Box Co., is completing the remodeling of the former local high school for a paper box and container factory, and plans to commence operations at an early date. Equipment will be installed immediately. It is said that the plant will give employment to about 50 operatives for initial production.

Kenora, Ont.—The Backus-Brooks Co., is making ready for operations at its new plant and will place the first unit in service at an early date. The plant will be devoted to the production of newsprint. Other plant units will be constructed at a later date, until the mill is one of the largest plants in the country for newsprint manufacture.

Chicago, Ill.—The South Side Paper Co., 5838 Throop street, is perfecting plans for the rebuilding of the portion of its two-story and basement plant, recently destroyed by fire. It will cost approximately $25,000. Robert Colbus is president.

Monroe, La.—The Brown Paper Mill Co., is pushing construction on its new local plant, to be used for the manufacture of kraft papers, and purposes to have the initial units ready for service early in the coming year. The mill will have a daily output of about 65 tons of pulp and paper per day, and will represent an investment in excess of $1,000,000. Natural gas will be used for fuel.

Norwalk, Ohio—The Universal Paper Products Co., is reported to be negotiating for the sale of its local plant to the Norwalk Enamel Products Co., which will remodel and improve the plant for another line of production. The future plans of the Universal company have not as yet been announced.

New Companies

Providence, R. I.—The Commonwealth Paper Co., has been incorporated with a capital of 250 shares of stock, no par

(Continued on page 25)

GREEN-BAY
WIRE WORKS

Green Bay
Fourdrinier
Wires

Can't Be Beat

MADE OF

BRASS
AND PHOSPHOR
BRONZE

You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

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GREEN BAY
WIRE WORKS
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Doings in Canadian Paper Field

Favors Export Duty on Pulpwood

Basing his study of the tariff question on the effect upon the pulp and paper industry of Canada, H. F. E. Kent, president of the Canadian Pulp and Paper association, in an address before the Ontario division of the Canadian Manufacturer's association in Toronto last week, declared that, on account of inadequate protection importations of paper into Canada had averaged nearly $8,000,000 a year for the past ten years.

"The time is ripe for a new stock-taking of the situation in Canada with regard to pulpwood," he said, claiming that the pulpwood resources were being at present depleted at a terrific rate. No one could gainsay the wisdom of keeping as much of the raw material as possible within Canada. Pulp exported from Canada returned as paper to compete with the Canadian product. He favored an export duty which would compel manufacture within Canada.

Forestry the Only Solution

In an address at a recent luncheon of the Canada Paper club in Montreal, George Carruthers of the Interlake Tissue Mills of Toronto, spoke strongly of the necessity of closer co-operation between pulp and paper interests.

As vice-president of the Canadian Pulp and Paper association he frankly stated that the paper interests were using up Canadian forests far quicker than trees could be produced, and unless a better method of conservation were worked out, the Canadian paper industry would be up against a bad situation.

The solution lay in forest conservation and re-forestation. He said it was practically impossible for private interests solely to undertake the latter work, and the Government would have to shoulder the greater part of it. Three times as many trees were being destroyed by fire and pests as by the paper industry.

Red Tape Forces Shutdown

For the first time in its history the Kam Power company at Fort William was unable to deliver a sufficient load of energy and as a result 150 men were laid off by the Fort William Paper company last week. The firm resumed operation the next day and it is expected that the shut-down for the present will only be one day a week.

Meanwhile Sir Adam Beck, chairman of the Hydro Electric Power commission of Ontario is adamant in his proposition not to supply hydro power to the Kam Power company unless the city of Fort William officially applies for it and agrees not to interfere with hydro service to Fort William. The city has taken the stand that the matter of power lies between the two developments and is not a matter of civic participation.

Canadian Briefs

The Glengarry Pulp and Paper company, Cornwall, Ont., which was organized some time ago and is in operation, has been formed into a limited liability company by Ontario charter, with an authorized capital of $250,000.

Circulars issued to the printing trade by the Canadian Paper Trade association announce a change in terms. The old terms were 2% 30 days, net 60 days and under the new arrangement, beginning January 1 next, the terms will be net 30 days from the first of the month following shipment and a discount of 2 per cent will be allowed only if paid not later than the 20th of the following month.

Fred W. Halls, of the Fred W. Halls Paper company, paper jobbers, Adelaide street, Toronto, has returned from an adventurous hunting trip, bringing with him a deer and a wildcat. He was up on the Algoma Central railway, sixty miles west of Sudbury.

Kay Crabtree, who has been general superintendent of the Crabtree division of the Howard Smith Paper Mills for several years, has taken charge of the sales of the surplus bleached groundwood and bleached and unbleached pulp produced by the company. A banquet was given in his honor a few days ago by the employes of the Crabtree division and the men were out en mass. Aubrey Crabtree presided and Thomas Parks presented the guest with a handsome watch and at the same time expressed the cordial good wishes of the gathering for Mr. Crabtree's continued success.

Pulp and paper companies of Canada are endeavoring to stimulate the paper market in Australia. Premier King of Canada, who is now in England in conference with the premiers of the other British dominions, has been endeavoring to reach some agreement with the Australian premier whereby the Australian paper market will look with greater favor than previously on Canadian paper. At present the Australian market is none too good, which is attributed to the British preference. However, indications are not looking that improvement is in sight.

The Pejepscot Pulp and Paper company, with head offices in New York City and paper mills in Maine, have started the winter pulpwood cut. This company controls vast tracts of pulpwood land and has also some crown lands leases along the Bay of Fundy shore between the Salmon river and the Petitcodiac river. At Salmon River, this company is enlarging its operations. It maintains a mill, camps and offices at Salmon River. It is from Salmon River that shipments are made by barges towed by the company's tugs to the Maine paper mills at Bath and Belfast.

The Canadian Vegetable Parchment company, Limited, St. Catharines and Merritton, Ont., had an extensive and attractive exhibit of Purity parchment at the Royal Winter Fair in Toronto last week. Their booth was attractively decorated with samples of the firm's product and a feature was a guessing contest which centered round the weight of a huge bale of parchment paper which had been especially packed for the occasion.

During October the Canadian newsprint industry set up another high record for newsprint production, having turned out 114,475 tons, as compared with 113,584 in August, the previous high mark. The shipments from Canadian mills also made a new record, having been 112,996, as compared with 112,818 in August. This average daily production was, however, about 30 tons a day below that for September, though it was 420 tons a day ahead of that for January.

Construction News

(Continued from page 23)

value, to manufacture and deal in paper products. The incorporators are Fay R. Hunt and Frederick U. Weigert, both of Providence.

Red Bank, N. J.—The Whitfield Paper Works, Inc., has been incorporated with a capital of $200,000, to manufacture paper products. The incorporators are Howard Whitfield, F. Standlinger and Warren H. Smock, 75 Broad street, Red Bank. The last noted is representative.

Wilmington, Del.—The H. Reeve Angel Co., Inc., has been incorporated with a capital of $100,000, to manufacture and deal in paper products. The company is represented by the Registrar & Transfer Co., 900 Market street, Wilmington.

New York, N. Y.—The O. R. O. Envelope Mfg. Co., has been incorporated with a capital of $50,000, to manufacture envelopes and kindred paper products. The incorporators are M. Rosner, S. M. Orgler and F. G. Loeffler. The company is represented by Abraham Wielar, 261 Broadway, New York.

Waltham, Mass.—The Waltham Waste Paper Stock Co., has been incorporated with a capital of $5,000, to deal in paper stock. Jacob Cron is president, and Nathan I. Schreibman, 17 Linden street, Waltham, treasurer.

Chicago, Ill.—The Columbian Products Corporation, 320 East Twenty-first street, has been incorporated with a capital of $50,000, to manufacture wall paper and kindred products. The incorporators are Joseph L. Strauss, Adolf Schmidt and Herman Schultz.

West Hoboken, N. J.—The Consumers Paper & Supply Co., has been incorporated with a capital of $10,000, to manufacture and deal in paper products. The incorporators are I. Schwartz and Abraham Winokur, 274 Paterson avenue, West Hoboken. The last noted is representative.

Financial

Greensboro, N. C.—The General Paper Co., has arranged for an increase in capital from $25,000 to $50,000, for expansion.

Rising Sun, Md.—The Durham Pulp & Paper Co., of New Jersey, has curtailed operations at its local mill, due it is stated, to recent financial controversy regarding receivership. The plant is expected to close for the time being.

Toronto, Ont.—Gordon W. Scott, Montreal, Que., has been appointed provisional receiver for the Riordon Co., and the Riordon Pulp & Paper Co., the parent organization. The company's recent proposal to creditors for reorganization was not considered favorably.

Business Opportunities

The Foreign Trade bureau of the Chamber of Commerce, Philadelphia, Pa., has received an inquiry from a company at Valparaiso, Chile, in the market for paper, cardboard and kindred products. Full information available on request.

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Agra City, India, in the market for white, unglazed printing paper, and bank M. F. colored tissue. Reference No. 8310.

The Pacific highway is having a south road built into Oregon City at a cost of $183,000 to replace the old wooden road running along the bank of the river. For this work the Crown Willamette Paper company contributed $10,000, and the Hawley Pulp and Paper company have promised $30,000. When this new road is completed the motorists will obtain a splendid view of the Willamette Falls at Oregon City. A picture of these falls is engraved on the service pins given to the employes of the Crown Willamette Paper company who have served it faithfully for a certain number of years.

It's the
Paper That Counts
When Planning
That Particular Job

White Unglazed Onion Skin

Runs well on the press and turns
out work above the average. Samples
will convince you. Ask for them.

Manufacturers of
"Quality Papers at Quantity Prices"

WOLVERINE
PAPER COMPANY
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CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE		
Bond	9.00 @	40.00
NEWS		
Contract Basis	3.75 @	4.00
BOOK		
S. & S. C.	6.50 @	7.25
M. F.	6.25 @	7.00
Coated and Enameled	8.00 @	12.00
TISSUE		
White	.85 @	.95
Manila No. 1	.75 @	.85
WRAPPING		
No. 1 Domestic Kraft	6.00 @	6.50
No. 1 Jute	8.25 @	8.75
No. 1 Wood	4.00 @	4.25
Butchers	3.75 @	4.00
BOARD		
News	50.00 @	55.00
Chip	45.00 @	50.00

Paper and Board

New York, December 11.—Generally speaking, conditions in the paper industry remain about the same as last reported. In some kinds of paper, demand is on the increase; this, however, is rather the exception than the rule, and there has been a slowing down of the movement of other descriptions of paper into consuming channels. Business in the aggregate is fair, probably when all kinds of paper are considered, there is broader activity than the trade usually experiences at just this period of the year. However, the weakness in certain papers takes away from the market stability, and is creative of a situation over which many in the industry express dissatisfaction.

A rather sharp decline in wrapping paper prices has been recorded. Partly due to competition by imported paper, and partly to the limited amount of business obtainable by domestic manufacturers, leading producers of kraft wrapping have reduced quotations more than half a cent per pound on No. 1 domestic kraft, and about the same on the No. 2 grade. Most domestic mills are readily taking orders for No. 1 kraft wrapping at 6.25 cents a pound at the mill, and there have been sales reported at less than this figure. No. 2 domestic kraft has sold at 5.25 cents f.o.b. mills, while about the best quality of imported kraft wrapping is quoted at 6.25 cents in New York, which means, of course, that domestic paper is priced at approximately the difference of freight from mills to consuming points above the imported product.

A sharp drop in prices of bogus wrapping also has been noted. The reason for this, it is asserted, is that the cost of raw material has so appreciably decreased that manufacturers were enabled to reduce quotations on the finished product, and bogus wrapping is selling down to 2 cents per pound f.o.b. mills, or at about 2.25 cents New York, representing a decline of one cent a pound from the levels prevailing not a long while ago. Bogus wrapping is made of old waste paper, and since prices of this commodity recently scored a sharp drop manufacturers of bogus wrapping are purchasing their raw material at substantially lower rates and consequently are passing on the saving to consumers by reducing prices of the finished product.

Book paper mills are reported operating on a fair scale. Few have enough business on file to justify maximum production; at the same time, the movement of supplies into consuming channels is of sufficient volume to keep a majority of mills running at a good rate of capacity. Manufacturers are keen for business and are not permitting the matter of a little lower price to stand in the way of them securing orders, which means in other words that some shading of quoted prices is being resorted to. An average of quotations on machine finished book paper of the usual run of quality is about 6.75 cents per pound f.o.b. New York. Sales down to 6.25 cents New York have been reported, but the paper involved in such cases is said not to have been of strictly No. 1 grade. Coated book paper is quoted at 8 cents a pound upward, depending on quality and tonnage, f.o.b. New York.

There is a strong demand for newsprint. Consumption of print paper is holding up at a high level, possibly consumption at the moment is at the zenith for the year, since publishers are printing issues of record-breaking size to carry all of the pre-holiday advertisements of department stores and other merchants. By way of example, one of the afternoon New York dailies put out an issue of 70 pages last Friday, which doubtless comes near to establishing a new record in this city. Newsprint mills are working at top speed and are shipping out their product as rapidly as it comes from machines. Moreover, there is a steady call in the open market for additional supplies of print paper, publishers in frequent

SCANDINAVIAN PULP AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement & Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

cases finding it necessary to augment their contract commitments by purchases in the open market.

Box boards are moving in a little larger volume and prices appear to have steadied. Eastern mills quote $45 per ton f.o.b. New York for chip board, and $50 New York for news board, with some talk of price shading heard though with manufacturers generally maintaining quotations rather firmly on the surface of the market.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub Size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.15	@	7.75
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50

Book—f. o. b. N. Y.—			
S. & S. C.	6.50	@	7.25
M. F.	6.25	@	7.00
Lithograph	8.50	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	50.00	@	55.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	45.00	@	50.00
Manila Lined Chip	70.00	@	75.00
Woodpulp	75.00	@	80.00

Mechanical Pulp

Activity of fair scope is reported in mechanical pulp and prices are ruling steady. Domestic producers quote around $40 per ton f.o.b. pulp mills for groundwood for prompt shipment, and in some cases a little higher than this is paid, though in instances where a high freight rate must be paid by buyers, lower prices than $40 at grinding plants have been named. Some offerings of groundwood imported from Scandinavian sources are reported at prices ranging in the vicinity of $38 per ton ex dock New York. One of the strong market factors is that consumption of groundwood is large at present, and producers therefore haven't much supply to divert to the open market, with the result very little pressure is exerted by sellers.

Foreign and Domestic Mechanical Pulp

Everything would seem to point to the decline in chemical pulps having been at last checked. At any rate, there is a better tone in the market, and reports say that paper and board maufacturers are evincing increased buying interest, thus leading to a livelier market condition. Importers and producers consequently are firmer in their attitude and are not so ready to discount prices as they were recently to effect sales, and the opinion is openly expressed that prices have touched bottom and that any changes in the immediate future will be in a higher direction.

Foreign unbleached sulphite of No. 1 quality is selling at around 2.75 cents per pound ex dock New York, with some sales slightly below this figure reported. Foreign bleached sulphite is quoted at 4 to 4.25 cents for No. 1 grade ex dock New York, and at about 3.65 cents for the No. 2 quality.

The

St. Regis Paper Company

and the

Hanna Paper Corporation

Daily Capacity
425 Tons

Newsprint
Catalog
Butchers Manila
Packers Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite

Manufacturers of

TARZAN

Fibre Shipping Cases

General Sales Office
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Western Sales Office
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Chicago, Ill.

BLEACHED
Sulphite Fibre

THE extent of our production *(daily capacity of 600 air-dry tons)* insures uniform quality, prompt shipments and market prices

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

CURRENT MARKETS—Continued

Kraft pulp is quoted at an average of 2.75 cents per pound ex dock for Scandinavian pulp, and at slightly higher rates for No. 1 domestic kraft. Quotations ex dock New York and f.o.b. pulp mills are:

Sulphite foreign—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.70	@	2.90
Unbleached No. 2	2.50	@	2.75
Easy Bleaching	3.00	@	3.25
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.80	@	3.00
Unbleached news grade	2.65	@	2.80
Easy Bleaching	3.00	@	3.25
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.65	@	2.85
Kraft, domestic	2.75	@	3.00
Sulphite, screenings, refined	1.75	@	2.00

Domestic Rags

Increasing strength in the low grades features the papermaking rag market. Roofing stock has firmed up in price to a pronounced degree until sales of No. 1 packing at 1.70 cents a pound f.o.b. New York and of No. 2 grade at 1.40 cents have been recorded. Packers assert that this class of rags is hard to locate in normal volume, and they are holding out for full quoted prices. New cuttings of some kinds are on the uptrend, due to the fact, it would seem, that paper mills are centering their buying on certain grades, thus making a run of demand for some cuttings while others are neglected. No. 1 white shirt cuttings are quoted at 13 cents per pound f.o.b. New York, unbleached muslins at 11.50 cents, blue overall cuttings at 8.50 cents, and washables at 5.50 cents. Old white rags are quotably steady and are in fair demand. Thirds and blues are moving freely at maintained prices. F.o.b. New York quotations follow:

New Shirt Cuttings,			
No. 1	12.75	@	13.00
No. 2	6.00	@	6.25
Fancy Shirt Cuttings	6.25	@	6.50
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.50
White Lawns	11.00	@	11.25
New Muslins, unbleached	11.25	@	11.50
Light Silesias	8.25	@	8.50
Black Silesias	4.75	@	5.00
Overall Cuttings,			
Blue	8.25	@	8.50
Washables	5.25	@	5.50
New Black Mixed	4.50	@	4.75
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.75	@	2.90
Thirds & Blues, repacked	2.85	@	3.00
Thirds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags, No. 1	1.60	@	1.70
Roofing Rags, No. 2	1.40	@	1.50

Imported Rags

Low grades of imported papermaking rags are in good demand and exhibit a rising price tendency. Consumers are reported readily granting 1.40 cents ex dock New York for dark colored cottons, and most importers are said to be turning down orders at this price basis, feeling that higher prices will soon prevail. The better qualities are in routine call but show little change in value. Prices ex dock New York are:

Lins., White, No. 1	12.00	@	13.00
Ger. Blue Cottons	2.50	@	2.75
French Light Blues	2.75	@	3.00
New Light Prints	5.50	@	5.75
New Unbleached	9.50	@	9.75
German Linen, blue	4.00	@	4.50
German Linen, grey	6.00	@	6.50
German S. P. F.'s	6.00	@	9.00
German Light Prints	2.50	@	2.75
Dk. Colored Cottons	1.40	@	1.50

Bagging, Rope, Etc.

Old manila rope is in active demand and strong in price. Domestic rope is quoted by dealers in New York at 7 to 7.25

EMPIRE SIZE AND CHEMICAL CORP.
Rosin Size — Foam Killer
Felt Soap
ALBANY, N. Y.

Appleton Wires Are Good Wires
Fourdrinier Wires
Cylinder Wires
Save-all Wires
Washer Wires
of brass and bronze
Manufactured at Appleton, Wisconsin
Since 1896
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Enriches your direct-mail pieces with its unusually fine appearance. It helps convert your message into an interesting sales appeal.

FRANKFOLD ENAMEL has a smooth, highly coated surface that takes illustrations faithfully. The body of FRANKFOLD Enamel is made of extra long, tough fibres, firmly knitted, which accounts for its wonderful durability.

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We will gladly forward some printed specimens or blank sheets for dummy purposes.

THE FRANKLIN COATED PAPER COMPANY
FRANKLIN, OHIO
Eastern Sales Office: 110 E. 42nd St., New York

CURRENT MARKETS—Continued

cents per pound f.o.b. this city, and it is stated that not much supply is available to buyers at less than the higher figure. Imported manila rope is selling at 6.50 to 6.75 cents ex dock New York. There is not much activity in old bagging. Occasional sales are noted but principally of small quantities, and buyers are able to cover their wants at any prices within reason they care to offer. Quotations f.o.b. New York follow:

Gunny, No. 1	1.30	@	1.40	Wool Tares, heavy .	1.40	@	1.60
Foreign	1.20	@	1.30	For. Manila Rope .	6.50	@	6.75
Wool Tares, light ..	1.30	@	1.40	Domestic Rope	7.00	@	7.25
Scrap Bagg., No. 1.	1.15	@	1.25	Mixed Strings	1.00	@	1.25
Roofing Bagging ..	.85	@	.95				

Old Paper

The trend of waste paper prices is upward, following the period of depression which ended a few days ago and during which values sunk to very low levels. It would seem as if the turn in the market was caused more by conditions at the supply end than at the consuming end, since mills did not enlarge their buying to any great extent. The low prices prevailing, however, resulted in curtailment of collections, and packers, having less stock to dispose of, were able to hold out for better figures. Old folded newspapers are now selling at 85 to 90 cents a hundred pounds f.o.b. New York, and No. 1 mixed papers at 60 to 65 cents New York. Old magazines have advanced to where New York dealers ask 1.65 cents at least, with most of them quoting 1.75 cents f.o.b. New York for flat magazines. Shavings are steady and inclining to rise. A strong item is white blank news, which has risen to 2.20 to 2.30 cents a pound f.o.b. New York. Quotations f.o.b. this city are:

No. 1 Hard White Shavings	3.85	@	4.00	Kraft No. 1	2.00	@	2.15
No. 2 Hard White Shavings	3.25	@	3.50	New Manila Cuttings	2.00	@	2.25
No. 1 Soft White Shavings	2.90	@	3.15	New Manila Env. Cuttings	2.75	@	3.00
Box Board Chips ..	.65	@	.70	Bogus and Mill Wrappers	.80	@	.90
No. 1 Colored Shavings	2.00	@	2.25	News, strictly overissue	1.00	@	1.05
Magazine flat stock.	1.65	@	1.75	Folded News	.85	@	.90
No. 1 Crumpled ...	1.30	@	1.40	No. 1 Mixed Papers	.60	@	.65
Solid Ledger Books	2.15	@	2.25	White Blank News.	2.20	@	2.30
Ledger Stock	1.90	@	2.10	Common Paper	.40	@	.45

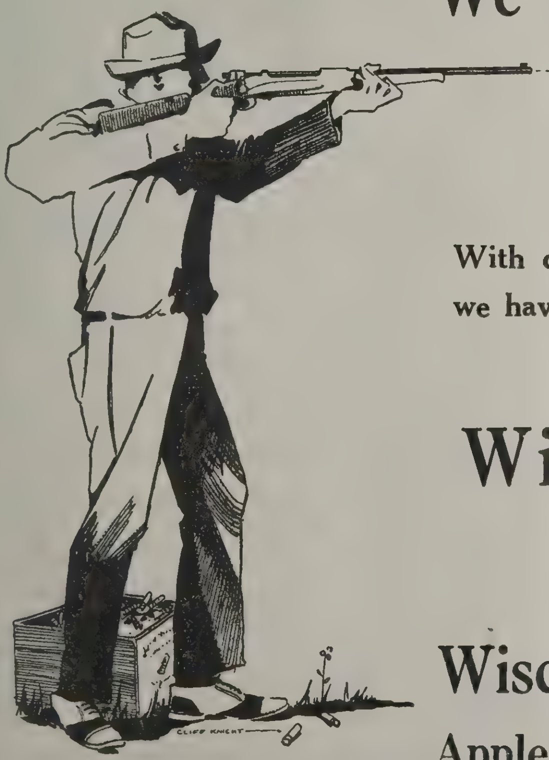
Twines

Routine activity is reported in the twine market with business showing gradual though consistent improvement. Prices of twines are firm, and in most cases they tend higher, due to the strong position of raw material and recent advances in fibres. Quotations are as follows:

Sisal Hay, pure ...	12.25	@	13.25	Jute Wrapping twine, A grade	19.00	@	
Manila Hay, pure..	16.25	@	17.25	Papermakers Twine.	10.50	@	
Sisal Lath Yarn ..	11.25	@	12.25	B. C. Hemp, 18 ...	.39	@	.40
Manila Rope, pure, ¾ inch diameter.	14.25	@	15.25	B. C. Hemp, 24 ...	.38	@	.39
Hardware Rope	11.25	@	12.25	B. C. Hemp, 36 ...	.37	@	.38
Jute rope, ¼ diam. and over, coils ..	12.00	@	14.00	American Light India—No. 6	14.50	@	
Sail twine, A grade.	19.00	@		No. 7	13.50	@	

Chemicals

A fairly good movement of most papermaking chemicals is reported, with shipments by producers principally against contracts though with buyers occasionally operating in the open market. Prices are generally steady at last reported levels.



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With quality wires and high power service
we have hit the Bull's Eye consistently

Wisconsin Wires

Wisconsin Wire Works
Appleton Wisconsin

CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of December 3-8

Paper

Str. Drottningholm, Gothenburg—Newsprint Paper Corporation, 199 rolls newsprint; C. K. MacAlpine & Co., 82 rolls wrapping; D. S. Walton & Co., 533 rolls and 30 bls. wrapping; American Express Company, 25 bls. wrapping; Melby, Kuttroff & Co., 1,923 rolls and 51 bls. wrapping; F. B. Vandegrift & Co., 2 bls.; Chatham & Phoenix National Bank, 212 rolls wrapping; H. S. Chalfont, 62 rolls wrapping; Corn Exchange Bank, 2,112 bls. wrapping; Order, 355 rolls and 38 bls. wrapping:

Str. Independence, Hamburg—E. Dietzgen & Co., 29 cs. drawing; Order, 266 rolls newsprint.

Str. Providence, Marseilles—Louis DeJonge & Co., 36 cs. writing.

Str. Minnekahda, Hamburg—Quality Art Novelty Company, 31 cs.; Bendix Paper Company, 10 cs. pasteboard; Metropolitan Import & Mfg. Company, 39 cs. pasteboard; F. G. Prager & Co., 470 rolls hanging; Order, 538 bls. wrapping; from Antwerp—C. W. Williams & Co., 30 cs.; P. J. Schweitzer, 52 cs. cigarette; Gevaert Company of America, 22 cs. photo; Order, 15 cs. photo.

Str. Aquitania, Southampton—F. J. Emmerich & Co., 7 bls. hanging; Whiting-Patterson Company, 5 cs.; Houbigant, Inc., 3 cs. cardboard.

Str. Estonia, Danzig—G. & H. Transport Company, 1 cse. hanging.

Str. Elmsport, Rotterdam—E. Dietzgen & Co., 22 cs. drawing; Republic Bag & Paper Company, 1,577 rolls wrapping; D. Heydemann & Co., 36 cs.

Str. Hansa, Hamburg—F. J. Emmerich & Co., 1 ble. hanging; P. H. Petry & Co., 3 cs.; Friedman & Co., 9 cs. pasteboard; Irving Bank-Columbia Trust Company, 95 bls. printing; C. H. Young Publishing Company, 182 rolls newsprint; S. H. Scott Corporation, 94 rolls newsprint; W. Schall & Co., 2,372 rolls wrapping; Chase National Bank, 222 rolls and 11 bls. wrapping; Wilkinson Bros. & Co., 6 bls. wrapping; Arkell Safety Bag Company, 1 roll wrapping; Order, 43 rolls wrapping.

Str. Orbita, Hamburg—Republic Bag & Paper Company, 288 rolls wrapping; Hanover National Bank, 375 bls. wrapping; Gallagher & Ascher, 33 bls. wrapping; Schenkers, Inc., 198 bls. wrapping; Melby, Kuttroff & Co., 10 rolls hanging; Maurice O'Meara Company, 70 bls. wrapping; Wilkinson Bros. & Co., 794 bls. and 24 rolls wrapping; Publicity Paper Corporation, 225 bls. wrapping; J. P. Heffernan Paper Company, 114 bls. wrapping; W. Hartman & Co., 437 bls. and 707 rolls wrapping and 115 rolls newsprint; Globe Shipping Company, 22 cs. pasteboard and 4 bls. hanging; Chemical National Bank, 304 rolls newsprint and 20 bls. wrapping; Hallgarten & Co., 574 bls. wrapping; Order, 193 rolls newsprint, 46 cs. writing and 33 cs. pasteboard.

Str. President Fillmore, Bremen—C. G. Keferstein, 573 rolls wrapping; Alpers & Mott, 33 cs. pasteboard; Order, 1,531 rolls newsprint.

Str. Rotterdam, Rotterdam—T. D. Downing & Co., 66 rolls wrapping; Steiner Paper Company, 119 bls. wrapping;

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Are you seeking a position?
Do you require help?

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Advertising rates: Two cents a column line of space a millimeter high and fifty millimeters wide.

The Book Department takes orders for any German book desired.

CURRENT IMPORTS—Continued

M. Greenbaum, 29 bls. wrapping; Canfield Paper Company, 30 cs. printing; Keuffel & Esser Company, 9 cs. writing; Safran & Co., 13 cs.; Globe Shipping Company, 13 cs.; J. Halpern & Co., 33 cs.; Order, 8 cs.

Str. America, Genoa—P. H. Petry & Co., 4 cs.

Str. Baltic, Liverpool—Meadows, Wye & Co., 11 cs. tissue; J. J. Gavin & Co., 2 cs. photo; F. J. Emmerich & Co., 29 bls. hanging; Keuffel & Esser Company, 3 cs. drawing; B. F. Drakenfeld & Co., 22 cs. printing.

Str. Maine, London—H. Reeve Angel & Co., 10 cs. filter; Favor, Ruhl & Co., 5 cs. drawing; Devoe & Reynolds Company, 5 cs. drawing; W. H. S. Lloyd & Co., 42 bls. hanging; H. Brockelbank, 10 cs.

Str. Minnewaska, London—H. Reeve Angel & Co., 4 cs. filter; W. H. S. Lloyd & Co., 24 bls. hanging.

Str. Stavangerfjord, Christiania—Irving Bank-Columbia Trust Company, 110 rolls newsprint; H. Reeve Angel & Co., 1 roll wrapping.

Str. La Bourdonnais, Bordeaux—A. Giese & Son, 12 cs. drawing.

Str. Suffren, Havre—Star Bours, 2 cs.; Surbrug Company, 15 cs. cigarette; DuPont Cellophane Company, 19 cs.; Coty, Inc., 78 cs. cardboard; Harriet Hubbard Ayer, 6 cs. cardboard; Independent Forwarding Company, 3 cs.; Gubont Freres, 5 cs. cigarette; Japan Paper Company, 2 cs. hanging.

Str. Siam City, Hamburg—Heemsoth, Basse & Co., 22 cs.; E. Dietzgen & Co., 25 cs. drawing; C. B. Richard & Co., 10 cs.

Str. Zarembo, St. Nazaire—DeManduit Paper Corporation, 199 cs. cigarette; R. J. Reynolds Tobacco Company, 950 cs. cigarette; from Bordeaux—American Tobacco Company, 1,300 cs. cigarette; Order, 5 cs. cigarette.

Str. Brittannia, Lisbon—Zorro Tobacco Company, 12 cs. cigarette.

Str. California, Glasgow—Standard Underground Cable Company, 102 rolls wrapping.

Str. Schodack, Rotterdam—A. Vuyk, 158 rolls strawboard.

Str. Editor, Havre, Standard Products Corporation, 40 cs. cigarette.

Str. Teresa, Malta—New York Trust Company, 239 bls. wrapping; Irving Bank-Columbia Trust Company, 311 bls. printing; Order, 106 bls. wrapping and 12 cs. cigarette.

Wood Pulp

Str. Drottningholm, Gothenburg—Johaneson, Wales & Sparre, 1,650 bls. sulphite and 175 bls. soda.; Mechanics & Metals National Bank, 2,500 bls. sulphate; National City Bank, 1,197 bls. soda.

Str. Minnekahda, Antwerp—M. Gottesman & Co., 1,350 bls.

Str. Orbita, Hamburg—M. Gottesman & Co., 330 bls.; H. Hollesen, 650 bls.

Str. President Fillmore, Bremen—E. Naumberg & Co., 500 bls. sulphite; United States Lines, 698 bls.

Old Rope

Str. Minnekahda, Antwerp—Brown Bros. & Co., 192 bls.

Str. Hansa, Hamburg—Brown Bros. & Co., 64 bls.

Str. Pastores, Havana—M. Wolfer & Co., 29 bls.

Str. Rotterdam, Rotterdam—Order, 36 coils.

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Wire Works

"The Fourdrinier that took the
Ire out of Wire"

INTERNATIONAL WIRE WORKS
MENASHA, WISCONSIN

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Str. Frederik VIII, Copenhagen—Brown Bros. & Co., 150 coils.

Str. Maine, London—Brown Bros. & Co., 409 coils and 55 bls.

Str. Minnewaska, London—Order, 144 coils.

Str. Orizaba, Havana—N. E. Berzen, 12 bls.

Str. Siam City, Hamburg—Order, 13 coils.

Str. Zarembo, St. Nazaire—E. J. Keller Company, 222 bls.

Str. Editor, Havre—International Purchasing Company, 51 bls.

Str. Norfolk Range, Leith—W. Schall & Co., 196 coils.

Rags

Str. Independence, Hamburg—Coal & Iron National Bank, 105 bls.; Mechanics & Metals National Bank, 25 bls.; Guaranty Trust Company, 130 bls.; New York Trust Company, 91 bls.

Str. Elmsport, Rotterdam—J. J. Patricof, 187 bls.; Daniel M. Hicks, Inc., 38 bls.; C. C. Lavine Company, 320 bls.; E. J. Keller Company, 67 bls.

Str. Hansa, Hamburg—International Acceptance Bank, 6 bls.

Str. President Fillmore, Bremen—Mechanics & Metals National Bank, 59 bls.

Str. Rotterdam, Rotterdam—C. C. Lavine Company, 41 bls.

Str. Baltimore Maru, Leghorn—New York Trust Company, 155 bls.

Str. Baltic, Liverpool—Albion Trading Company, 15 bls.

Str. Frederik VIII, Copenhagen—Goldman, Sachs & Co., 67 bls.

Str. Maine, London—Paterson National Bank, 188 bls.

Str. Minnewaska, London—Albion Trading Company, 24 bls.

Str. Vennonia, London—Mechanics & Metals National Bank, 225 bls.

Str. La Bourdonnais, Bordeaux—Mechanics & Metals National Bank, 42 bls.

Str. Siam City, Hamburg—Goldman, Sachs & Co., 255 bls.; Strupp & Co., 188 bls.

Str. Zarembo, St. Nazaire—E. J. Keller Company, 60 bls.; P. Berlowitz, 189 bls.; Goldman, Sachs & Co., 82 bls.; Stone Bros. & Victor Galaup Company, 54 bls.

Str. Editor, Havre—J. T. Lodge, 17 bls.; Stone Bros. & Victor Galaup Company, 186 bls.

Str. Teresa, Venice—E. Butterworth & Co., 38 bls.

Str. George Washington, Bremen—Order, 527 bls.

Str. Boston City, Bristol—International Acceptance Bank, 275 bls.; Order, 951 bls.

Str. Nuria, Leghorn—New York Trust Company, 308 bls.; Order, 46 bls.

Paper Stock

Str. Ansonia, London—Kelly & Co., 120 bls.

Str. California, Glasgow—International Acceptance Bank, 46 bls.; Maurice O'Meara Company, 192 bls.; Mechanics & Metals National Bank, 46 bls.

Str. Norfolk Range, Dundee—Equitable Trust Company, 38 bls.

Casein

Str. Terrier, Buenos Aires—T. M. Duche & Son, 417 bags.

Str. Boswell, Buenos Aires—Brown Bros. & Co., 350 bags; Bank of America, 834 bags.

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purchasing agents
real buying-power

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THE MARKET PLACE

A Classified List of Manufacturers and Dealers in Equipment, Apparatus and Supplies for Paper and Pulp Mills

ACID SYSTEMS

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AIR COMPRESSORS

Nash Engineering Co., South Norwalk, Conn.

ANILINE COLORS

Bachmeier & Co., Inc., New York.
Heller & Merz Co., New York.
National Aniline & Chemical Co., New York.

ARCHITECTS AND ENGINEERS

Carey, James L., Chicago, Ill.
Ferguson, Hardy S., New York.
Hardy, George F., New York.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

BEARINGS

Link-Belt Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BEATING ENGINES

Black-Clawson Co., Hamilton, O.
Dayton Beater & Hoist Co., Dayton, O.

BELT CONVEYORS

Link-Belt Co., Chicago, Ill.

BLEACH

Penn. Salt Mfg. Co., Philadelphia, Pa.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOX BOARDS

Standard Paper Co., Kalamazoo, Mich

BOARD MACHINES

Black-Clawson Co., Hamilton, O.

BOND PAPER

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

BRASS WIRE CLOTH

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, O.

BRIMSTONE

Union Sulphur Co., New York.

BRONZE WIRE CLOTH

Appleton Wire Works, Appleton, Wis

CHAINS AND WHEELS

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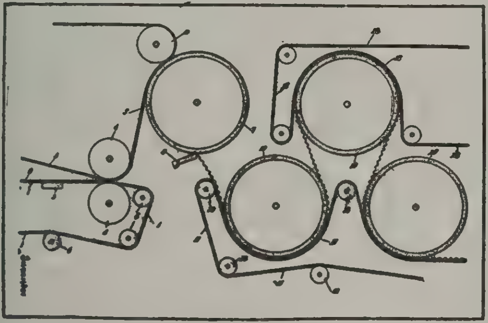

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The Largest Sulphur Mine in the World

CALCASIEU PARISH, LOUISIANA

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Main Offices: Frasch Building, 33 Rector St., N. Y.

THE MARKET PLACE—Continued

CHEMICALS

Kuttroff, Pickhardt & Co., New York.
Penn. Salt Mfg. Co., Philadelphia, Pa.

COAL AND ASH HANDLING MACHINERY

Link-Belt Co., Chicago, Ill.

COATED PAPERS

West Virginia Pulp & Paper Co., New York.

COGS

Menasha Wood Split Pulley Co., Menasha, Wis.

COLORS AND TINTINGS

Heller & Merz Co., New York.
Kuttroff, Pickhardt & Co., New York.

CONSISTENCY REGULATORS

Trimbey Machine Works, Glens Falls, N. Y.

CONVEYORS AND ELEVATORS

Link-Belt Co., Chicago, Ill.

COUPLINGS (SHAFT)

Link-Belt Co., Chicago, Ill.
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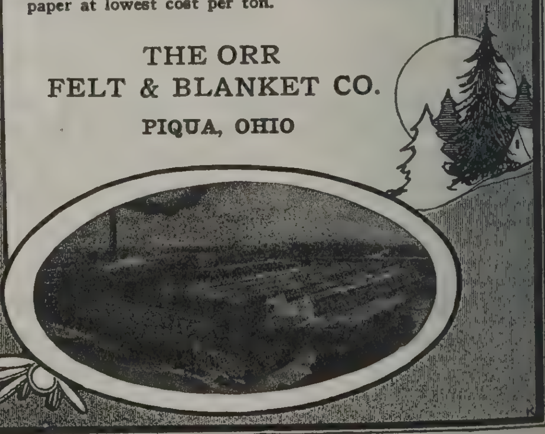

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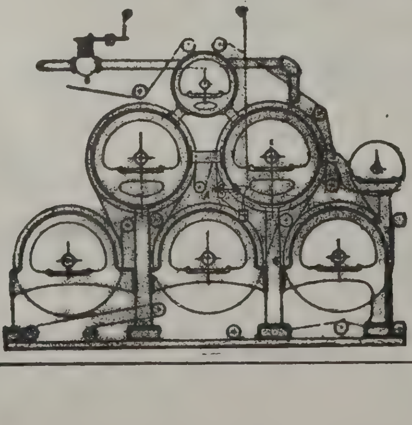

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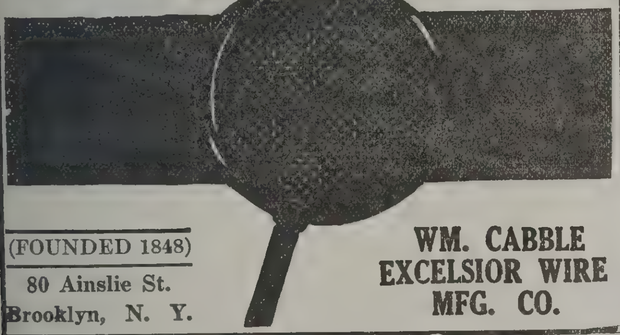

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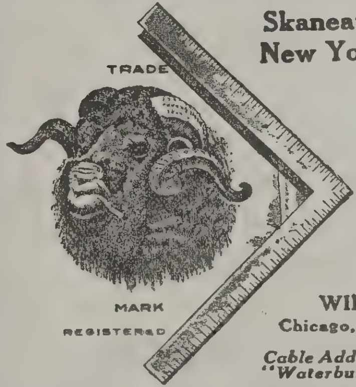

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Vol. XXXIII DECEMBER 20, 1923 No. 9

Symbolism of Paper Markings

Watermarks that Are Now Used as Trademarks Were Formerly Designed to Convey a Message and Had an Esoteric Significance

By DARD HUNTER
Chillicothe, Ohio

Italian Papermakers First to Use Watermarks

WHILE it is possible to determine almost the exact date at which watermarks were first introduced into sheets of paper, the motive or use of these mystic symbols has never been definitely established. Watermarks at the present time are trademarks of the papermakers, pure and simple, but it would seem that their ancient significance must always remain more or less obscure.

Italian Papermakers First to Use Watermarks

The first papermarks appeared in Italy about the year 1280 and while most insignificant in design the emblems lead us to believe that they were meant for use as some sort of a signal or symbol to convey a meaning among the workers who made the watermarks or those who used the paper in which they appeared. Paper was fabricated centuries before this date by the Chinese and Persians but watermarks are never found in any of the ancient Oriental papers.

The earliest moulds upon which sheets of paper were formed were constructed of bamboo or some other vegetable filament and this material did not lend itself any too well for making the applied designs for forming watermarks. However, it would appear that iron wire was used as a mould covering in Europe as early as the eleventh century, when papermaking was introduced into Spain, but papermarks did not make their appearance until about two centuries later when hundreds of different emblems were brought into use by every papermaking country in Europe. These designs multiplied in numbers as the centuries passed until there were literally thousands of different emblems used as watermarks typifying almost everything in nature and every human endeavor.

Present-day workers in the paper industry may well be proud of the history and traditions of their trade for no other craft can show such an endless array of designs extending over a period of more than 700 years!

When printing from movable types was first introduced about the year 1450, the art of watermarking was an accomplishment almost two centuries old. But when we think of the occurrences of printing and watermarking in nature from the beginning of time it seems strange that man did not put to use these arts of impression much earlier. For did not animals, no matter how remote, leave impressions or stamps of their feet in the sands and vegetation impress itself in the clay? These accomplishments of nature were really very closely akin to the arts of watermarking and printing.

Old Books Often Treasure Troves of Watermarks

In examining old books a great profusion of watermarks is noticeable in single volumes. Some fifteenth century works contain no less than fifty papermarks in a single book. Many writers contend that it was necessary for the early printers to purchase their paper from various mills in order to get sufficient material for their use, claiming that the mills were small and could not furnish enough paper which was uniform in size and watermark. While this might have been essential in the fifteenth century it would not seem necessary in the sixteenth, for it is recorded that John Spilman, who operated a paper mill in England in 1588, employed as many as 600 workers and England, at that time, was not a great papermaking country. There is not a mill in all England today making handmade paper in which so many employes are needed and the methods of working do not differ greatly from those of several centuries ago. However, great varieties of papermarks are found in single books that were printed in the sixteenth as well as the fifteenth century.

Use of Particular Emblems

Again, it is suggested that the different watermarks denoted various sizes of paper. This does not seem reasonable, as for every size of paper a special pair of moulds was needed and the labor and expense of fashioning these moulds was too great to permit such a vast variety of dimensions. In later years, to be sure, such marks as foolscap, hand, post, pott, etc., did denote sizes of paper but these appellations were not used as size names until many years after the establishment of these particular emblems as watermarks. Also there were many mills using the same designs on different sizes of sheets so it could not have been that papermarks either represented trademarks of separate mills or denoted special dimensions of sheets of paper. So we are led to wonder just why watermarks were used during the Middle Ages and the only writer who has ventured an explanation as to their symbolic use is Harold Bayley, of London, who a number of years ago wrote one or two magazine articles on the emblematic importance of watermarks. These articles were followed by two most comprehensive books on the subject which should be in every library attempting to cover any phase of papermaking. *

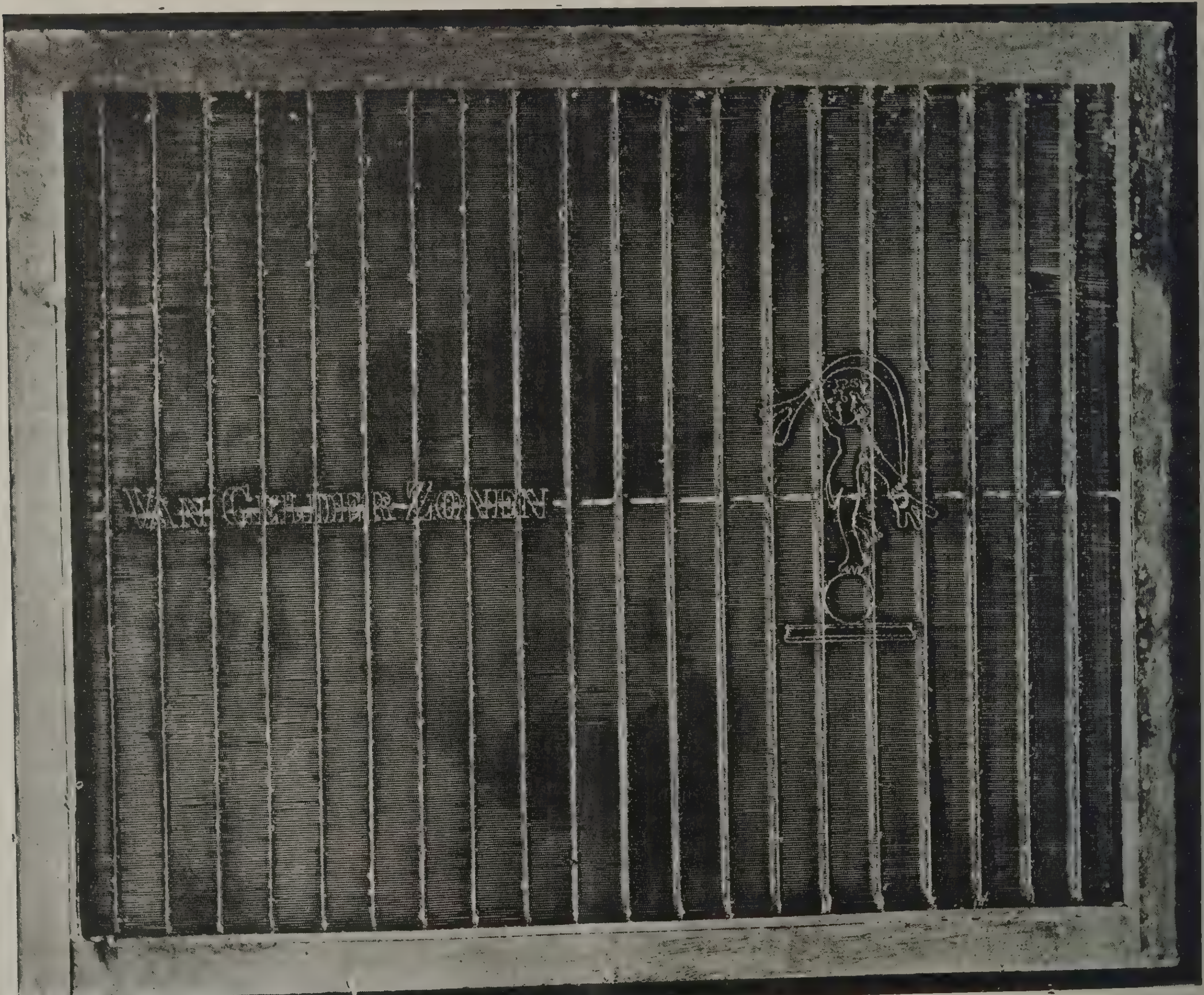
Religious Symbols as Watermarks

According to Mr. Bayley the watermarks of the Middle Ages were employed as symbols of religious propaganda by the heretical papermakers. Europe at that time was overrun with numerous mystic and puritanical sects and the art of papermaking ws one of the most developed trades of these religious orders.

Mr. Bayley says; " . . . . . the arly papermaking districts were precisely those that were strongholds of the heretical sects known as the Albigenses. The word 'Albigenses' is a term applied loosely to the variou pre-Reformation reformers whose strongholds stretched from Northern Spain across the southern provinces of France to Lombardy and Tuscany. In Spain and France they were known as Albigenses from Albi the name of one of the prominent towns. In the Alpine provinces they were called Waldenses, from Peter Waldo, one of their most conspicuous members. In Italy, history alludes to them under the terms Cathari or Patarini." Mr. Bayley attaches symbolic importance to each of the watermarks that were used by these mystic people and believes that the papermarks carried with them signals of hidden meaning. This really seems more probable than to try to account for the multitude of watermarked designs as marks of identification for paper sizes or as trademarks of the makers.

Symbolic Significance of Ancient Watermarks

While it will not be possible to enter into the symbolic significance of the many thousands of different papermarks



Antique-laid mould with the deckle in place. This mould shows the wire watermark of the human figure, an emblem much in evidence during the entire history of symbolism. This mould was used in the "Eendragt" paper mill in the village of Wormer, Holland, about the year 1785

Bayley, Harold. Notes on Watermarks. In: *The Book-Lover's Magazine,* 4to., vol. VI.—part II., pp. 65-71. Edinburgh, 1906.
Bayley, Harold. *Paper Terminology.* 16mo., pp. 1-31., London, n.d.
Bayley, Harold. *A New Light on the Renaissance Displayed in Contemporary Emblems.* 8vo., pp. 1-270., London, 1909.
Bayley, Harold. *The Lost Language of Symbolism.* An inquiry into the origin of certain letters, words, names, etc. 2 vols., 8vo., vol. 1—pp. 375; vol. 2—pp. 388, London, 1912.

it will not be out of place to relate the meaning of several of the best known of these ancient symbols. The first papermarks which appeared during the latter thirteenth century were entirely simple in form and consisted of crosses, ovals, Soloman's knots, circles, triangles, three-mounts with cross designs as well as other unpretentious forms of a kind easily twisted into wire. All of these simple designs had their religious meaning which is obvious.

Later came into use such marks as parts of the human body and real and legendary animals, also every form of vegetation and the appliances used by man in the cultivation of the ground and working at the various crafts. However, in the examination of thousands of old papermarks a form or device representing any phase of the art of papermaking has never been noted.

Bull's Head and Other Early Marks

One of the earliest animal marks is that of a bull or bull's head, embellished with additional symbols such as the cross and serpent as shown in Fig. 1.

It is interesting to note that this particular mark was traced from the Myles Coverdale translation of the Bible which was printed in 1536—the first Bible to be printed in the English language. The ox was emblematic of patience and strength and in the writings of some of the early Fathers it is accepted as a symbol of Christ the true sacrifice; also of prophets, apostles, and saints slain for the sake of Christ and all who patiently bear the yoke and labor in silence for the good of others.

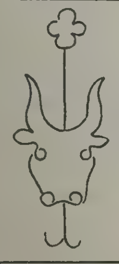


Fig. 1

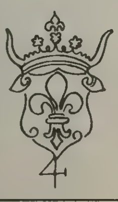


Fig. 2

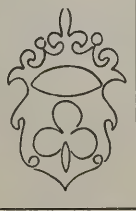


Fig. 3

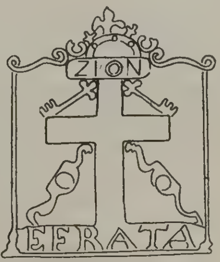
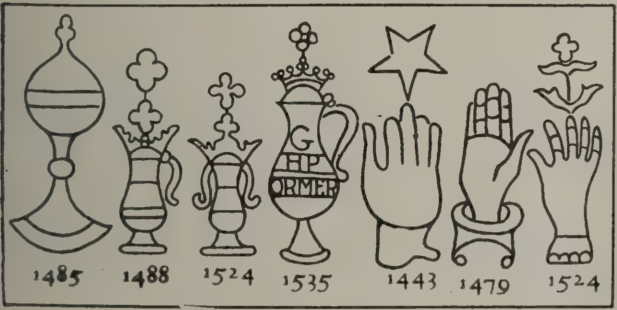


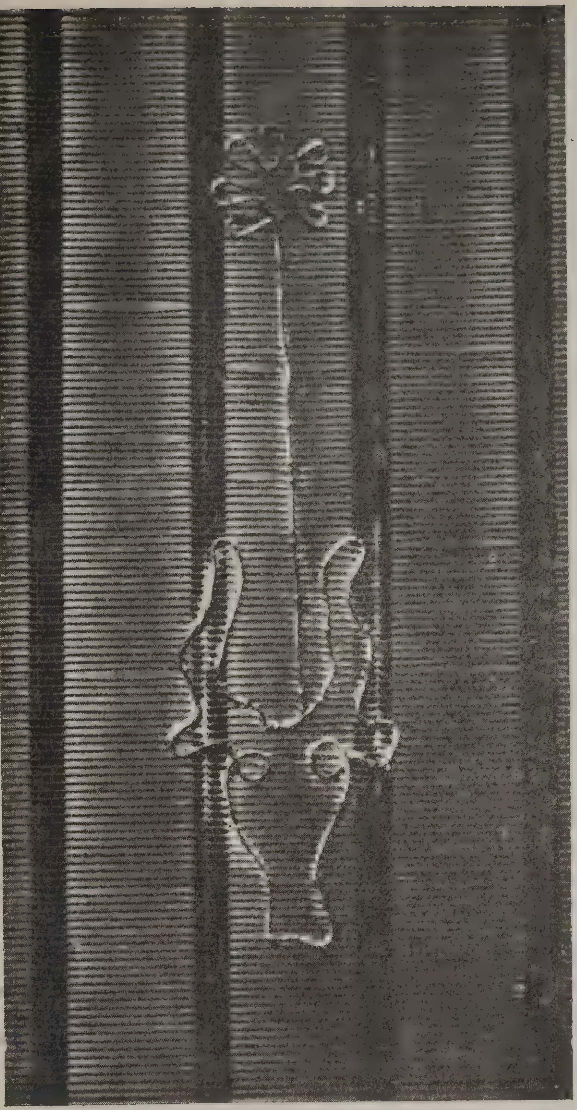
Fig. 4

The bull's head as a watermark is found as early as 1310 and was used until the beginning of the sixteenth century, evolving gradually into a shield-like scroll with horns at the top on either side, such as shown in Fig. 2. It is thought that the mark adopted by William Rittenhouse, the first papermaker in America, (A. D. 1690) was an outgrowth of the early papermark of the bull's head. Fig. 3.

The watermark known as "pott" originally represented a sacramental vessel and dates from about 1350. This mark was in subsequent ages adorned and embellished almost beyond recognition. The sacred character of the pott mark may be seen in paper as late as the latter seventeenth century when some of these marks bear the ecclesiastical inscription I. H. S.



Watermarks of "pott" and "hand"



The actual wire form on the surface of a laid mould which caused the impression or watermark in the sheets of paper made thereon. An ancient "bull" device from about 1400

The mark of the human hand was used by the papermakers of various countries for hundreds of years and was both symbolic of Fidelity and Labor. At times the hand shows two fingers bent downward which was a sign of benediction. The hand watermark is also found in old paper surmounted by a cross, a star, a rose of bliss, or some like ornament each of which was symbolic of something of an ecclesiastical nature; the size of paper known in later years as "hand" derived its name from this emblem rather than this appellation having been given to a particular size of paper.

It would be possible to relate the symbolic meaning and importance of practically all of the old watermarks but this would involve the descriptions of thousands of emblems as no less than fifteen thousand different designs have been traced in the papers of the first five centuries of watermarking.

Mystic Watermark of a Religious Sect

Watermarks of a symbolic and religious meaning held their place with the first papermakers of America, some of which were in use until the middle of the eighteenth century. The most emblematic of these were the marks adopted by the paper mill established by the Zionistic Brotherhood, a religious colony which was founded near Ephrata, Pennsylvania, in

1736. Their principal watermark, Fig. 4, consisted of a Latin cross surmounted by a scroll which was embraced by two keys which had reference to the "Clavicula Salomonis," or Keys of Soloman, a mystic book of the seventeenth century which was highly regarded by the brotherhood. The top portion of this watermark was no doubt an outgrowth of the ancient bull's head design illustrated in the other marks.

From the commencement of watermarking in Italy in 1280 to the eighteenth century in the New World, when watermarks in all countries began to lose their symbolic reference, we have an unbroken chain of emblems each of which signified a mystic meaning of some religious sect or belief.

Rapid Analysis of Paper

French Technologist Explains Method for Quickly Determining Constituents of a Paper Sample for Purposes of Duplication

By Jacques Crolard

(Continued from last week)

THE lignin number of index is the percentage of lignin that is contained in a pulp or paper.

The determination of this number is of great importance. It gives an idea of the thoroughness of the digestion process, which has for its purpose the removal of the incrustating materials that cover the cellulosic fiber of the paper stock. This affords the analyst a conclusion regarding the availability of a certain pulp for use in the manufacture of a definite grade of paper.

The percentage of cellulose in a pulp depends on the nature of the hydrolytic digestion to which the original raw material has been subjected. In general, the ligno-celluloses which are used in the manufacture of paper are composed of a group of cellulosic materials known as oxycellulose, and alpha and beta cellulose, mixed with a greater or lesser proportion of lignin. If the hydrolytic digestion and the bleaching process are carried out with a maximum degree of intensity the percentage of lignin left in the pulp should be infinitely small according to theory.

In practice the percentage of lignin is generally constant for any grade of pulp. This fact is of the utmost importance in the analytical determination of the percentage of lignin in a paper through the establishment of the lignin index. Numerous methods have been proposed for this purpose, but only one is described below, as it gives very accurate results and is satisfactory from all standpoints.

This method is based on the principle that the absorption of phenol by a cellulose, either pulp or paper, is a function of the percentage of lignin which is combined with that cellulose.

The lignin number can therefore be obtained by multiplying the percentage of phenol that is absorbed by the paper by a certain coefficient. In what follows the percentage of phenol absorbed is understood to be the lignin index.

Details of the Method

The first piece of information it is necessary to know is the proportion of phenol that is absorbed by different kinds of cellulose. This is found by making a series of experiments in which conditions are maintained as constant as possible. In each case the excess of phenol which is not absorbed is determined by titration with a standard solution of furfurol. The method of procedure is explained in the former articles on this subject. The phenol absorption coefficient of the paper can be determined in this manner. The composition of this paper can be told by a qualitative analysis.

The phenol absorption table which is given in a former article of this series is employed in these calculations.

The quantity of phenol that is absorbed by the paper, which qualitative analysis has shown to be composed of rag stock and jute, is found to be 1.5 percent. The phloroglucin numbers for rag stock and jute are 0.5 and 4.1 respectively. Therefore the proportion of jute in the paper will be as follows:

$J=100(1.5 - 0.5)$ divided by $4.1 - 0.5$ or 27.7 percent.

Suppose the qualitative analysis of the paper indicated that it was composed of rag stock in which a certain proportion of bleached soda pulp had been mixed. The phenol coefficient is 0.6 percent. The percentage of chemical pulp in the paper is then found by solving the following equation:

$B=100(0.6 - 0.5)$ divided by $1.2 - 0.5$ or 14.2 percent.

Application of the Various Methods

The microscopic analysis require a considerable degree of skill on the part of the operator. When the pulp is very thoroughly beaten it becomes a very difficult matter to make an accurate microscopical examination. It is always possible to use the microscope for this purpose but the results obtained vary in accuracy.

The chemical determinations require only ordinary skill on the part of the paper chemist and just a working knowledge of the mechanism of the reactions that are employed. The work is no more difficult than the ordinary analytical operations that are carried out in inorganic analysis. But unfortunately the analytical results are only applicable when the characteristic indices of the different fibers are sufficiently well-defined, so that the experimental error does not introduce too great discrepancies in the mathematic calculations.

Hence, in the case where the paper is composed of rag stock and bleached chemical wod pulp, the lignin index determination will give results of rather uncertain accuracy, while when the analysis is made so that the furfuraldehyde number of the paper is determined, the proportions of the two kinds of stock in the paper are determined with a sufficient degree of accuracy.

Hence as a general rule it is good practice, wherever it is possible, to analyze the paper in a number of ways rather than by just one method. In this manner the results are better controlled and can be compared with one another so that an average of the different values can be arrived at. When the analytical examination is carried out in a regular series or logical order, as is the common practice in the modern, well-organized and well-conducted paper laboratory, the different operations that have to be performed follow one another very rapidly and the various determinations are made under conditions which afford attainment of the highest degree of accuracy.

In order that the reader may have an idea as to how the various analytical methods which have been discussed up to this point, can be applied, two examples are given below.

Analysis of Composite Paper

The first paper that is taken as an example to illustrate the application of these methods is a complex paper which is composed of bleached sulphite pulp, esparto pulp and mechanical wood pulp.

The furfuraldehyde numbers of these various grades of pulp are as follows:

Bleached bisulphite pulp	4 percent
Esparto pulp	13 percent
Mechanical wood pulp	6 percent

The lignin indices of the same substances, that is the percent of phenol absorbed by them, are given in the following tabulation:

Bleached bisulphite pulp	0.8 percent
Esparto pulp	0.7 percent
Mechanical wood pulp	8 percent

To make a microscopic examination of a paper composed of the three aforementioned classes of fibers, is a very difficult matter owing to the fact that there is quite a big difference between the dimensions of these fibers. Rather than spend considerable time in carrying out a laborious misroscopical examination, it is far more advisable in this case to make a chemical analysis of the paper.

Before making any chemical tests it is well to examine the tabulations of indices which are given above. It is easy to see from the tabulation of lignin indices of the three classes of paper stock that it would be inadvisable to use this factor in analyzing the paper because the lignin index of esparto pulp is so close to that of bleached sulphite pulp that it would be a very difficult if not impossible proposition to obtain accurate results by such an examination. There is not enough leeway between these values to take care of the experimental error in determining the lignin index of the paper.

On the other hand, there is quite a wide separation between the furfuraldehyde numbers of these three pulps and this method can be used in determining the percentages of esparto and bleached sulphite pulp in the paper. The percentage of mechanical wood pulp in the paper is independently determined by means of the lignin number.

Hence both the lignin number and the furfuraldehyde number of the paper are found. The lignin number proves to be 2.0 percent. If M is the percentage of mechanical wood pulp, then by solving the following equation the percentage of M can be found:

M=100(2 — 0.8) divided by 8. — 0.8, or approximately 17 percent.

The furfuraldehyde number of the paper is found to be 8.0 percent. Then from the following equations, in which A is the proportion of esparto pulp in the paper and B the percentage of bleached sulphite pulp, it is possible to find the proportions of these two fibers in the paper:

$$A+B+17=100$$

$$13\,A/100+4\,B/100+17\text{x}6/100=8$$

The solution of these two simultaneous equations gives 41 percent for esparto pulp and 42 percent for sulphite pulp. The three results, 17 percent for mechanical pulp, 41 percent for esparto pulp and 42 percent for bleached chemical pulp add up to 100 percent.

Analysis of a Jute Paper

When jute stock is well bleached and used in the manufacture of paper in admixture with other kinds of pulps it becomes a very difficult matter to distinguish the jute fiber from the other fibers under the microscope. Under certain conditions it is possible for it to escape detection by the analyst altogether, which is particularly true when the pulp has been well beaten and considerably hydrolyzed. Under these conditions the determination of the percentage of phenol absorbed by the paper is extremely instructive.

A cigarette paper was taken as a sample and analyzed in this manner. This paper was supposed to have been from manufactured rag stock only. It gave a lignin number of 1.1. If the lignin number of rag stock and of mechanical wood pulp is taken to be 0.6 in both cases, then the percentage of jute in the paper can be determined from the following equation:

J=100(1.1 — 0.6) divided by 4.1 — 0.6=14 per cent.

(The continuation of this interesting series will appear in an early issue.

Alcohol from Sulphite Lyes

Profit and Loss in Operations for the Recovery of By-Products from Waste Liquors of the Sulphite and Soda Mills Interestingly Discussed

By Martin L. Griffin

Member of the Soda Pulp Committee of T. A. P. P. I.

I HAVE carefully reviewed Prof. Ralph H. McKee's paper read before the American Section of the Societe de Chimie Industrielle on October 12 and reproduced in the issue of Paper for November 7. In this article he computes a yearly profit and saving of $125,287 from the recovery of alcohol and fuel value, on an investment of $440,000 in connection with a sulphite pulp mill of 100 tons daily capacity. This net profit is at a rate of over 25 per cent on the investment, and the question naturally arises, Why have not manufacturers grasped this opportunity for profit? The plan outlined by Professor McKee contains no new matter, with one slight exception, and nothing new in the processing.

There are many reasons, first in importance being that waste liquors are produced on an enormous scale, varying in quality according to the ideas of the particular mill and often varying widely in the same plant.

High Concentration of Liquor Necessary

So far as the development of fermentable sugars in the cooking process is concerned, it is a delicate and sensitive process involving much uncertainty. The making of pulp and the recovery of alcohol must be co-operative to a nicety. The results obtained by Professor McKee show a wide variation in the possible alcohol recovery. The waste liquors must be handled with a view to keeping up the concentration as far as possible. This of itself is a hardship to the pulp mill which usually wants to begin washing the pulp with water as soon as the pulp is blown, and often water is showered into the venting towers of the blow tanks during the blowing.

For the benefit of the alcohol process the liquor should drain or be expressed at full digester strength. To do this, the capacity of the department would have to be increased. It is fair to say that such an expense would apply to any contemplated process for the recovery of useful products involving evaporation. It is a matter which must be reckoned with, if anything like complete disposition of the liquor is contemplated.

The basic part of the whole proposal is one of evaporation of a very troublesome liquid. It is either acid and corrosive, or alkaline with lime, and in either case, scale-forming. These are two troublesome matters to deal with. It is easy enough to neutralize the liquor and thus avoid the effect of acidity, but there is no way of removing the lime and magnesia scale-forming substances, and no way of avoiding their consequences, except by the substitution of soda as the base in acid making and the cost of this would be prohibitive as matters stand now.

Professor McKee suggests by preference a thermo-compressor type of evaporator for reducing the original volume of the waste liquor one half, and completing the evaporation of the residual liquor after fermentation in a triple effect vacuum pan.

A comprehensive discussion of evaporators is a large and important subject in itself. The thermo-compressor is a most interesting type, and affords many excellent problems for the technical student to work out, but is of such questionable value that our builders of evaporating equipment have never brought it to public notice. One of its principal handicaps is, that it is not capable of operating at high temperature drops. Therefore it is not adapted to high concentrations, and will necessitate much large heating surfaces to do the same amount of work. The equipment will therefore be more costly.

Thermo-compressors require power directly from prime movers, either high pressure steam, if the nozzle type is to be used, or mechanical power if a turbo-compressor is considered; while the multiple vacuum pan is well suited to use exhaust steam from a prime mover and, in connection with a high vacuum, obtains a high temperature drop in a triple effect.

An Important Detail Ignored

Two types of evaporators in the same plant would not tend to simplicity of operation. Besides, I take it, a third stage in the process of water disposal must be reckoned with to bring the residue to a suitable stage for burning after leaving the triple evaporator. Professor McKee makes no reference to this. The heavy liquor will contain about 45 percent of water and will have no inclination to burn. Sulphite liquor residues, even when dry, will not burn as readily as the soda pulp liquors under the same conditions.

Another step in the process as outlined appears to be very simple and practical—namely: "The hot waste sulphite liquor draining off from the woodpulp in the digester blow-pit is run into a de-sulphurizing column about 16 feet high where it meets a counter current of steam and has the larger part of its sulphur dioxide removed."

The amount of free sulphur gas in the liquor at the time of blowing off varies greatly according to the use to which the pulp is to be put, but in any case, most of it is very effectively steam stripped in the act of blowing and is usually lost. It is sometimes recovered by venting through a condenser, allowing the gas to pass on into the acidmaking system. It is, however, not customary to do this. I seriously doubt if the sulphur dioxide recovered from the drainage liquor by counter current treatment in a tower with steam would be effective or profitable; if effective it would be costly in the consumption of steam which would further dilute the liquor.

Market for Alcohol Very Uncertain

Regarding the production and recovery of alcohol we must concede that to obtain a possible 1 percent from such a waste liquor is not an alluring proposition financially. It goes without saying that the control of fermentation processes is highly technical and exacting, and requires special knowledge and experience. The government regulations relating to the manufacture of alcohol impose many annoyances and the business must be viewed from a very different angle from what it formerly was. The market for alcohol would be extremely uncertain.

Such have been the experiences of the company referred to in this country which spared neither money nor talent to recover alcohol from its waste sulphite liquor on a commercial scale and the proposition has long since been abandoned.

It is claimed that new and important discoveries in the fermentation process applicable to sulphite waste liquors have been made in the laboratories of Columbia University. The statement is made that the normal acidity of the liquor after the removal of the free sulphur dioxide is not poisonous to the yeast ferment, and if air is bubbled through the liquid during the fermentation process, the yeast, properly fed, will thrive.

I do not doubt that the bubbling of air would be beneficial, but the conclusions would carry more weight if they were supported by further evidence. Pasteur showed many years ago that yeast spores would live and do considerable work under an unfavorable environment, but soon became sickly unless they were adequately supplied with a source of oxygen.

It is common knowledge that fish life has been completely destroyed in waters badly polluted with sulphite waste. One reason is the lack of atmospheric oxygen, which lack is very persistent in streams so polluted. I am personally acquainted with a case where a sulphite mill discharged its waste into a river and throughout its course for over 100 miles it had not recovered its normal volume of air or thrown off its polluting burden. Tributaries of the same river upon which tanneries were located discharging their waste into their waters disposed of their burden and returned to normality within a comparatively short distance.

Sulphite waste is an enormous consumer of oxygen and it is very questionable whether the bubbling of air through it would adequately furnish oxygen to sustain a healthy activity of the ferment.

Fuel Value of Residue

Regarding the second phase of the process in which a fuel value of at least $65,372 is worked out, we may get an off-hand check on this by taking a look at the process of recovery of black ash by the soda process.

Regarding the second phase of the process in which a fuel value of at least $65,372 is worked out, we may get an off-hand check on this by taking a look at the process of recovery of black ash by the soda process.
The black liquor by this process is evaporated to a consistency of about 60 percent solids and 40 percent water and is fed into the rear end of a revolving furnace, 16 to 20 feet in length. A steam boiler is set in connection with the rear end of this revolving furnace to absorb the heat of combustion of the organic matter. There is also a traverse coal burning furnace in front of the rotary to insure heat at all times to keep it working properly.

It is well known that steam enough to supply the vacuum pans cannot be depended upon from the burning liquor even with the burning of considerable coal in the traverse furnace.

If therefore it is possible to realize a considerable fuel value from the dregs of the fermentation process, certainly a much greater saving should result from the black ash process, and if this is true, the present practice is faulty and should be corrected.

A few years ago at an annual dinner of the Technical Association we had the pleasure of listening to an address of the late Charles P. Steinmetz bearing on this subject. His argument was in substance as follows: It is conceded that our coal deposits are of organic origin in pre-historic times. If we distil bituminous coal we get valuable products. Therefore, may we not expect to get valuable intermediates from a destructive distillation of the wood waste residues in the manufacture of wood pulp?

The destructive distillation of hard woods for methanol and acetic acid is still continued in a relatively crude way, comparable with the beehive coke oven practice. Every cord of hard wood which is so distilled represents a loss of over 1,000 pounds of chemical pulp, which is rather less than half the weight of solid matter per cord. Considering that the distillation products are derived from the intercellular matter, the only offset for the loss of this pulp fiber is about 25 percent of the woody substance in charcoal, a product of very inferior value as compared with paper stock.

The logical conclusion therefore is, the discovery and development of processes for the recovery of wood distillation products from pulp mill by-product liquors, which carry essentially those constituents of the wood from which valuable derivatives come.

This has been the problem for many years and many unsuccessful attempts have been made to solve it. The solution can only come through adequate research of a practical nature and a vision of the possibilities to be realized. By the soda process it would require a retorting process in place of the rotary incinerating furnaces and all the appliances for distillation and handling large volumes of combustible gases. Pulp manufacturers would generally look upon such a project as experimental, costly, and tending to lead them far-a-field.

To manufacturers of sulphite pulp the whole process would be new and additional to present practice.

These waste liquors do not contain valuable simple substances which can be separated, and if they did and could be recovered at a profit, the problem of stream pollution would still remain unsolved. I believe some blanket treatment such as I have outlined is the only adequate avenue of approach to a complete solution.

At a later date I will perhaps review the many attempts that have been made dealing with destructive distillation, and what some of the obstacles to a solution of the problem have been.

Steam Turbines in Pulp and Paper Mills

Application of Steam Turbo-Generators in the Manufacture of Pulp and Paper—Discussion of Various Types and Advantages of Each

By A. G. Darling*

Industrial Engineering Dept., General Electric Co.

THE particular phase of interest today is in the application of steam turbo-generators to your mills. Each mill has its own problems varying widely from other mills in many cases while in some the conditions are the same but the results desired differ from each other. What has been done to obtain maximum economy at minimum cost is probably of greater interest as general statements than the review of particular cases. With general principles in mind, specific instances can more readily be solved.

Steam is the most useful form of heat that has been tried in paper mills. Its peculiar characteristics deserve attention—for instance, it takes one heat unit to raise a pound of water 1°F. It takes .3 of a unit to raise a pound of steam from 212°F. to 213°F. at about atmospheric pressure. On the other hand, it takes 972 units at about atmospheric pressure to change water into steam while at 3200 pounds pressure or 706°F. any additional heat changes water into steam. This point is called the critical pressure. Conversely, in changing steam back to water near atmospheric pressure a large amount of heat is made available and is used in a great many processes which require large amounts of heat to complete them. However, if condensation does not take place in the processes but only steam or water gives up its heat, the amount of steam or water must be enormously increased.

On this point drying systems of paper machines prove successful or fail. Condensation can be used in a process but not in a steam engine, therefore, the dividing point in the use of hot water or steam determines the application of the energy released. For certain processes, temperatures higher than that of the boiling point of water are required necessitating the use of an increased pressure, because it is not so much the additional heat that can be released as the penetration caused by the pressure upon the process involved. The example that bears this out is the cooking of chips.

The processes of the paper industry generally require pressures of relatively low order—for example, heatng of buildings, 5 to 10 lbs.; drying, 5 to 20 lbs.; evaporating, 20 to 50 lbs.; cooking, 60 to 120 lbs. The first three, heating, drying and evaporating, are about in one class, that is to say if they were the only pressures to be considered the upper limit would determine the boiler pressure of the mill and the other pressures would probably be obtained by throttling but as they are not the only conditions to be satisfied, steam for evaporation is generally considered separate from the heating of buildings and the drying of paper. When large quantities of steam are involved for the various processes the reasons for separating the sources of pressure become even more distinct.

Steam for cooking is a feature by itself and so far has been obtained almost entirely direct from the boilers or by throttling the boiler pressure. Based on information obtained from various paper chemists, it is understood that a maximum total temperature must not be exceeded and further that high pressures raise the cost of digesters beyond economical limits; therefore, it is quite clear that if cooking steam is obtained direct from the boilers or throttled, the total heat and, therefore, the pressure and temperature of the boiler steam, is immediately determined by the total heat permissible in the digester.

Certain elements enter into the cost of generating steam. They are the cost of equipment such as boilers, grates, steam piping, housing, etc., as initial investments to which must be added insurance, taxes and depreciation and again the cost of maintenance and operation including labor and fuel. Fortunately the cost of steam does not directly depend upon its pressure, that is to say, it is not much more expensive to obtain higher pressures than moderate pressures. For the higher pressures the additional initial investment is only a fraction of the investment for low pressure, therefore, the fixed charges are not materially increased when higher pressures are considered. The item that is directly affected is fuel; and the extra amount used is in direct proportion to the heat of the higher pressure over the lower; labor and maintenance are also somewhat increased.

Steam turbines depend upon the available energy in the steam for their mechanical power. As the pressures increase, more energy is placed in the steam and, therefore, less pounds of steam are required to accomplish the same result. For smaller amounts of steam it can readily be seen that less initial investment and, therefore, lower fixed charges and operating cost follow in order. The limit to which the initial boiler pressure of the paper mill can be taken is determined as before mentioned by digester temperatures. If there were no digesters, however, the limit is again determined by the amount of energy required for process steam and the amount of energy required for mechanical work. The two must bal-

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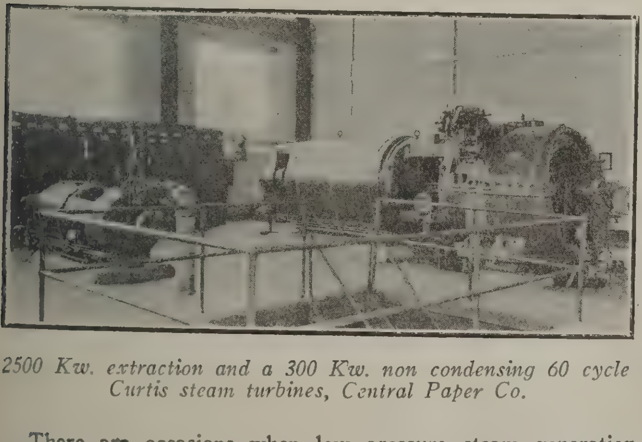
ance each other or mechanical energy must be called in to make up the deficiency. This means additional cost of equipment and added operating expense.

It is not beyond the possibilities of turbine design to utilize the highest pressures that boilers and piping can stand. Turbines can be made to exhaust at temperatures useful in digesters, that is to say, a non-condensing turbine could be placed between boiler pressure and digester pressure. However, to make such a turbine pay, the amount of steam must be large, the rate of flow must be regular, that is, a number of digesters should be in continuous service so obtaining a high steam load factor. The initial pressure must be relatively high, that is in the order of 250 lbs. or more. Very few cases have come to the attention of the author where this source of power can be even thought of because the installations now made have not taken the possibility into consideration.

Methods for Obtaining Low Pressure Steam

Having the upper limit of boiler pressure determined from the digester temperature, or if no digesters are in use from the standpoint of heat economy, the next step is to solve in the most economical manner, the method or methods to be used to take out the available heat between boiler pressure and process pressures.

The amount of steam that is demanded by process and the heat in it determines the size of turbo-generators that can be utilized between boiler pressure and process pressure. There are, of course, variations in the amount of process steam as likewise there are variations in the demands for electrical power and the two do not always coincide. Flexibility must be available and in general it may be said for a completely electrified mill, that is, one which takes its raw materials from the log state through to commercial paper, the power demands are far in excess of that available from the heat contained in the steam used in process between boiler and process pressures, In general, it may be said, however, that it will pay to develop all the available energy that there is in the steam between boiler and process pressure, making up the deficit from other sources such as water power or condensing steam turbines. There are some cases, of course, where this is not true. As we are dealing with general cases rather than particular instances, the previous statement may be used as a general rule. Each case must be settled by itself on the basis of one scheme against the cost of any other scheme.


2500 Kw. extraction and a 300 Kw. non condensing 60 cycle Curtis steam turbines, Central Paper Co.

There are occasions when low pressure steam generation would pay. These are very few and can be attributed generally to a surplus of water power. Electric boilers can here be used to convert the excess electrical energy into steam.

The chief methods, therefore, left for furnishing low pressure steam are:

1—throttling
2—non-condensing turbines
3—extraction turbines
4—combinations of the first three

Going back to throttling, it is interesting to note that there are very few instances when throttling itself would pay. These instances are becoming less as the public becomes acquainted with other methods. The loss of available energy by throttling is the cause of its decreasing use. It is, of course, understood that there is no actual loss of heat in the transfer from high to low pressure.

Whether or not the original designers of paper machines and engines had in mind the balancing of mechanical power with heat obtainable from the exhaust of the driving engine is hard to ascertain but in any event, they came fairly close to getting what was most economical from this standpoint. Turbo-generators with motor drive on the paper machines seem to fulfill the two requirements even better than engines and at the same time give closer speed regulation. Unfortunately some rather loose work is done at times which disturbs this balance and gives an excess of generating capacity or low pressure steam. In some cases where the designers realize that they are not getting a balance they cover it up by putting in turbines of very low economy. A little more thought on the available heat energy required would determine the economical initial pressure. Some cases demand that the turbine be fairly uneconomical because it would cost too much to change other parts of the plant to realize the economy in turbine performance.

3000 Kw. 750 Kw. 60 cycle condensing Curtis steam turbines P. H. Glatfelter Company

Variations in the quantity of steam required with constant electrical demand such as seasonal heating and low pressure cooking in odd cycles tend to limit the use of non-condensing turbines. Steam accumulators have been developed and are in use in some mills which wipe out the variations in steam demand and act as reservoirs to take excess steam when it is not required in the process and to give it up when the electrical demands are low. A great many mills have been successful in economical operation without accumulators because their systems are flexible enough to absorb excess and to furnish demands. The electrical end is usually taken care of by operating the non-condensing turbines in parallel with hydro-electrical units or condensing turbines having the none-condensing turbine designed to give the maximum amount of steam required, filling in the electrical demands from the parallel sources of power, that is to say, the non-condensing turbine floats electrically on the rest of the system furnishing electrical energy in direct proportion to the steam demand.

The latest types of paper machine drives are utilizing direct current for the paper machine motors. Motor generator sets, alternating to direct current, with alternating current as the prime mover, coming in either from steam turbines or water power, supply the power. Relatively cheap prime mover power must be available for this method as the fixed charges and losses of the motor generator set are to be added to the prime power costs to arrive at direct current power costs. The other

The size of the electrical ends are fixed by the paper machine alternative is to utilize non-condensing direct current turbines. drives. The amount of steam available for the turbine is fixed by the drying demands of the paper machine. The adjustable unit between the two is the heat content of the steam at the turbine throttle. As pointed out before, this is governed by other conditions within the mill which are variable within reasonable ranges. Speed regulations of the turbine is obtained by the governor. The paper machine drive, however, demands that the voltage be variable in order to get speed ranges on the paper machine. Voltage regulators can be used to keep the speed of the paper machine constant at predetermined speeds due to the demands of the paper machine for adjustable speed. The DC turbine and motor-generator set are not available for other uses. On the other hand the exhaust steam from the turbine can be alternatively furnished to the paper machine which the turbine is driving or to other paper machines or process. Some mills prefer even to isolate the exhaust of their turbines so that there can be no chance of other demands affecting the supply of steam to the machine in question. Even with an accurate balance between mechanical power and exhaust steam laid out on paper it is not thought advisable to eliminate an alternative source of steam from consideration in most plants. This is done by high pressure make up.

The non-condensing turbine for paper machine drive is not the only one that can be used to advantage in the mills where super-calendars, low pressure cooking and heating of beater water, bleaching, etc., are done. The supply of low pressure steam to these demands is a fine opportunity to obtain electrical power due to the difference in available energy between boiler pressure and process pressure. In this case alternating current generators would generally be used operated in parallel with other sources of the same type of current.

To summarize the non-condensing turbine, it may be said that in general its function is supplementary to other sources of electrical energy but that when so used it is more economical in its use of steam per KW of output than other types of turbines supplying an equal amount of electrical energy and exhaust steam.

Extraction Condensing Turbine

The extraction turbine has an internal grid valve consisting of stationary and a moving annular ring with ports open in each of oblong sections. The blanks on the stationary ring provide means of shutting off the steam from the ports on the moving ring. Through an opening in the turbine casing at the high pressure side the grid valve opens or closes to force out more or less steam, so giving a constant pressure in the extraction line.

With an adjustable diaphragm in the extraction line, various pressures can be held for different quantities of steam demanded. Some steam is always required on the low pressure side of the grid valve which is not wasted but produces mechanical energy while it passes to the condenser. As less steam is passed out of the extraction line, more is required in the low pressure cylinder to carry a given electrical load, therefore, we have the combination in this turbine of a straight condensing turbine and a non-condensing turbine to supply variable steam and electrical demands, the variations in each need not coincide with each other.

For moderate size plants which do not have low cost power from condensing turbines, extraction turbines frequently work out to be less expensive than the combination of condensing turbines with non-condensing turbines. This is especially true where there is a widely fluctuating demand for steam both hourly and seasonal. This can be readily understood if we consider that the non-condensing turbine must be arranged on both turbine and generator ends to correspond to the maximum demand for steam. If this is not done high pressure make up must be used. At the same time the condensing turbine operating in parallel must also be of such size as will carry the maximum electrical load, therefore we duplicate, so far as electrical capacity is concerned, a certain proportion of the required capacity in each generator. On the other hand, the extraction turbine has but one generator and two steam cylinders either one of which or both are capable of meeting both the electrical and steam demands.

To differentiate and determine which scheme should be used, the non-condensing or the extraction turbine, it is necessary to balance up the heat required to perform the various functions in the mill. If these problems are analyzed on a heat unit basis, the various parts will be shown up in their true value allowing a close balancing of the opposing amounts.

Paper Men at Immigration Conference

The following manufacturers of paper were named by Henry W. Stokes of Philadelphia, president of the American Paper and Pulp association, to represent that organization at the National Immigration Conference in New York, December 13-14, under the auspices of the National Industrial Conference board:

P. T. Dodge, International Paper company, New York; C. A. Crocker, Crocker-McElwain company, Holyoke, Mass.; E. R. Behrend, Hammermill Paper company. Erie, Pa.; Hugh J. Chisholm, Oxford Paper company, New York City; Geo. W. Sisson, Jr., Racquette River Paper company, Potsdam, N. Y.; H. A. Moses, Strathmore company, Mittineague, Mass.; Milton E. Marcus, Bedford Pulp and Paper company, Richmond, Va.; Frank L. Stevens, Stevens and Thompson Paper company, North Hoosick, N. Y.; W. F. Brunner, Paterson Parchment Paper company, Passaic, N. J.; and A. D. Coffin, C. H. Dexter and Sons, Inc., Windsor Locks, Conn.

Henry W. Stokes, York Haven Paper company, Philadelphia, Pa., attended as president of the association. Dr. Hugh P. Baker, secretary of the association was asked to serve as a member of a special committee to assist M. W. Alexander, managing director of the National Industrial Conference board in planning the conference.

Progress of Mohawk Paper Makers

The Mohawk Paper Makers, Inc., in Cohoes has nearly completed the program of improvement laid out by Harry I. Prankard its president, when that corporation took over the two mills at Cohoes and Waterford, N. Y.

The new hydro-electric plant at Cohoes will be completed and in operation during December. The 700 K. W. generator is now being set, and the hydraulic work and power plant building are within a few weeks of completion. The mill has been running on purchased power since its construction in 1917, so that this new power development will result in a very large reduction in production costs.

Stokers have also been installed upon the boilers in the Cohoes mill, and a large number of minor alterations and repairs have been made in that mill which have brought it up to full efficiency.

The Waterford mill has been completely overhauled and rebuilt throughout and both of the machines in that mill are now in operation. The production has been greatly increased by the installation of three additional beaters and an additional Jordan which make possible a much higher speed on the two machines in that mill.

The organization in both of the mills has been entirely revamped, and practically the entire working force which formerly worked with Mr. Prankard in these mills is now back again with him. Both mills are now operating steadily twenty-four hours a day.

Waste in Pulp and Paper Industry

Why Paper Costs

By B. T. McBain, *Assistant General Manager, Nekoosa-Edwards Paper Co.*

IN days like these when timber costs are high and in many districts the supply nearly used up; when labor costs are at a point almost at the peak, and when freight rates are as high as they have ever been—in fact, when almost all raw materials that go into the manufacture of pulp and paper are soaring almost out of sight, why do paper manufacturers go to the expense of installing expensive cost systems and then quote prices that must be far below their costs, seemingly without paying any attention whatever to what these costs might be, just because someone else, for foolish reasons or otherwise, steps into the market and cuts the price?

Cutting prices never made a market and never will. During the past month some of the largest paper manufacturers in the United States have seen fit to cut prices on their product to a point where the profit must be entirely gone, or as some of the jobbers are putting it, they must have made a huge profit at the old price; and are going back only a short time to correspondence or verbal statements in which they were informed that prices could not be met because those prices were lower than their cost, whole now the price they are naming is lower than the price asked for at that time.

Mills have been started in the South and some other mills have added to their equipment but the total tonnage added to the production of the wrapping paper mills of the country during the year 1923 is less than 10% of the former total, and as very few additions were made to the wrapping paper mills during the past five years the average increase during that period is far less than the average increase in production in other lines.

When prices were cut nothing was gained; the jobber lost heavily on his stocks; the mills will lose even more on any stocks of paper they may have at their plants; the buyers are afraid to place orders for the usual stocks carried at this time of the year and are only buying their actual requirements.

There are laws against stealing and there are laws of other kinds which prevent waste and destruction of the property of others and there should be laws preventing manufacturers, or anyone else, from offering for sale products of any kind at a point below cost where it tends toward the destruction of the property of their competitors like the reduction in prices in the paper market during the past month have caused and will continue to cause if they remain in effect.

The maintaining of prices at a decent living level where living wages can be paid, and proper prices paid for raw materials, that those engaged in production in those lines may likewise live, should be allowed under the law, and the sooner our dear Uncle Sam arranges to protect the industries of our country, not only against foreign countries by protective tariffs, but against foolish practices on the part of a few in the industries at home, the sooner will all of his citizens prosper.

This waste in selling today is the greatest waste in the paper industry. If cost systems are good, why not use them and sell accordingly; if they are not good or of any use, then WHY?

No Lockout in Norway

The threatened lockout of 15,000 or more pulp and paper mill workers in Norway has been averted. This is the information received by the American Paper and Pulp association which has been keeping informed of conditions through cablegrams. Reports that the lockout had gone into effect were erroneous, and an agreement has been reached between the workers and the employers.

A cablegram stating that the lockout, several times postponed, had finally gone into effect was followed by another message stating that the lockout had been averted at the moment by an agreement which will prevent labor difficulties for many months. Other messages however, which also announced the lockout, had been received elsewhere in the United States and had been given publicity, but the last minute settlement was not similarly announced. The lockout, therefore, was not at any time effective.

Changes in H. B. Wadsworth, Inc.

At a regular business meeting of H. B. Wadsworth, Inc., the following officers were elected: Jessie B. Wadsworth, president and treasurer, M. Deeves, vice president, M. Serling, secretary.

There will be no change in the business policy of the firm. All connections in the jute board, pulp, pulp stones and general paper making supplies will continue.

C. N. Quinn who was formerly connected with H. B. Wadsworth, Inc., has re-established himself with this firm to take charge of the sales department. Mr. Quinn is a well known figure in the trade, having had former connections with R. F. Hammond, Inc., Howell-Donaldson, Inc., and the Craig-Becker Co., all of this city.

C. A. Wadsworth who was formerly connected with the sales department of H. B. Wadsworth, Inc., has resigned to take up other interests.

Garvan Charges Conspiracy

Thomas S. Garvan has brought suit in the Superior court at Hartford, Conn., for the removal of his brother, John S. Garvan, as president of the paper manufacturing company of P. Garvan, Inc., of that city and also to recover the sum of $200,000.

P. Garvan and his two sons incorporated the business in 1905 and the father was president of the company until his death about 1913 when Thomas became president of the company. Two years ago, however, the directors elected John Garvan to the presidency. The complaint charges that the plaintiff was deprived of the office of president through conspiracy.

When the corporation was formed it had a capital of $105,000, but in 1921 this capital was increased $1,500,000. At the time of the death of P. Garvan the two sons shared equally in the stock of the company. Later J. Gilbert Calhoun and William A. Riley were admitted to the directorate, each holding two shares of stock, it is claimed, for the purpose of reorganization of the company. Calhoun and Riley are made co-defendants in the suit. Thomas Garvan charges conspiracy in the manipulation of the four shares of stock making possible the presidency passing from his hands.

Paper Exports Increase

Exports of paper from the United States during October were valued at $2,118,841, an increase of approximately 5 per cent over those of September, 1923, and October, 1922, according to compilations by the Paper division of the Department of Commerce. Shipments by quantity and value during the three months mentioned are shown in the following table:

	October, 1922		September, 1922		October, 1923	
	Quantity Pounds	Value Dollars	Quantity Pounds	Value Dollars	Quantity Pounds	Value Dollars
Newsprint ..	2,260,546	108,674	2,388,067	112,953	2,246,965	109,884
Book Paper not coated .	1,853,530	193,126	2,010,098	237,487	1,651,988	210,027
Wrapping paper, inc. kraft .	2,706,109	181,927	2,042,653	168,390	1,744,339	146,018
Paperboard and Strawboard	3,651,122	167,736	4,811,107	217,386	4,911,220	210,440
Photographic paper	110,113	115,487	134,983	121,133	133,489	115,740
Boxes and cartons	647,245	79,225	1,021,018	96,219	1,114,465	117,333
All other ...		1,173,933		1,061,266		1,209,399

Paper Industry Backs Mellon Plan

A referendum taken by the American Paper and Pulp association on Secretary Mellon's proposal for tax reduction has resulted in over 95 percent of those replying voting in favor of the Mellon proposal, and against a bonus for able-bodied veterans.

This questionnaire was sent out so that the association might be able to speak with authority as to the attitude of the paper industry on the tax program.

The referendum provided that the federal government in the opinion of the industry, should do all within reason for the care of sick and wounded veterans. The first two questions were answered almost unaniomusly against the bonus, and for the tax proposal. Questions as to specific proposals of Secretary Mellon, varied only slightly from the replies to the general proposal.

Paper Novelty House Expands

The Orchard Paper company, of St. Louis has purchased the three-story building at 1113-1126 South Twelfth boulevard, St. Louis, and will establish a modern paper merchandising plant, having outgrown its old quarters at 713 Spruce street.

The new quarters of the Orchard company contain 54,000 square feet of floor space and until recently was occupied by the Robert Gaylord company, box manufacturers. It occupies 100 feet on the west side of Twelfth boulevard and extends 132 feet to the rear. It is the purpose of the Orchard company to remodel the building to be used for a plant for the manufacture of paper novelties, as well as for warehouse and office space. A new front of steel sash and stucco construction will make the building one of the more pretentious business buildings of its kind in the city. The interior will be equipped with a sprinkler system and all modern fixtures.

The Orchard Paper company, now the only manufacturer of printed box coverings and trunk lining papers west of New York City, was organized in 1920 by Herman C. Orchard, Charles P. Orchard, Louis Weenick, Thomas J. Lineback, Joseph A. Ent and Sidney Strauss, all of whom are now actively engaged in the business. At the time of organization the company leased the property at 713 Spruce street occupying the first three floors. So rapidly did the company grow that soon the entire building was occupied and outside space rented.

At is inception the Orchard company was almost exclusively devoted to wrapping papers and cordage. During the past two years the company has extended its activities to the converting field and is handling many paper specialties.

The building just purchased will be improved at once and according to present plans the company will occupy the remodeled structure about March 1, 7924.

Kraske Goes to Canada

Captain William Kraske, sulphite superintendent of the Consolidated Water Power & Paper company of Wisconsin Rapids, Wis., has resigned his position with that company, and has gone to Kapuskasing, Ontario, Canada, to take the position of superintendent of the Spruce Falls Co., Ltd., a trading sulphite company of Canada.

During his residence in the city of Wisconsin Rapids Mr. Kraske was captain of Battery E. 120th Field Artillery and regarded by state national guard officials as one of the leading guard officers. He also served the city as Alderman.

Mr. Kraske has been secretary of the Northwest division of the Superintendents association and was re-elected at the recent Appleton convention. He has done some fine work for this association and this division is one of the livest in the association.

Advisory Committee to Meet Wallace

Secretary Wallace of the United States Department of Agriculture has asked the recently selected advisory committee from the paper industry to the United States Department of Agriculture to meet him during the week of January 7 for its first meeting.

He is anxious to take up with the paper industry, through this committee, the problems of forestry and technical problems which are handled through the Department of Agriculture, through to the United States Forest Service, Forest Products Laboratory and the other departmental laboratories and similar agencies of Wallace's department.

New Machine at Biron Mill

The new Biron mill of the Consolidated Water Power and Paper company made its first paper Thursday, November 29, and is making a good grade of newsprint at 700 feet per minute.

This machine was built by the Beloit Iron Works, and is designed to run at speeds up to 1,200 feet per minute.

Everything started off like an old machine and as fast as the operators become used to the machine at faster speeds it will be speeded up.

The Woodsome system of drying is one of the late inventions in use and the Thiel economizer is a part of the hood equipment over the dryers.

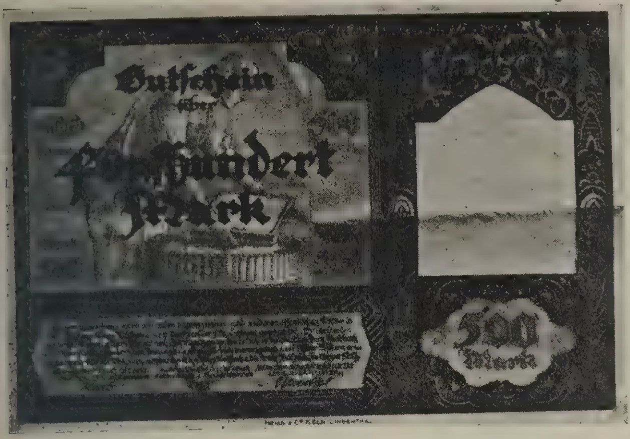
The Portland Pulp and Paper company have filed articles of incorporation in Salem, Oregon. The incorporators of the new company, which has a capitalization of $1,500,000, are Roy H. Mills, of Portland, D. J. Fry and F. D. Thielson, both of Salem, Oregon.

Three tracts of waterfront land south of Oregon City, Ore., were recently purchased by the Hawley Pulp and Paper company which has a plant in the city and in the near future will build another either in Oregon City or some other place in Oregon or southern Washington. The buying of this land, valued in the deeds at $20,000, may mean that Mr. Hawley has definitely decided to locate the new mill in Oregon City.

The accountants of the Crown-Willamette Paper company's five paper mills, two in Oregon and one each in California, Washington and British Columbia met in a convention at Portland, Oregon, the third week in November. The meeting was presided over by officials from the head office of the company located in San Francisco, California.

Honoring the Papermaker

Writing to a friend connected with PAPER, Dard Hunter, the philosopher-papermaker ot Chillicothe, O., enclosed a photograph of which the accompanying illustration is a reproduction.



He says, "A friend of mine who is connected with the J. W. Zanders paper mill has just sent me a 500 mark banknote from Bergisch Gladbach. This note is, so far as I can ascertain, the first banknote ever produced on which a handmade papermaker was shown."

Fireproofing Paper

An interesting demonstration of the possibility of making paper fireproof was shown by the cover of the November 14 issue of Fire and Water Engineering.

The four page cover was fireproofed with a special chemical solution by the First Fireproof Paper Co.

I. H. Case, general manager of Fire and Water Engineering, says "The paper, our regular 75 pound coated stock, was sent to their laboratory for treatment before printing and notwithstanding this it went through our presses without any trouble whatever."

The paper was not changed in any way that was apparent to the eye or touch and when held in an open flame was only slightly charred in the spot immediately in the flame.

Plans of Elam Paper Co.

Lowell P. Rieger, treasurer and one of the large stock holders of the Peerless Paper company of Dayton, Ohio, has recently resigned as treasurer of this company, disposed of his holdings therein, and accepted a vice presidency and treasurership of the Elam Paper company of Marion, Indiana.

Plans for the removal of the plant of the Elam Paper company to Dayton are now being rapidly pushed and officials of the company say that the change will probably be made some time around the first of January, 1924. The Elam Paper company is one of the largest manufacturers of personal stationery and tablets for school use in the Middle West. Their 1923 production up to the first of December, 1923, totaled over a million and a quarter dollars.

Officers of the company are S. L. Elam, president; J. H. Schaumleffel, vice president; Virgil Schaeffer, secertary; and L. P. Rieger, vice president and treasurer. These together with Albert Hersing, St. Mary's, Ohio, vice president of the Peerless Paper company; Chas. W. Roth of the Buntell-Roth company; and Willard Elkins, president of the City Trust and Savings bank, Marion, Indiana, comprise the board of directors.

Upon completion of the removal of the plant to Dayton, it is contemplated that employment will be given to approximately two hundred and fifty people, may of whom will come from Indiana.

Mr. Rieger's long expreience in the paper business should be a great benefit to the Elam company and his many friends in the paper trade wish him every succes in his new enterprise.

Paper Exhibit at Milwaukee

The paper mills of the state of Wisconsin are very well represented at the Manufacturers' Exposition held in Milwaukee. The exhibit is in charge of C. A. Fourness of Kimberly-Clark Co., of Neenah, and F. H. Rosebush of the Nekoosa-Edwards Paper Co., Port Edwards.

The various grades of paper manufactured by the different mills are on display and in original packages and the decorations of that section of the building are all suggestive of the pulp and paper business from the trees to the finished product.

This is the second year that the paper mills have shown a keen interest in this exposition and it gives the public a chance to learn something of the magnitude of the industry in the state of Wisconsin.

New Dam at Tomahawk

The Wis., dam for the new paper mill and power development at Tomahawk, Wis., is completed and the power house will be enclosed at a very early date.

This power house will be unique in that it will not require operators inattendance but will be automatic, both as to operation and changing of load.

The paper machine is being rebuilt and when this plant is ready for operation it is stated that it will be equipped with the latest labor saving devices in every department and the conversion cost will be at a minimum.

New Mill for Paterson Parchment Co.

The accompanying illustration shows an interesting view of the construction work on the new plant of the Paterson Parchment Paper company at Edgely, Pa.

The view shows unit No. 1 of an ultimately larger mill. This unit will have two paper machines, a total floor area of 350,000 square feet and a power plant of 5,000 kilowatts ultimate capacity. The plant is on the Delaware river near Trenton, N. J., and will utilize about 5,000,000 gallons of water per day.

The new mill was designed and built by Abbott, Merkt and company, of New York.

New Book on Chain Application

Of interest to every saw mill or pulp and paper mill man is the new book on chain and chain application, recently issued by the Link-Belt Company.

One hundred and twenty-eight pages in extent, it illustrates and describes various types and classes of chain used in this industry. The liberal use of photographic reproductions fully illustrates the application of these chains. Complete data regarding tensile strength, size, weight and prices is given in tabulated form.

The new book also covers, briefly, such equipment as the electric hoist, locomotive and crawler cranes, belt conveyors, coal handling equipment, log stackers, sprockets, clutches, etc. Each subject is illustrated and described.

Copies of this new book, known to the Link-Belt Company as No. 660, are obtainable at any of their plants in Indianapolis, Chicago or Philadelphia.

William Squires Warren

William Squires Warren, until about a year ago general superintendent of the Crane & Co. paper mills at Dalton, Mass., died Nov. 27 at his home, 58 Curtis avenue, Dalton, aged 68 years. He had been superintendent of the company since 1889. He was one of the best known paper mill officials in New England, particularly as having charge of the mills which produce the paper for the federal government.

He was born in Dalton, June 21, 1855, the youngest of four children. His family had lived in Dalton since his great grandfather settled there in 1775. He went to work at the Bartlett & Cutting paper mill when he completed school, their mill being located on the site of the present Centennial mill of the Byron Weston Paper Co. Then he went with Carson & Brown, now the Old Berkshire mill in Dalton. He learned the business thoroughly and went to the Carew Manufacturing Co. at South Hadley Falls as superintendent. He then returned to Dalton to become superintendent of the Crane mills. He invented and perfected many machines used by the company in its manufacture of the government bank notes.

He was twice married and is survived by six children. He was past master of Unity lodge of Masons, president of the Dalton library trustees, secretary of the Saturday Evening club, trustee of the Dalton Y. M. C. A., 32nd degree Mason and a member of many other organizations.

Value of a Perpetual Appraisal

The perpetual inventory of raw and finished stock is now almost universally accepted as essential to the close executive control of any manufacturing business, says William R. Bassett, president of Miller, Franklin, Bassett & Co., Inc., New York City.

The perpetual inventory, or appraisal, of equipment is an almost equally valuable aid to the management, although it has not yet been widely adopted. A physical appraisal, because it is expensive to make, is a comparatively infrequent happening in most concerns.

In the 4 to 10 years between appraisals, great changes take place in value and location of the equipment, which, unless reflected in the manufacturing costs and in the income tax returns, may have serious effects upon the profits.

The best way to gather overhead is by departments. Each department's overhead includes a round sum for depreciation on equipment. If a machine is moved from one department to another, changes in the overhead to reflect that change should be made. Too often it is not. In a concern operating under a cumbersome bookkeeping system, I once saw depreciation charged on an expensive machine for years after the machine had been sold for scrap. In the same plant, one department carried the same amount of depreciation charges after additions had been made, which doubled the amount of equipment in that department.

An excellent perpetual appraisal record consists of one card, or loose leaf sheet for each machine. These can be grouped into departments. On the card is recorded the first cost, the freight, the cost of installing, the cost of major repairs, the depreciation rate and amount, and the present value. If the machine is moved to another department, that fact is noted on the card, and the card is transferred in the file to the new department.

There you have a complete record of every bit of equipment in the plant, by itself, and not buried with a mass of other figures in some general capital account. It is easy to operate, and invaluable as a control.

New Booklet by Mead Pulp and Paper Co.

With the coming of the new year an interesting one hundred page booklet, describing in detail how paper is made in the plant of the Mead Pulp & Paper company, of Chillicothe, together with a history of paper making in Ross county and other interesting data and information pertaining to the Mead plant, will be published.

This series of articles on paper making appeared throughout the year 1923 in "Mead Co-operation," the plant magazine published by the Mead Pulp & Paper company. When completed and ready for distribution, the booklet will be given to each employe in the Mead plant and additional copies will be given to the general public upon request, or when interested persons call at the plant and request to be shown through the mill.

It is hoped that the booklet will be the means of making better workmen, and also that through its distribution, the citizens of Chillicothe may come to know more of one of the city's larger manufacturing plants.

Pusey & Jones Make Foreign Shipments

The Pusey & Jones Co., Wilmington, Del., has completed the shipment of a large paper-making machine to Kymmene Aktiebolag, Kota, Finland, one of the largest independent newsprint companies in Europe. The company has other Pusey & Jones machinery in service, having been installed a number of years ago.

The new machine weighed about 900 tons, with value placed in excess of $250,000. It is said that the contract for the machine was secured in the face of heavy competition with England and Germany, as well as Scandinavian paper machinery manufacturers.

American Trade With British Colonies

The difficult problem which the imperial conference at London is investigating, of how to favor the colonies by establishing preferential inter-tariffs between the countries of the British Empire, is rendered more complicated by the fact of the large trade between the colonies and other countries outside of the empire—notably with America—some of which might be much disturbed by discriminating tariffs.

Among the things America buys from the colonies is wood pulp and pulp wood, of which we import nearly $100,000,000 worth a year, as against $25,000,000 worth in 1913. This comes to us largely from Canada.

PAPER

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Holiday Greetings

THE joyful season is at hand when everybody feels inclined to sing the old refrain, "Peace on earth, goodwill to men." It is the hope of PAPER that everyone of its readers will enjoy a Christmas filled with genuine happiness and good cheer and that the New Year may bring to many a happy realization of fond hopes and ambitions. Cordial good wishes are extended for a joyous celebration at the holiday season and we hope that all will enjoy a generous measure of happiness, contentment and prosperity both now and throughout the years to come.

The Coal Tar of the Pulp Industry

IT was to be expected that Professor McKee's address on a new method of fermenting the spent liquors of the sulphite mill for the recovery of alcohol as a by-product would excite comment, but we were hardly prepared for the amount of interest that was developed in the subject. To our own comments on Professor McKee's reference to the wasteful methods of pulp manufacturers, our old friend Martin L. Griffin, formerly of the Oxford Paper company and now with the Mt. Hope Finishing company, supplies a contribution dealing with the economics of recovery processes in general, but particularly as applied to sulphite and soda mill waste lyes.

Mr. Griffin is inclined to be pessimistic regarding the possible commercial outcome of any research looking to the recovery of valuable by-products from waste sulphite liquor. In this he takes a stand in opposition to many chemists who have made a study of the subject and whose judgment in this matter is of some weight. There was the late Charles Proteus Steinmetz, whose early training was that of a chemist and who had studied in an interested way the possibilities of sulphite waste liquor as contrasted with the waste coal tar of the steel industry, which at one time was considered of no value but which has since become the foundation of a great aniline dye industry, the possibilities of which have by no means been exhausted.

It is difficult to convince the pulp and paper manufacturers that a profit is to be made by the utilization of one group only of the substances which are extracted from the wood in the process of cooking it. The object of cooking wood in pulp making processes is, of course, to lay bare the skeleton of the tree, perhaps more properly the gold of the tree—its cell walls of cellulose. The group of substances referred to are the natural sugars of the wood, which may be fermented to yield after distillation alcohol to the amount of about one part in one hundred of the total quantity of waste liquor. There are ketone bodies and other chemical combinations, to say nothing of coloring substances, hidden away, in the liquor, and the Patent Office files will show that more than one attempt has been made to extract and make use of them.

It is the contention of several chemical authorities that valuable by-products other than alcohol can be separated from the liquor. The outlook is no whit more discouraging than that which confronted the early investigators of that one-time ill-esteemed waste product from the old beehive coke ovens of the steel industry, and see what a magnificent array of chemicals has resulted from the foundation of the modern industry of synthetic dye-stuffs and pharmaceutical products. It is not to be hoped that anything like an equal variety of new products can be recovered from the pulp mill equivalent of coal tar, but it may be that intensive research conducted along new lines would be well worth undertaking.

W. B. DuBois, vice-president of the Columbia River Paper Mills corporation at a meeting of the Vancouver city council declared that his company, which furnshed employment for several hundred men and contributed to the city's taxes, should not be put on the same basis as outside saw mills when it came to paying rental for a municipal dock. The city council then decided to rent the corporation 300 feet of the east end of the municipal dock for $250 a month instead of charging it the same rate as other mills were paying which would be approximately $1,000 for the space it used. At a previous meeting of the city council action had been taken to make the company pay the same rates as the outside industries were paying.

The Eaton Crane & Pike Co., of Pittsfield, Mass., has acquired the business of Z. & W. M. Crane Co., of Dalton, Mass., and will take over the business on January 1. The purchase of the property does not include the machinery of the latter company, it is understood but what disposition will be made of it is not yet announced. The Z. & W. M. Crane Co. manu-

Construction News

Portland, Ore.—The Portland Pulp & Paper Co., recently organized with a capital of $1,500,000, Roy H. Mills, 815 Broadway building, president, has plans in progress for a new pulp and paper mill on site selected on the Peninsula, North Portland. The main unit will be 80x300 feet, with a number of smaller buildings, including power house, and machine shop. The new plant is estimated to cost close to $1,200,000, with machinery, for which orders will be placed at an early date. It is expected to break ground in January. Others interested in the new company are Daniel J. Fry and F. D. Thielsen, both of Salem, Ore.

Crighton, Ala.—The Gulf Paper Co., Mobile, Ala., has tentative plans under way for the rebuilding of the portion of its local mill, recently destroyed by fire with loss estimated at close to $200,000, including equipment. J. M. Walsh is president, and G. H. Mackie, local manager.

Battle Creek, Mich.—The Michigan Carton Co., will commence the immediate erection of a two-story building at its plant, 170x270 feet, to be used for warehouse and operating service, replacing a structure recently destroyed by fire. It is estimated to cost about $40,000. M. J. Moredouse, 343 South Dearborn street, Chicago, Ill., is architect.

Philadelphia, Pa.—The Philadelphia Paper Mfg. Co., River Road, has awarded a contract to the Hughes-Foulkrod Co., Commonwealth building, for alterations and improvements in one of its buildings.

Oregon City, Ore.—The Hawley Pulp & Paper Co. has preliminary plans under advisement for the construction of a new mill in the vicinity of Third and Main streets, with power house and auxiliary structures, estimated to cost close to $1,000,000. It is expected to carry out the project during the next twelve to fifteen months.

Hadley, N. Y.—The Hadley Paper Corporation has tentative plans for the installation of transmission equipment at its plant, including shafting, pulleys, etc. R. H. Redlin is manager.

Mooresville, N. C.—A. K. Mallard has plans for the establishment of a local plant for the manufacture of paper boxes and containers. Inquiries are being made for machinery and operating equipment.

Menasha, Wis,—The McGillan-Asmuth Paper Mills, Inc., manufacturer of tissue papers, etc., is said to have plans under consideration for the construction of a new addition to its converting plant, providing for extensive increase in output, practically doubling the present capacity. It will cost in excess of $100,000.

Troy, N. Y.—The Albia Box & Paper Co., Pawling avenue, plans for the installation of pulleys and other transmission apparatus. J. M. Webb is superintendent.

Prince Rupert, B. C.—The Prince Rupert Sulphite Fibre Co., Ltd., recently organized, is perfecting plans for the erection of a new plant for the production of bleached sulphite pulp. It will consist of a number of buildings, to be equipped for a daily output of about 90 tons, estimated to cost in excess of $250,000. A portion of the machinery has been ordered and it is said that other contracts for equipment will be awarded in the near future. The company has taken over extensive property in this section, including the Emerson lumber mill and timber lands.

Midland, Ont.—The International Fibre Board Co., has preliminary plans for the construction of a new mill, to replace its plant at Penetanguishene, Ont., recently destroyed by fire. It is expected to commence work and and place equipment orders at an early date.

Muskegon, Mich.—The Central Paper Co., has finishing work well under way on a new mill addition for considerable increase in production, and plans to place the structure in service at an early date.

Chelsea Falls, Que.—The Riordon Co., Beaver Hall square, Montreal, is having plans prepared for the construction of a new power plant on the Gatineau river, near Chelsea Falls, estimated to cost in excess of $100,000. The Montreal Engineering Co., 164 St. James street, Montreal, is engineer.

New Companies

Albany, N. Y.—The Thomas J. McCormick Paper Corporation has been incorporated with a capital of 1,000 shares of common stock, no par value, to manufacture and deal in paper products. The incorporators are T. J. McCormick, C. B. Martin and C. T. Jewell. The company is represented by W. L. Collins, Albany.

Wilmington, Del.—The Carpenter Container Corporation has been incorporated with a capital of $5,000,000, to manufacture paper boxes, containers, etc. The company is represented by the Corporation Trust Co., of America, du Pont building.

New Haven, Conn.—The H. S. Hershman Waste Paper Co., has been incorporated with a capital of $50,000, to deal in paper goods. The incorporators are Harry S. and Isidore Hershman, 153 Minor street, New Haven.

Financial

Childsdale, Mich.—The Plainfield Paper Co., has arranged for an increase in capital from $150,000 to $300,000, for proposed expansion.

Kalamazoo, Mich.—The Eddy Paper Corporation has cancelled preferred stock to an amount of $350,000, comprising an entire issue held in the company vaults, placing the outstanding stock at 125,000 shares, common, no par value.

Detroit, Mich.—The Paper Products Co. has filed notice of change of name to the American Milk Cap Co.

Montreal, Que.—Price Brothers & Co., Ltd., has plans under consideration for taking over the Saguenay Pulp & Paper Co. and the Bay Sulphite Co., both companies having been affected by the failure of Becker & Co. It is said that the new owner, should the acquisition be arranged, will operate the two companies at maximum.

Improvement in Belgian Paper Market

The paper market was more active during September because of exchange fluctuations, Consul Clinton E. MacEachran, Antwerp, informs the Department of Commerce.

Paper prices advanced from 5 to 10 per cent, while wood pulp prices increased from 10 to 20 per cent. A good inland demand resulted from the increase in the value of the Belgian franc, which, however, stopped when the exchange dropped at the end of the month.

The earthquake in Japan slowed up the export demand, there being many cancellations of orders in Japan, especially for paper not containing mechanical ground wood. On the other hand an increased demand from the United States was noted.

C. A. Wadsworth, who has been connected for several years with H. B. Wadsworth has resigned from H. B. Wadsworth, Inc., 51 E. Forty-second street, New York City, and opened his own office for the sale of pulp, paper and a general line of mill supplies at 342 Madison avenue, room 906, telephone Vanderbilt 4835.

Joseph B. Weis, president of the Perfect Safety Paper Co., of Holyoke, Mass., has been elected president of the Holyoke Chamber of Commerce by the board of directors of that organization. He succeeds Archie J. Osborne.

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

Pinchot's Proposed Forestry Bill

Governor Pinchot has made public the text of a forestry bill which he offers to the United States Senate Committee on Reforestation as a means of solving the forestry problems.

A study of the bill indicates that it is the same proposal in a different form that Governor Pinchot made when he suggested the use of interstate commerce as a means of taxing the lumberman who does not live up to the highest forestry principles in the handling of his private acreage.

The new Pinchot proposal would impose a direct tax upon the lumberman and remit in the form of a bonus most of the tax to those who cut their timber properly. The Senate Committee's own bill will be forthcoming shortly, and it is not anticipated in Washington that the Pinchot proposal will be followed, in fact, some students of the situation in Washington go so far as to say that the Governor's success in settling the coal strike at the expense of the consumer does not lead to over-enthusiastic consideration of his proposal in the direction of forest policy.

After defining terms to be used in the act, the Pinchot proposal provides for the establishment of forest regions and their administration; the fixing of harvesting regulations; the classification of taxable products; instruction of operators, beginning in 1925, as to the required standards; and then provides for the payment of a "bounty" to operators of $4.95 per thousand feet for standard forest products harvested.

The next section provides for the levying of an excise tax "on the privilege or franchise of conducting the business of harvesting forest crops on commercial forest lands, measured by the quantity of taxable products produced by him in such year, as follows: for the calendar year 1925, at the rate of 5 cents per thousand, and for every calendar year thereafter at the rate of five dollars per thousand board feet standard log scale in respect of all taxable products."

Following sections provide for returns and payments under this act; for accounts and records; for field inspection and examination of accounts; for penalties for improper accounting; for details of administration.

Cooperative steps for prevention of fire, to force the states to cooperate with the federal government, and expansion of national forests are provided in the concluding sections of the proposed bill.

Indicator of Forest Fire Hazard

The United States Forest Service announces the development of an instrument known as a duff hygrometer, for measuring moisture in the forest floor. Its importance in dry weather in the forests is evident, for upon the degree of dryness of the very inflammable material composing the forest floor can readily be estimated the fire peril. M. E. Dunlap, moisture control specialist of the Forest Products Laboratory, Madison, Wis., and H. T. Gisborne, assistant silviculturist of the Priest River Forest Experiment Station, Missoula, Mont., devised the duff hygrometer after two year's work.

The instrument consists of a perforated metal tube approximately one-quarter inch in diameter and 12 inches long. This tube contains a strip of rattan which expands and contracts with changes in moisture content of the material with which it is in contact, and registers on a dial at the upper end the changes which may take place in the material being studied. The shorter end of the tube is inserted into the needles and litter on the forest floor along the plane in which a determination of moisture content is to be taken.

The instrument may be left in place and readings made directly from it at any time, or it may be moved about freely to different situations. Preliminary tests at the forest experiment station show this instrument will give a reading of moisture content up to about 40 per cent. As fire danger is not imminent when the top layers of forest litter show over 25 per cent moisture content, the range given by the instrument is sufficient for predicting dangerous fire conditions.

If the device proves satisfactory it probably will be used throughout the entire west on the national forests where dangerous forest fire conditions are likely to occur. The importance of these instruments can be realized when it is remembered that most forest fires start and spread in the litter before they develop into a serious conflagration.

University Course in Practical Forestry

A notable step for the training of forest school students in cooperation between the school and the paper industry has been taken by the University of Maine, under which camps will be established on the property of the Great Northern Paper Company with great holdings in Maine. Prof. John M. Briscoe, head of the forestry department of the University of Maine has laid out a camp course made possible through the paper company, which will provide the camps and necessary equipment for fourteen students and two instructors.

The course is made a regular part of the four-years' curriculum in forestry and is required of all senior students. The first nine weeks of the fall semester are spent as usual at Orono and the camp course, begun on Dec. 3, is to continue without interruption or holiday for nine weeks. This year, the camp is located on Rainbow Lake, in Town 2, Range 11, a splendid location about six miles south-east of Chesuncook Lake, where the celebrated Ripogenus dam has recently been completed.

Within a radius of five miles there will be some twenty logging operations during this winter, and the students will have an opportunity to get in close touch with these woods operations. Time studies on both felling and skidding will be a part of the work.

There will be three major courses: Cruising and mapping; forest management; and logging engineering.

Cruising and mapping will consist of making topographic maps and detailed estimates of standing timber; methods of locating trails, highways, bridges, telephone lines, ranger stations, look-outs, and fire-lines. Especial emphasis will be placed on methods producing practical results of sufficient accuracy at a minimum cost.

Forest management will include forestry principles involved in the practical management of a definite forest area, including organization, regulation and business administration, leading to the preparation of a complete working-plan for the area.

Logging engineering will be a course in practical logging methods as applied to a typical pulpwood operation in Maine. This will be tied up very closely with the actual woods operations of the company, and their regularly employed foresters will co-operate in the work.

Time will be kept as regular working days and all college regulations will apply to these courses as if they were given at the university. College credits will also be given on the satisfactory completion of the courses, all of which are required for a degree in forestry.

"While the course is in a way an experiment as a regular part of an undergraduate curriculum, we are looking for very favorable results from it," says Prof. Briscoe. "It will certainly help to wear off the rough edges for the men in going into practical work after graduation; and will, we believe, make them more valuable to the industry into which they are going."

Work of Bureau of Plant Industry

The year's work of the Bureau of Plant Industry described in the report recently made to the Secretary of Agriculture shows much progress in solving the problems of plant production, the control of diseases, the breeding of improved varieties, the introduction of promising seeds and plants from foreign countries and the development of methods for the utilization of perishable crops, such as fruits and vegetables. Much of the work done is of the kind which brings its greatest returns after there has been a time for the commercial development of discoveries.

In the field of forest trees, work has been carried on with white pine blister rust, which is now spreading in the northwest, and in the east the chestnut blight. The Chinese chestnut has been found quite resistant to the disease. In addition to these two important trees which are menaced, it is reported that another valuable tree, the Douglas fir, is in danger because of canker which occurs on these trees in Scotland and which already may be in this country.

"Baking" One Cause of Seedling Loss

To the many and diverse known enemies of tree seedlings must now be added "baking" or "cooking" by direct insolation.

Experiments recently conducted by C. G. Bates, at the Fremont Experiment Station in Colorado, go to prove that an entire crop of young seedlings may be destroyed by only a few hours of extreme heat absorbed at the surface of the ground about the tree stem.

This injury may be quite independent of any dryness or moisture in the soil below the surface.

Tests are now being made at the same station to determine at what point the seedling's drought-resisting power is overcome by extreme heating.

Year Book on Forestry

The forestry students of the University of Maine have begun the production of an annual year book with the 1923 issue of "The Maine Forester."

The initial year book dedicated to Prof. John M. Briscoe, head of the forestry department, consists of seventy pages with an artistic mountain forest cover page, the contents being largely prepared by students of the department.

Samuel T. Dana, formerly forest commissioner for the state, has an article describing the manner in which his department has handled state forest problems.

Standing Timber in Maine

The state of Maine Forest Service has just completed a survey of the amount of standing timber in the state. The report shows 11,630,000,000 feet of standing spruce, 5,060,000,000 feet of pine, 2,781,000,000 feet of cedar, 2,288,500,000 feet of fir, 1,402,500,000 feet of maple, 880,000,000 feet of hemlock, 1,123,000 cords of poplar and 1,109,980,000 cords of birch. The amount of spruce pulp now standing is given as 9,610,000,000 feet and fir pulp as 1,943,000,000 feet.

Aroostook county leads in having the largest amount of standing timber of Maine's sixteen counties and its proportion of spruce is 3,500,000,000 feet. Piscatiquis and Somerset counties come next in order.

Interested in West Coast Timber

That the trend of interest in the Pacific coast timber is extended in the paper industry is shown by a letter received by Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp association from the College of Business Adminstration at the University of Washington, which states that many requests for information concerning pulpwood and the paper industry on the Pacific coast were being received by that college.

The inquiries touch such subjects as newsprint production in states such as Washington, Oregon and Idaho; production of different classes of paper such as wrapping, book, cover, boards, etc.; and consumption of news and other papers.

Food For Thought

The United States contains 465,000,000 acres of forest land, public and private.

There is an area of devastated forest land in the United States approximately 85,000,000 acres, to which more is being added annually. This tract is as large as the combined states of New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania and New Jersey.

Forest fires burn over an area of 12,000,000 acres in the United States every year.

Endorse Forest Policy

The National-American Wholesale Lumber Association has voted in favor of the recommendations made by the special committee of the National Chamber of Commerce on the question of national forestry policy, except number five.

In other words, the association favors the proposed forestry policy except that it is opposed to the creation of a National Forest council "to have functions of advice to administrative officials."

Monarch Co. Settles Damage Suits

Twenty-four cases against the Monarch Paper company, of Kalamazoo, Mich., growing out of the great flood of June, 1916, have been settled out of court after weeks of negotiations between the parties and after one of the cases, that started by Jacob De Moyer, had been placed on trial.

De Moyer and the other plaintiffs charged the losses of their celery crops in 1916 and of other property was due directly to the alleged negligence of the Monarch company in the construction and operation of the dams which broke under terrific pressure during the storm and flooded a wide section in the southeastern part of the city.

The basis of settlement was not made known by the attorneys, but it is understood the plaintiffs received a substantial sum.

The Bryant Paper company was made joint defendant with the Monarch company in the original suits, but the trial judge dismissed the charges against the former. The Bryant Paper company, in an action two years ago against the Monarch company, based on the same allegations as those made by the plaintiffs in the twenty-four suits just disposed of, recovered damages in the sum of $40,000.

New Developments in Paper Making

Safety Tint Paper

British patent No. 202,702 is concerned with a process for making safety paper for check and bond making. The process consists in obtaining the impression of a line geometrical design on the printing plates having the character of a machine-made design but with a variation in the width of the loops so that mechanical reproduction is impossible. Moreover, the lines are differently colored in different portions so as to prevent photographic reproduction.

* * *

Bamboo Pulp

According to a Japanese invention in boiling bamboo with alkali, alcoholic extract of oak is added to prevent decomposition of the fiber itself and to decrease the loss of fiber.

Bamboo pieces, 3.75 kilograms, are boiled with 225 grams of a sodium hydroxide, 2.16 liters of water and 0.27 liter of the alcoholic extract. The pulp which is obtained in this manner is then washed with water and bleached.

The alcoholic extract is prepared by treating 450 grams of sliced oak with 80 grams of 85 to 90 percent alcohol of 50 degrees Be.—The World's Paper Trade Review.

* * *

Paper With Rubber Latex

This is another Kaye patent in which rubber latex is added to the beater. The rubber is vulcanized by the addition of sodium sulphide to the batch in the proportion of 4.55 liters of a 30 percent rubber latex to 340 grams of sodium sulphide. The rubber paper thus contains about ten percent of sulphur calculated on the weight of rubber. A little acid may also be added to aid in the coagulation of the rubber, but when sulphite pulp or other similar pulp is used which always contains a little acid, it is not necessary to add acid for coagulation. Similarly when the paper is to be sized with rosin and sulphate of alumina, it is not necessary to add acid. German patent No. 379,997.

* * *

Bleaching Tests on Sulphite Pulp

Certain experiments were carried out on the bleaching of sulphite pulp according to an article which appeared in Der Papierfabrikant in which the bleaching was accomplished by means of chlorine in one series of tests and by means of bleaching powder in another series. The Rittner-Kellner pulp was suspended in water and under normal condition was bleached to a full white in five to six hours with the consumption of 3.2 percent of chlorine in the form of bleaching powder and a loss of weight of 3.5 percent. By passing chlorine gas through an aqueous suspension of this pulp it was impossible to bleach a full white.

The absorption of chlorine was rapid at first, but after 2.5 percent of chlorine had been absorbed further quantities of the gas passed through unchanged. Greatly superior results were obtained by a combined chlorine and bleaching powder process whereby the pulp was first treated with chlorine water, then washed either with water or caustic soda lye, and finally bleached with ordinary bleach liquor. It was found advantageous not to use so much chlorine gas in the first treatment as was required to saturate the pulp, but to employ only 0.85 to 0.86 percent of chlorine in the form of chlorine water.

Practically the whole of this was usefully absorbed. The pulp was then washed either with water or with caustic soda of one percent concentration. In the latter case the extract was dark reddish-brown in color. The secondary bleaching was performed with ordinary bleach liquor, and the consumption of chlorine in this process required to produce a good water white was 0.85 percent in the case of the pulp washed with water and 0.58 percent in that which had been extracted with soda. By using the combined method the total quantity of chlorine required to bleach the pulp could be reduced by 45 to 54 percent as compared with the simple bleaching power process.

* * *

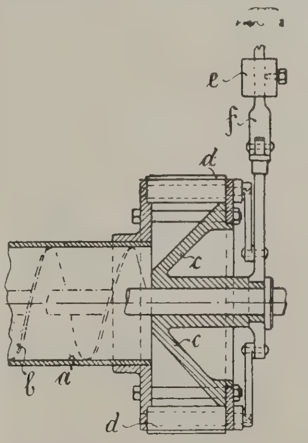
Imitation Hand Made Paper

British patent No. 203,993 is concerned with a process for the manufacture of imitation hand-made card and paper. The process consists in obtaining sheets of different forms made from machine made paper or cardboard having gradually reduced edges and an irregular, frayed or broken-out line. This is done by passing between the rollers or cylinders of a rolling mill a pile of moistened sheets of machine-made paper resting upon a bearing against blunt and irregular or sinuous ridges or the apices of projections having a triangular section with a broad base formed on a metal plate and by reproducing the desired outlines of the pieces of paper or cardboard imitating hand made materials.

* * *

Beater With Accelerating Device

The diagram shows an arrangement for increasing the rapidity of the beating action in a beater. This consists of a channel that is built into the beater roll. In the figure this is seen to be composed of the cone-shaped part c, which surrounded by a number of valves d, located one over the other and under regulated pressure. These parts form the upper end of an inclined tube a, in which there is built an ordinary screw conveyor b. The stock that is being beaten is forced into the inner side of the valve or flap by means of the screw conveyor. There is a certain amount of resistance offered by these flaps owing to the counter-weight arrangement shown at e in the figure. When the pressure is to high that the effect of the weight e on lever f is overcome the valve or flap is caused to open slightly and the beaten stock can force its way through the same.



The pressure that is exerted against the stock which comes in contact with the sharp edges and corners of the flap valves bring about further beating or disintegration of the fibers. Furthermore, when the stock passes through the small opening left by the flap valve it is subjected to a centrifugal force which further serves to beat the fibers, so that when the pulp leaves the beater it is in a fine condition to be made into paper. The beating action of the machine is accordingly accomplished at greater speed than in the ordinary type of machine with subsequent saving in power. This apparatus is patented in German patent No. 373,035.

Doings in Canadian Paper Field

Move to Control Sulphite Export

One of the things now being mooted in Canadian pulp and paper circles is a proposal that a large export corporation be formed for the marketing of the products of Canada's sulphite paper mills. This has arisen out of the unsatisfactory situation prevailing in the sulphite market, which is subject to violent fluctuations with serious losses to investors.

It is suggested that it might be called the Canadian Export Sales Corporation and that it should have the financial backing of all producers of sulphite pulp in Canada. It would have charge of all export sales of Canadian sulphite pulp and would be supported by a moderate commission of probably three per cent of the selling price of all pulp marketed through this organization.

In support of the proposal it is claimed that such a corporation would immediately become the controlling factor in the world's sulphite pulp market, and while it would not, and perhaps could not, control prices, it would at least prevent the existing unsatisfactory state of affairs.

Just now there is a great deal of competition for American business with the result that pulp is often dumped at the market at prices considerably less than the prevailing market price with serious results. The effect of this is to be seen in receiverships for several well known corporations.

Rothermere Gets Big Timber Rights

The largest sale of timber limits in the history of Quebec, 2,500 square miles in the basin of the Manicougan river, found English interests, said to be represented by Lord Rothermere, as the successful tenderers. There were two bids, one by the Ontario Paper Company, of Thorold, owned by the Chicago Tribune, of five cents above the stumpage dues of $2.70 per cord, and the other of the English interests of 10 cents above, or $2.80.

The successful bidder is called on to pay $1,000,000 in three installments, and in addition a ground rental of $6.50 a square mile or $16,000 a year.

The holder of these limits is obliged to erect a pulp and paper mill of 200 tons of pulp and 100 tons of paper daily capacity within five years from the date of the contract, and within seven years to bring the production up to 200 tons daily of paper.

The Rotheremere interests already have considerable investments in Quebec timber limits and in the pulp industry there.

Little Snow for Logging

The dearth of snow is handicapping pulpwood cutting and transporting operations in the woods of eastern Canada.

Last winter the chief handicap was too much snow. And instead of an over-abundance thus far this season, there is very little on the ground in some sections and none at all in other sections.

Some of the pulpwood operators and the pulp and paper companies who cut their own wood, on their own lands, had expected to transport great quantities of the wood from the woods to the railroads before Christmas, but the volume will not be one third as great as expected, unless snow falls thickly in the meanwhile.

A scarcity of men plus higher wages than usual, are also contending difficulties. However, it is likely that more men will be available after the New Year. For two months prior to Christmas many woodsmen have been cutting Christmas trees for the United States markets. After the holidays most of these men will cut pulpwood. Men are also returning in large numbers from the Canadian west where they harvested the grain.

The wages may decrease after Christmas. At present it is impossible to secure crews under fifty dollars per month and board. This is the minimum. The usual wage now is fifty-five dollars. At this period last winter the ruling wage was thirty-five dollars plus board.

Would Make Board Supreme

The Trades and Labor Congress in session at St. John N. B. demanded that the workman's compensation laws be so amended as to eliminate all future court action.

This follows the signal victory of the Bathurst Company, pulp and paper manufacturers of Bathurst N. B. over the New Brunswick Workman's Compensation Board. The company won the case and the verdict was recently sustained on appeal by the board. The company had refused to pay the exhorbitant levies of the board.

The Trades and Labor Congress contends that the workman's compensation laws were passed with a view to keep the compensation cases out of the courts. The labor leaders claim a special session of the New Brunswick legislature should be convened to amend the laws. This means that the board would be supreme in all compensation matters and there would be no appeal.

Opening of Pulpwood Harvest

Harvesting of pulpwood in Northern Ontario has begun auspiciously. A report from the Abitibi Power and Paper company at Iroquois Falls, Ont., says that the total cut from the company's limits up to October 31 was 36,090 cords, which is about 30 per cent of the total amount for the season. Snow is now being awaited and if it arrives soon the working force hopes to haul the logs in rapidly.

The letter sent out by the Provincial Department of Lands and Forests may have had some effect in helping the settlers to dispose of their pulpwood to advantage. This request was to the effect that the pulp companies buy from the settlers whenever possible.

It is noteworthy in connection with the Iroquois plant that the purchase from settlers up till October 31 aggregated 37,190 cords, and considerable purchases have been made since then.

Going After 1925 Record

In newsprint Canadian mills are expected to pass American production in 1925. Some of the very optimistic characters in the industry think that this may be accomplished in 1924, but it is generally considered improbable that the rate of increase this year can be maintained throughout next.

The record made in recent years by Canada as a producer of chemical pulp is surprising. In 1913 she ranked after the United States and Sweden in this form of production, her yearly output being 280,000 tons. In 1922 this had been increased to 680,00 tons, and now Canada is recognized as the world's leader in this respect.

Sim Samuel, formerly of the firm of Samuel & McDermott, paper jobbers, Toronto, has joined the sales staff of the Lennox Paper Mills, Camden East, Ont., and will cover Toronto, Hamilton and Western Ontario.

Dutch Paper Industry Flourishing

The paper industry of the Netherlands has been distinctly prosperous in 1923, says Consul General George E. Anderson in a report to the Department of Commerce. Imports of this commodity have declined and exports have greatly increased.

Exports of newsprint during the first nine months of the current year amounted to 21,283 metric tons, compared with 14,244 metric tons in the same period of 1922. Great Britain and Belgium have been the best customers, but 2,059 tons have been shipped to the United States.

The export of book paper containing mechanical ground wood is somewhat less than last year, shipments for the first three-quarters of 1923 amounting to only 2,283 metric tons, compared with 2,733 metric tons during the similar period of 1922. This deficiency is made up by exports of the finer grades of the same class of paper free from groundwood, shipments of which have increased from 7,747 metric tons in 1922 to 10,250 metric tons during the current year. Exports of fine bond and similar papers have also increased, 1923 shipments reaching 3,708 metric tons, compared with 3,490 metric tons last year.

Shipments of strawboard, which from the export point of view, represents the chief branch of the paper industry, likewise increased, 132,356 metric tons being sent abroad in 1923, compared with 122,091 metric tons during 1922. Great Britain as usual was the chief customer.

Seeking a Substitute for the Chestnut

Whether Chinese chestnuts shall in the future contribute largely to the dressing of the American Thanksgiving turkey is a matter of considerable interest just now to the forestry specialists of the United States Department of Agriculture. It must be confessed, however, that they are not so much concerned with the toothsomeness of our fare at this particular 29th of November as they are with the nation's future supply of chestnut timber and chestnut trees for shade trees.

Forestry specialists are investigating Messrs. C. molissima, C. vilmoriana, and others of their brothers and cousins primarily to find a species that will be a fitting substitute for the American species and at the same time resist successfully the chestnut blight which is now sweeping through the South Atlantic States and threatening to destroy utterly the American chestnut.

Experiments are under way at the Department of Agriculture's experimental farm near Washington, D. C., and also at the Appalachian Forest Experiment Station, Asheville, N. C., while in China an explorer sent out by the Office of Foreign Seed and Plant Introduction of the Department of Agriculture is searching the Himalaya uplands for new species and varieties of chestnut and closely related genera for further research work in this country.

The Indian Chestnut (C. diversifolia), a large evergreen from the mountains of Bengal, Assam, and Siam, stands in equal favor with the Chinese species; but a Japanese tree that has been tested (C. crenata), while a good blight resister, can not pass the turkey-dressing test, and is adjudged to be out of the running because of the very bitter quality of the nuts.

Our native chinquapin (C. pumila et al.) has also entered into the tests, which include cross-breeding as well as blight exposure and various climatic ordeals. The work must go on for some time yet before a definite decision can be published, but at present Molissima and Diversifolia appear to be running neck-and-neck. Two small plantings of the Chinese entrant have been made on the Natural Bridge, National Forest, and two of the Indian tree on the Florida National Forest. These will be watched especially for timber yield.

The German Paper Market

An increase on September 1 in the basic gold price of German paper, amounting to 15 per cent for wood-pulp papers and 30 per cent for the best grades free from wood pulp, has brought them definitely above competitive foreign brands, according to the Industrie und Handelzeitung of September 9, says Assistant Trade Commissioner Fayette W. Allport of Berlin, in his report to the U. S. Department of Commerce.

A minimum export price of £28 a ton (2,240 pounds), or 3d. a pound, has been fixed for writing papers free from wood pulp, while the domestic price, 0.6 gold mark per kilo, corresponding to 3.25d. a pound, is somewhat higher.

When the charges incident to export are considered it is apparent that German prices in export markets are nearly 50 per cent above the average, thus destroying Germany's competitive ability for the time being, particularly so far as staple grades are concerned.

In the domestic paper market a sharp falling off in orders is reported. Catalogues, price lists, and other kinds of commercial printing, upon which paper makers rely for a steady volume of orders, are being dispensed with and job lots of paper offered in forced sales at unjustifiably low prices have appeared on the market.

Pulp and paper manufacturers have also been harassed with production difficulties. Low water in August interfered with plant operation and the high price of imported coal added to the power problem. Pulp-wood purchases were difficult in view of the money shortage brought on by large wage and tax payments. Curtailment in pulp production led to greatly diminished stocks at the end of August and further reductions are expected in the production of both pulp and paper.

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Doings in Canadian Paper Field

Canadian Briefs

Satisfaction with existing business conditions and optimism as the future outlook was expressed at meetings in Toronto a few days of the directors of the Provincial Paper Mills, Limited and the Interlake Tissue Mills, Limited. The mills of both companies are busy and it is expected that the yearly statement will show a good year's operations.

At a largely attended meeting of the employees of the Provincial Paper Mills' Thorold division in the town hall at Thorold a few days ago there was anenthusiastic reorganization of the accident prevention committee and a fresh campaign was entered upon along safety lines. At the meeting addresses were given by Elmer Tolsted, Chicago, A. P. Costigane, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association and John Haliday of the Beaver Board and Fibre company. Charles Buss, superintendent of the Thorold mill of the Provincial, presided at the gathering.

Following discussion of the subject of training female help for the paper box factories of Ontario, the Toronto Carton club at recent meeting concluded that the matter should be left with each individual manufacturer to work out along his own lines and train his help according to his own methods. All of the paper box making concerns were urged to give special heed to the solution of the problem in order that they may have on hand sufficient trained help to satisfy the demand for paper boxes according to the ebb and flow of demand.

With power to engage in pulp and paper and timber operations Biglow and Malseed, Limited, have been granted an Ontario charter with headquarters at Timmins. The authorized capital of the company is $40,000.

It is announced by the Glengarry Pulp and Paper company, Limited, Cornwall, Ont., that they will shortly install a drum barker and hydraulic pressing equipment. The company, which was recently granted an Ontario charter, has been operating steadily during the past year and they look for a continuing good demand for pulp for home and foreign account.

The pulp and Paper industry is hoping for a sign from Australia that it is willing to grant a preference to Canadian newsprint. As yet nothing has been done that would indicate her attitude, but representatives of the Commonwealth are expected shortly in Ottawa on their way home from the recent Empire conferences at London, and it is understood that her policy will then be disclosed. Canada will ask for the same preference as that now accorded to British paper products.

While the plant of the Nashwaak Pulp and Paper company at St. John, N. B., is closed, general repairs are being made to the machinery and buildings. The machinery repairs was the first work taken over by the new St. John Dry Dock and Shipbuilding company, recently opened at East St. John, N. B.

Hon. Dr. Landry, former provincial treasurer of New Brunswick, in a recent speech, severely criticized the appointment of the Royal Commission on Pulpwood and came out strongly in favor of an embargo on the export of wood from Canada. In support of his contention he contended that statistics showed that only about $10 a cord was left in the province for pulpwood exported as such, whereas if it was made into paper, the benefits which would come to the province would be multiplied. The industries which would result from an embargo against the shipment of pulpwood, would furnish employment for many people and serve to keep the young men who were now leaving the province of New Brunswick.

Hon. T. D. Pattullo, minister of lands, stated recently that plans are now complete for the exhibit of British Columbia forest products at the British Empire exhibition to be held in London next year. This exhibit of B. C. forest products would be a co-operative effort with the lumber, shingle, sash and door, box and veneer manufacturers of the province, and would show to the visitors who would come from all the corners of the British empire exactly what results can be obtained by the use of B. C. forest products.

A well-illustrated brochure on Belgo-Canadian Paper company has been prepared in French. The booklet tells the history of the Belgo company in brief and summarizes the varied career of Hubert Biermans, the vice-president and general manager. Of interest is a discussion of the value to the country of exporting finished paper rather than the raw materials.

Plans whereby the western wheat straw will be utilized for the making of pulp for paper manufacture by a hitherto untried process are being developed, according to M. Dolphus, a prominent banker who visited Winnipeg a few days ago in connection with the project.

In an address before the Canadian Club of Simcoe, Ont., a few days ago, E. J. Zavitz, the provincial forester of Ontario, said that the lumber, pulp and paper industry in Ontario had absorbed a capital investment of $200,000,000, provided employment for 42,000 persons with a payroll of $36,000,000, and produced products valued at $112,000,000 annually. The total export value of these products was $200,000,000 and turned the trade balance of the country in its favor. The forests, too, provided a substantial revenue of $4,000,000.

The town council of Fort Frances, Ont., have voted to submit a by-law to the ratepayers to grant the Backus interests a fixed assessment. The company proposes to increase the capacity of its paper mill from 100 tons to 200 tons per day, and in return asks that for twenty years its various plants, the assessed value of which is $1,280,000, be assesed at $25,000, exclusive of school and local improvement rates.

At a recent meeting of the directors of the Don Valley Paper company, Limited, Toronto, J. F. McKenzie, assistant superintendent, was promoted to be superintendent in place of C. Nelson Gain, who has been appointed general manager of the Canadian Vegetable Parchment company and the Garden City Paper company, St. Catharines and Merritton, Ont. Mr. Gain has moved to St. Catharines where he has taken a house and enters on his new duties at the end of December.

As the failure of Becker & Co., the English pulp and paper house, involved two mills in Great Britain it has rather complicated matters for the Bay Sulphite Co., for which Becker's acted as sales agent in Britain. A portion of its business is with British mills direct and this should not be affected, but that placed through Becker's will have to be made up through the securing of new contracts. It is not thought, however, that this will be a serious difficulty.

Work on the big Kenogami dam in connection with the huge Price development is making satisfactory progress, and it is expected that this work on the upper portion of the Saguenay river will be completed within 18 months. When completed this will enable the Price mills to operate all year round. It is expected that there will soon be important financing in connection with this development in which John B. Duke is interested.

The Stewart-Atkinson Company, operating a lumber mill at St. Romuald, Que., has completed plans for the installation of additional machinery and will embark in the manufacture of pulp and paper. The company intends to employ nearly 1,500 men upon the completion of the present project.

J. D. Robb who recently joined the paper machinery sales department of the Dominion Engineering works, Montreal, was in Toronto last week. Mr. Robb arrived in Canada after having been through the big Japanese earthquake where he lost his home, office and most of his possessions and where both he and his family had a very narrow escape from death.

The death took place in Toronto last week of Mrs. Henrietta Kent, mother of H. F. E. Kent, president of the Canadian Pulp and Paper Association. Deceased was widely known in Toronto and district in connection with philanthrophic and church work.

It was announced in Toronto last week that the new paper bag factory which Kilgour Brothers, Toronto, are erecting at Windsor Mills, Ont., will be ready for operation by the first of the new year, when the paper bag department of the company in Toronto will be moved to the new plant in order to afford room for the company's other activities in the city factory.

New paper enterprises continue to make their appearance. Among the big new ones is the incorporation quite recently of the Steele-Tremblay Paper Limited, with a capitalization of $10,000,000, with headquarters Montreal-Metabetchouan. It is understood that this will have to do with one of the big new developments in Quebec, papers of incorporation having been taken out in that province.

The ground-wood output of the Belgo-Canadian Paper company will be increased through the bringing in recently of two new ground-wood machines, with a capacity of 40 tons a day. It is expected that a portion of the additional output will be used in the Belgo plant. This company has also completed a spur track to its properties for the purpose of bringing in logs by rail.

At the meeting of the Boston Paper Trade association at the Boston City club, Thursday evening, November 22, Rev. Henry H. Crane, D. D., pastor of the Center Methodist church of Malden, Mass., was the principle speaker, telling of business conditions in Japan which he recently visited.

The Baxter Paper Box Co., has remodeled the building which it recently purchased at Freeport, Me., and will open the building for the manufacture of paper boxes early in the December. Machinery is being installed and the company will employ about 50 persons at the start.

GREEN-BAY
WIRE WORKS

Green Bay
Fourdrinier
Wires

Can't Be Beat

MADE OF

**BRASS
AND PHOSPHOR
BRONZE**

You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

Write us for prices and samples

GREEN BAY
WIRE WORKS
GREEN BAY
WISCONSIN

CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE	
Bond	8.00 @ 40.00
NEWS	
Contract Basis	3.75 @
BOOK	
S. & S. C.	6.50 @ 7.25
M. F.	6.25 @ 7.00
Coated and Enamleed	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.80 @ .90
WRAPPING	
No. 1 Domestic	6.00 @ 6.50
No. 1 Jute	8.25 @ 8.75
No. 1 Wood	4.75 @ 5.25
Butchers	4.00 @ 4.25
BOARD	
News	50.00 @ 55.00
Chip	45.00 @ 50.00

Paper and Board

New York, December 18—This is the period of the year when consumers confine their buying of paper to actual and immediate requirements. That is just what they are doing at present. Manufacturers and jobbers in common report a steady demand for most kinds of paper but say that orders call for small lots. No one seems anxious to augment stocks unless having direct need for the paper purchased, as the inventory season is only a matter of a few days off and there is consequently a desire to keep stocks down.

Nevertheless the market is characterized by fair activity. Some kinds of paper are not moving in anything like the volume producers and dealers would like to witness; on the other hand, there is a brisk demand for newsprint, for bag papers and for numerous specialties, while the other basic descriptions of paper, namely writing, book, wrapping, tissue, etc., are moving in ample tonnage to be creative of a moderately lively market.

Sentiment in the trade regarding the new year, which is now so near, is very optimistic, as well as confident. Paper men in general look for 1924 to prove an active period for their industry; certainly there are numerous indications at the moment that their expectations will be realized. The fact that business has slowed down somewhat during the final month of the old year therefore is not disrupting the market. Some shading of prices is being resorted to in an effort to induce buyers to operate, and there have been cases where declines in prices of rather serious proportions have occurred, but below the surface of the market is much fundamental strength which seems to promise better things in due time.

Newsprint continues to move in heavy volume to consuming centers. Publishers have been at the heighth of their season in the past several weeks and have used print paper at a tremendous rate. Not only has consumption by New York publishers been of the record-breaking variety, but throughout the country newspapers have been printing large issues and thus using newsprint in very big amounts. With the price of standard newsprint fixed for the first half of next year, publishers are going ahead in arranging their contracts and are reported to be placing orders for heavy tonnage for the new year.

Easiness still prevails in the wrapping paper market. No further downtrend in quoted prices has been recorded but it is apparent that most transactions are at the lower edge of quotational ranges, and that manufacturers are conceding a good deal to customers in an effort to stimulate demand. No. 1 domestic kraft wrapping is seldom bringing above 6 cents per pound at the mill, or in the vicinity of 6.25 cents f.o.b. New York, and instances are frequently cited where sales have been made at as low as 5.75 cents mill. Quotations on No. 2 domestic kraft range around 5.25 cents at the mill. Imported No. 1 kraft wrapping paper is selling in New York at 6 to 6.25 cents per pound.

A little firmer tone has developed in the box board market. The reason for this is difficult to explain other than a strengthening of prices of raw material entering into the manufacture of boards. It is generally admitted that demand for board of practically all kinds is slow, and some mills are preparing to drastically curtail over the holiday period. Perhaps manufacturers figure on raising the market so that they can secure higher prices for whatever board they succeed

SCANDINAVIAN PULP AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description
FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement & Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

in marketing during the next month—proverbially about the dullest period which the board industry has to contend with in the year. Current quotations on plain chip range around $47.50 per ton f.o.b. New York, and on news board at $52.50 New York, with occasional sales at $45 and $50 per ton respectively reported.

Book papers are holding in price insofar as quotations go but it is no secret that some mills are granting concessions, especially where tonnage orders are concerned. Machine finished book of average quality is fetching around 6.50 cents per pound f.o.b. New York. Fine papers are quotably steady, and while demand is spasmodic, there is fair activity in the market. Bag paper is firm and in good demand. Tissue is moderately active.

Quotations are as follows:

Bond	.08	@	.40
Ledger	.09	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superior	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.75	@	
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domsetic	5.25	@	5.75
Manila—			
No. 1 Jute	8.25	@	8.75
No. 2 Jute	7.25	@	7.75
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.25	@	4.50

Book—f. o. b. N. Y.—			
S. & S. C.	6.50	@	7.25
M. F.	6.25	@	7.00
Lithograph	9.00	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.25	@	6.75
No. 2 Fiber	5.25	@	5.75
Card Middles	4.00	@	4.50
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	50.00	@	55.00
Straw, in sheets	50.00	@	55.00
Binder Board	75.00	@	80.00
Chip	45.00	@	50.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

Ground wood is in fairly good demand, according to most reports, and quotations are well maintained. Sellers are rather firm in their price ideas and contend that any changes in the next several months will doubtless be in an upward direction, so that little pressure to sell is now exerted and consumers in a majority of cases find it necessary to meet the rates asked to cover their wants. Domestic producers quote around $40 per ton f.o.b. grinding mills for spruce ground wood for prompt shipment, and about the same price is named for forward shipments. In fact, some manufacturers are inclined to ask more for future shipments than for pulp for current delivery, reflecting their belief that higher market levels will obtain later in the winter. Offerings of imported ground wood are noted at about $38 per ton ex dock New York, with fair quantities available on the spot.

Foreign and Domestic Chemical Pulp

There is little question but that a steadier undertone has developed in chemical wood pulp. Producers and importers express the opinion that prices have finally touched bottom and that a reaction upward is due, particularly since from now on less pulp will become available both in this country and from foreign sources. Late reports from Scandinavia say that some of the pulp mills in northern Sweden have been shut off by the closing of navigation over a part of the Baltic, and that prospects are that waterway will be entirely frozen over in the next few days.

We mean it—

Think of every good thing you would like to have come into your life at this Christmas Season.

Multiply them all at least by two.

And that is the portion we wish for you.

"World's Model Paper Mill"
KVP PRODUCTS
Kalamazoo Vegetable Parchment Co.
Kalamazoo, Michigan, U. S. A.

Daily Capacity of 600 Air-Dry Tons

The extent of our production of High Grade BLEACHED Sulphite Fibre insures uniform quality, prompt shipments and market prices

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

CURRENT MARKETS—Continued

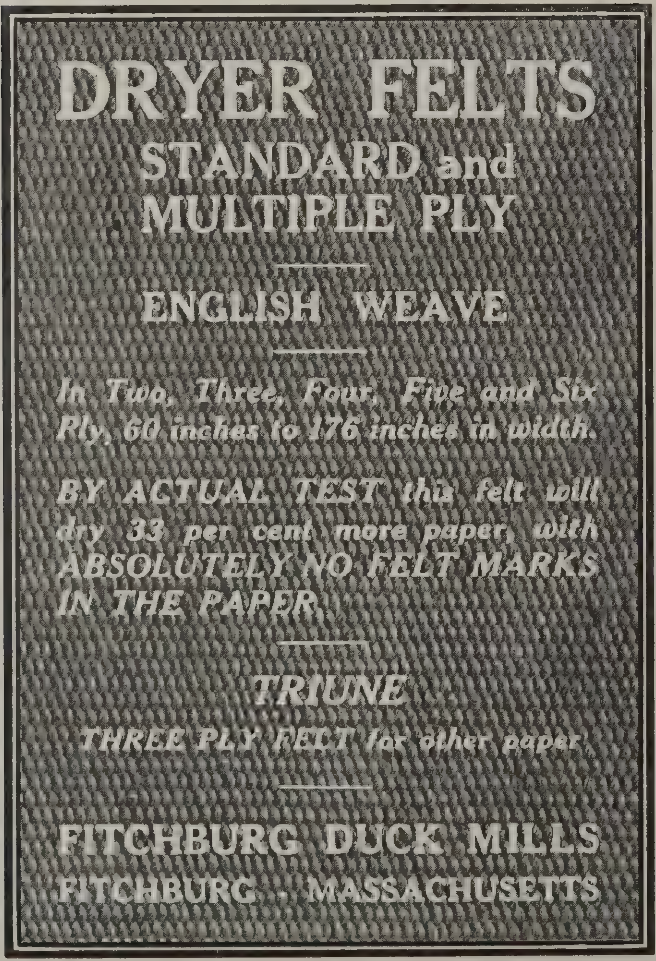
Pulp prices have not advanced but they have hardened. Sellers are no longer cutting asked rates, and the fact that values have steadied is said to have led to increased buying, some consumers having placed orders for fairly large tonnage of both sulphite and kraft. Strong imported unbleached sulphite has sold at around 2.65 cents a pound ex dock New York, and No. 1 Swedish kraft at 2.60 to 2.65 cents on the dock at this port. Quotations on an ex dock basis and f.o.b. pulp mills are:

Sulphite foreign—			
Bleached No. 1	3.90	@	4.25
Unbleached No. 1	2.60	@	2.85
Unbleached No. 2	2.50	@	2.65
Easy Bleaching	3.00	@	3.25
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.70	@	2.90
Unbleached news grade	2.50	@	2.75
Easy Bleaching	3.00	@	3.25
Mitscherlich, unbleached	2.85	@	3.00
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.60	@	2.80
Kraft, domestic	2.75	@	3.00
Sulphite, screenings, refined	1.75	@	2.00

Domestic Rags

Notwithstanding that some kinds of papermaking material are in slow demand and easing in price, rags display an unusually firm tone. Low grades in particular are tending upward and some further advances have been recorded. Paper mills are granting around 1.70 cents a pound f.o.b. New York for No. 1 roofing stock, and 1.40 cents for No. 2 roofing, while miscellaneous thirds and blues are freely selling at 2.40 to 2.60 cents a pound, depending on the quality of packing, and No. 2 whites at around 4.25 cents New York. New cuttings are wanted in fair amounts and quotations are well maintained, with dealers inclined to ask higher figures for a few grades which are in small supply. No. 1 white shirt cuttings are fetching 13 cents a pound f.o.b. New York, washables 5.25 to 5.50 cents, unbleached muslins 11.25 cents, and blue overall cuttings 8.25 to 8.50 cents. Quotations f.o.b. this city are:

New Shirt Cuttings,			
No. 1	13.00	@	13.50
No. 2	6.25	@	6.75
Fancy Shirt Cuttings	6.25	@	6.50
No. 1 Whites, repacked	6.75	@	7.50
No. 2 Whites, repacked	4.00	@	4.50
White Lawns	11.00	@	11.25
New Muslin unbleached	11.25	@	11.50
Light Silesias	8.00	@	8.25
Black Silesias	5.00	@	5.25
Overall Cuttings, Blue	8.25	@	8.50
Washables	5.25	@	5.50
New Black Mixed	4.75	@	5.00
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.65	@	2.90
Thirds and Blues, repacked	2.85	@	3.10
3rds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags No. 1	1.65	@	1.75
Roofing Rags No. 2	1.35	@	1.45



DRYER FELTS
STANDARD and MULTIPLE PLY

ENGLISH WEAVE

In Two, Three, Four, Five and Six Ply, 60 inches to 176 inches in width.

BY ACTUAL TEST this felt will dry 33 per cent more paper, with ABSOLUTELY NO FELT MARKS IN THE PAPER.

TRIUNE
THREE PLY FELT for other paper

FITCHBURG DUCK MILLS
FITCHBURG - MASSACHUSETTS

A ROLLING STONE GATHERS NO MOSS

BUT, Paper rolled by Press Rolls of Barre Granite gathers increased profit for those whose machines are equipped with these famous rolls.
Full information about them will be sent upon request.

JONES BROTHERS CO.

BARRE, VT. BOSTON, MASS.

CURRENT MARKETS—Continued

Imported Rags

Sales of dark colored cottons to roofing paper mills at 1.50 to 1.55 cents a pound ex dock New York have been reported, denoting an advance. Other grades of imported rags are in moderate demand at steady prices. Importers lay much stress on the high rates prevailing abroad when negotiating with mill customers, and display little disposition to shade prices. Quotations ex dock New York follow:

Lins., White No. 1	12.00 @ 13.00	German Linen, blue.	3.75 @ 4.00
Ger. Blue Cottons..	2.75 @ 3.00	German Linen, grey	5.75 @ 6.00
French Light Blue.	3.00 @ 3.25	German S. P. F.'s.	6.00 @ 9.00
New Light Prints .	6.25 @ 6.50	German Light Prints	3.50 @ 3.75
New Unbleached ..	10.00 @ 10.50	Dk. Colored Cottons	1.50 @ 1.60

Bagging, Rope, Etc.

Demand for old rope has subsided to a pronounced degree, most of the important consumers having dropped out of the market as buyers for the time being at least, yet dealers are endeavoring to get the same prices recently prevailing. Domestic No. 1 manila rope is quoted at 6.75 to 7 cents per pound f.o.b. New York, with the probabilities favoring buyers securing some supply at lower prices. Foreign manila rope is quoted at about 6 cents ex dock New York. Old bagging is quiet and unchanged in price. F.o.b. New York prices are:

Gunny, No. 1	1.25 @ 1.40	Wool Tares, light ..	1.25 @ 1.50
Foreign	1.25 @ 1.35	For. Manila Rope..	6.00 @ 6.25
Wool Tares, heavy .	1.50 @ 1.75	Domestic Rope	6.50 @ 7.00
Scrap Bagg. No. 1.	1.15 @ 1.25	Mixed Strings	1.00 @ 1.25
Roofing Bagging ..	.80 @ .90		

Old Paper

After reacting upward following the period of several months of steady decline, the market for old paper is again easy and prices of some grades—principally the low qualities—are on slightly reduced levels. Old folded newspapers are down to 85 cents a hundred pounds f.o.b. New York and there is every probability that some sales have been made at cheaper figures. No. 1 mixed papers have declined to 50@55 cents a hundred pounds, common paper to 40@45 cents, and box board cuttings to 60@65 cents. Shavings are quoted at

Kuttroff, Pickhardt & Co., Inc.

128 Duane Street, New York

For Paper Makers

DYESTUFFS
COLORS
CHEMICALS

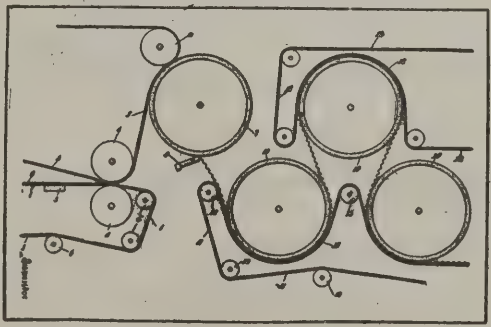
Branch Offices:

BOSTON, 157 Federal St.
PROVIDENCE, 52 Exchange Place
PHILADELPHIA, 111 Arch St.
CHICAGO, 305 W. Randolph St.
—also—
MONTREAL, 10 St. Peter St.

Improved Process of Creping Paper

The Best and Most Profitable

For the manufacture of CREPED PAPER Napkins, Toweling or Stretchable Bag Papers and Creped Packing or Crepe Wrapping Papers the system has no equal



The crepe being formed while the fibres are steaming hot and pliable is dried without stretching; not only retaining form better, but shedding less lint than cold creped paper products.

For particulars address:

Tompkins-Hawley-Fuller Co.

VALATIE, N. Y., or OREGON CITY, ORE.

CURRENT MARKETS—Continued

about previous levels but demand for them is of smaller volume and lower prices seem in prospect. Old magazines are selling at around 1.70 cents a pound f.o.b. New York, with crumpled books quoted at 1.40 cents. A strong item is white blank news, which is held by New York dealers at a minimum of 2.25 cents a pound f.o.b. this city. Quotations are as follows f.o.b. New York:

No. 1 Hard White Shavings	3.85	@	4.10
No. 2 Hard White Shavings	3.25	@	3.50
No. 1 Soft White Shavings	3.00	@	3.25
Box Board Chips	.60	@	.65
No. 1 Colored Shavings	1.65	@	1.75
Magazine flat stock	1.65	@	1.75
No. 1 Crumpled	1.35	@	1.45
Solid Ledger Books	2.00	@	2.25
Ledger Stock	1.90	@	2.15
White Blank News	2.25	@	2.35
Common Paper	.40	@	.45
Kraft No. 1	2.15	@	2.25
New Manila Cuttings	2.25	@	2.50
New Manila Env. Cuttings	2.75	@	3.00
Bogus and Mill Wrappers	.80	@	.90
News, strictly overissue	1.10	@	1.15
Folded News	.85	@	.90
No. 1 Mixed Papers	.50	@	.55

Twines

Business of steady character is reported in twines but sales are mostly of light volume, reflecting the fact that consumers are buying against immediate needs only. Prices are maintained, and strength in raw material—there having been sharp advances in fibres recently—serves to create firmness at the manufacturing end of the market. Quotations are as follows:

Sisal Hay, pure	13.25	@	14.25
Manila Hay, pure	16.25	@	17.25
Sisal Lath Yarn	12.25	@	13.25
Manila Rope, pure, ¾ inch diameter	15.25	@	16.25
Hardware rope	12.25	@	13.25
Jute rope, ¼ diam. and over, coils	13.00	@	15.00
Sail twine, A grade	20.00	@	
Jute Wrapping Twine, A grade	20.00	@	
Papermakers Twine	11.50	@	
B. C. Hemp, 18	.39	@	.40
B. C. Hemp, 24	.38	@	.39
B. C. Hemp, 36	.36	@	.37
American Light India— No. 6	19.50	@	
No. 7	18.50	@	

Chemicals

Papermaking chemical prices are holding fairly steady.

There is a moderate movement of supplies into consuming channels although buyers as a rule are getting along with contract commitments without having to engage in much new buying.

EMPIRE SIZE AND CHEMICAL CORP.
Rosin Size — Foam Killer
Felt Soap
ALBANY, N. Y.

Appleton Wires Are Good Wires
Fourdrinier Wires
Cylinder Wires
Save-all Wires
Washer Wires
of brass and bronze
Manufactured at Appleton, Wisconsin
Since 1896
By
APPLETON WIRE WORKS

The
St. Regis Paper Company
and the
Hanna Paper Corporation
Daily Capacity
425 Tons
Newsprint
Catalog
Butchers Manila
Packers Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite
Manufacturers of
TARZAN
Fibre Shipping Cases
General Sales Office
30 East 42nd St.
New York
Western Sales Office
620-621 McCormick Bldg.
Chicago, Ill.

CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of December 10-15

Paper

Str. Paris, Havre—Houbigant, Inc., 13 pkgs. cardboard; American Express Company, 7 cs. cardboard; A. Flinn & Co., 1 cse.; Guibont, Freres & Co., 7 cs.; Whiting-Patterson Company, 2 cs.; H. D. Catty & Co., 2 cs.

Str. Hjelmaren, Swedish Ports—National City Bank, 53 bls. wrapping; D. S. Walton & Co., 117 rolls and 5 bls. wrapping; Melby, Kuttroff & Co., 979 rolls wrapping; Blauvelt-Wiley Paper Mfg. Company, 98 rolls wrapping; Fernstrom Paper Company, 1,244 rolls wrapping.

Str. Derfflinger, Bremen—United States Lines, 573 rolls; D. Heydemann & Co., 40 cs.; A. Frankan & Co., 6 cs.

Str. Ontario, Havre—Japan Paper Company, 4 cs. hanging; E. H. Boulin, 29 cs.

Str. Pittsburgh, Hamburg—National City Bank, 546 rolls hanging; Hallgarten & Co., 1,018 rolls wrapping; Buschmann Bros., 51 rolls strawboard; Safran & Co., 4 cs. wrapping; W. Hartman & Co., 165 rolls newsprint; F. G. Prager & Co., 640 rolls hanging; Quality Art Novelty Company, 18 cs.; Bendix Paper Company, 7 cs. pasteboard; Metropolitan Import & Mfg. Company, 46 cs. pasteboard; from Bremen—National City Bank, 697 bls. hanging.

Str. Cleveland, Hamburg—Metropolitan Import & Mfg. Company, 16 cs. pasteboard; Hanover National Bank, 285 bls. and 151 rolls wrapping; National City Bank, 1,000 bls. wrapping; C. H. Young Publishing Company, 201 rolls newsprint; P. C. Zuhlke, 17 bls. printing; Keuffel & Esser Company, 33 cs. and 44 rolls drawing; Maurice O'Meara Company, 52 bls. printing; Corn Exchange National Bank, 8 bls. wrapping; Order, 3,559 rolls 101 bls. wrapping.

Str. Majestic, Southampton—A. C. Dodman, Jr., & Co., 24 pkgs. hanging; F. J. Emmerich & Co., 15 bls. hanging; C. A. Redden, 5 cs.; Dupont Cellophane Company, 32 cs.; W. J. Byrnes & Co., 1 cse. writing.

Str. Laconia, Liverpool—A. C. Dodman, Jr., & Co., 20 bls. hanging; F. J. Emmerich & Co., 30 bls. hanging; B. F. Drakenfeld & Co., 13 cs. printing.

Str. Reliance, Hamburg—Hannover National Bank, 202 bls. wrapping; Corn Exchange National Bank, 303 bls. wrapping.

Str. Muenchen, Bremen—Martin & Bechtold, 16 cs.

Str. President Polk, London—G. W. Sheldon & Co., 5 cs.

INTERNATIONAL
Wire Works

"The Fourdrinier that took the Ire out of Wire"

INTERNATIONAL WIRE WORKS
MENASHA, WISCONSIN

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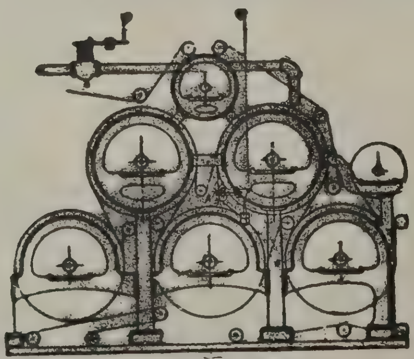

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Sizing Tests for Paper

Review of Various Methods for Testing for Sizing—Some Results of Experience with Valley Tester

By M. L. Caust
Tileston & Hollingsworth Co., Mattapan, Mass.

AMONG the many kinds of paper made and intended for a great variety of purposes, by far the greater proportion are sized to make them resistant to penetration by liquid of one kind or another. Since it is impracticable to produce a paper wholly impenetrable or waterproof, and since with many kinds of sized papers it is far from desirable to do so, it becomes necessary to determine the amount of permissible absorptivity for any grade of paper, as well as the allowable limits of variation.

This statement of the problem involves methods of testing as well as the adoption of units of measurement to give meaning to a given test. It is the object of this article to discuss the different tests available for the determination of the sizing quality of paper. It seems worth while, however, to state here that as a rule the sizing quality of most grades of paper is not required to remain within narrow limits. A good example of a kind of paper which must not vary too much one way or the other is cheap, lightweight hanging paper. The work of the paperhanger using the cheapest grade of hanging paper must be done as rapidly as possible. On the one hand there must be no waiting for the paper to absorb the paste uniformly, and, on the other hand, the paper must not get wet so rapidly as to become too weak to handle.

One of the first sizing tests originated, and one which is still in vogue and regarded favorably consists in pressing the moist tongue against the paper to be tested. This test, even though esthetically unattractive, is of use in giving quickly a rough idea of the sizing quality of the paper and without the use of external appliances. Its survival in the industry is an indication of the permissible latitudes of sizing fastness for some grades of paper.

Another qualitative test used for writing papers consists of drawing lines or merely writing on the paper with an ordinary pen. If the person trying out the paper is satisfied with its performance then the ultimate user should be, and the paper is therefore passable. Whether the paper is harder sized than is necessary cannot be determined by this test, and keeping sizing costs to a minimum by the result of this test is, therefore, out of the question.

With the advent of the chemist into the paper mill, sizing tests were devised capable of numerical expression, which was a big step forward. If the sizing fastness of paper expressed by a number does not allow comparing different grades or weights of paper it, at least, tells which of two papers of the same kind may be better sized and by how much. Except for the attempt by Carson[1] to relate sizing tests on different grades of paper, all tests that have been proposed aim only at a comparative sizing of the paper tested.

As to the methods of testing for sizing in common use an idea can be obtained from the paper by Carson. He sent out a number of samples to be rated for sizing quality and the laboratories reporting used: *(a)* Flotation on ink and acid; *(b)* electric conductance; *(c)* the Stockigt method, and *(d)* pen and ink test.

These tests will be described here as well as several others which are useful.

Flotation Test. A small piece of the paper to be tested is dropped on a suitable liquid and the number of seconds or minutes it takes for the liquid to show through are counted. The necessary precautions are close control of the temperature of the liquid as well as guarding against a change in the composition of the liquid, especially ink, through evaporation. It is stated that at different air humidities tests will not check owing to the difference in vapor tension of the liquid used and because of the changed moisture content of the paper. The usefulness of the flotation test is therefore limited to the comparison of samples of the same kind of paper tested at the same time. For any repetition of the sizing test on a paper, control of temperature and humidity conditions must be available. If such control is possible, and in most laboratories it is not, then the flotation test is probably as accurate as any of the other methods in the hands of one observer. It is commonly held that it makes a difference whether the wire side or the felt side of the paper is next to the liquid, but the author had occasion to test a paper which was distinctly better sized on the felt side, and yet the results were the same no matter which side of the paper was in contact with the liquid.

The Herzberg Method is suitable for writing papers. Lines of increasing width are made on the paper with a drawing pen held at constant angle and moved over the paper at the same rate until the ink just shows through on the other side. The width of the critical line is then measured and represents the sizing test of the paper. This test, besides being limited to a few grades of paper, is too slow for mill control work. Moreover, it is averred that two lines of the same width drawn with a pen may not have the same amount of ink per unit area and the results are affected thereby.

The Stockigt Method[2] is an improvement on the flotation method in that it serves to fix the end point of penetration of liquid through the paper and thus limits any personal equation error. This is accomplished by the use of a 2 percent solution of ammonium thiocyanate on which to float the paper, while a 1 percent solution of ferric chloride is brushed on the top surface of the paper sample. As soon as the two solutions meet the red of ferric thiocyanate appears and the time elapsed from the dropping of the paper on the thiocyanate solution until the red color appears is noted. The author gives data to show that this method gives results agreeing with those obtained by the Herzberg inkstroke test.

The Curl Method[1] makes use of the familiar phenomenon of curling of a piece of paper when dropped on a liquid due to expansion of the wet side. Curling stops when the liquid is halfway through and the upper half of the paper sample begins to expand. It is claimed for this method: "Definite and dependable data, a numerical value for relative sizing quality, a simple apparatus and a shorter time required for a test." No reports have so far appeared on the applicability of the curl test in the mill laboratory.

The Electrolytic Method. The use of an electrically conductive liquid for permeating a sample of paper tested while the paper is part of an electric circuit, and measurement of the gradually diminishing electrical resistance of the paper as it is being saturated with the liquid, are the essential features of the electrolytic method for testing sizing fastness which was first suggested by Okell[3]. Several investigators have since employed this method and have reported their observations. However, as the arrangement was different in every case results were not comparable.

At present the Valley Size Tester, built by the Valley Iron Works Company, is available and has been used by the writer for two years. While one can draw curves of decreasing resistance of the paper whose sizing fastness is being determined to compare with curves similarly derived for other papers, it is found simpler for mill control work to take the time elapsed from the bringing of the electrolyte in contact with the paper to the point where the milliammeter of the instrument registers the passage of a suitable current as the sizing value of the paper. The sizing quality of the paper is thus expressed in seconds or minutes. It is evident that the penetrability of the electrolyte is dependant upon its viscosity. By changing the proportion of glycerin and salt solution the viscosity can be adjusted to suit the kind of paper tested. However, the writer has used the same electrolyte and has adhered to the same milliammeter reading for a variety of papers ranging from light-weight slack-sized book paper to tub-sized index card paper and has thus avoided introducing complications into the meaning of the test.

As has been shown[4], the average variation of tests on book papers and writing papers is about 10 percent. This value was found true for practically all of the papers tested and is probably due to the paper rather than to the method of test, since the same papers tested by the flotation method show about the same variation. Alexander[5] found that on butcher's wrappers the Valley tests are strongly influenced by the formation of the sheet.

The elimination of the personal error is what commends the Valley method over all the other methods of test. The confidence of the experimenter in his results encourages him to find the significance and meaning of the sizing test, and to try correlating the sizing value for one paper with that for another.

In the accompanying graph (Fig. 1) the Curve represents an attempt to find the effect of weight upon the sizing test. It is a matter of practical importance in the manufacture of paper to be able to say in advance whether a certain furnish of stock and size will give the desired sizing fastness for a given weight from results obtained with lighter or heavier paper of the same grade. After a number of curves have been obtained from runs in the mill it should be safe to predict whether the size in the furnish must be increased or decreased to get certain results, while costs are kept down to a minimum.

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[1] F. T. Carson, *Paper Tr. Jr.*, Vol. 74, Apr. 6, 1922, and Sept. 7, 1922.

[2] F. Stockigt, PAPER, Vol, 26, p.1, March 10, 1920.

[3] S. A. Okell, PAPER, Vol. 20, No. 5, Apr. 11, 1917.

[4] M. L. Caust, *Paper Tr. Jr.*, Vol. 76, No. 15, p. 191, Apr. 12, 1923.

[5] J. E. Alexander, *Paper Tr. Jr.*, Vol. 76, No. 15, p. 187, Apr. 12, 1923.

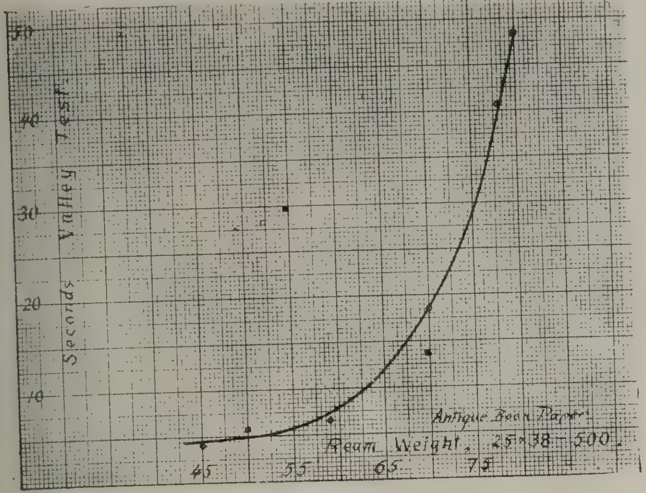

Figure One

For research work a scientific instrument for testing sizing quality was wanting. The recently published article by Zhereboff comes to mind. It was found[6] that the different rays of sunlight did not equally affect the sizing in paper. The violet, blue and yellow rays destroyed the sizing more rapidly than did the other rays, but the author was not able to classify the rays any better than into two groups, the Herzberg test not allowing the detection of small differences in sizing fastness.

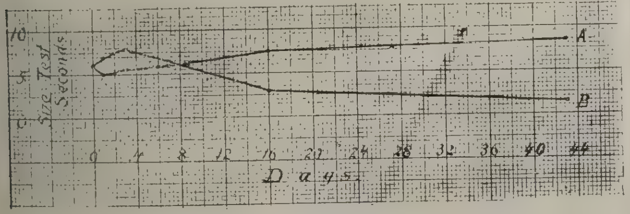

Figure Two

In Fig. 2 is shown the effect of a few hours of direct sunlight daily on the sizing of paper. A part of the same sheet of paper was kept in the lark and tests were made occasionally with the results as shown by Curve B.

It is seen on the curve that sizing of the paper kept in the dark gradually improved. This agrees with the data given by the author in a previous article[4] for other kinds of paper, and has been found to hold true as a general rule. If this is so, how does this affect the importance of testing the sizing quality of paper soon after it is made? For control work the chemist must, of course, test the paper as it is being made.

When a sample of paper must be matched for sizing, how is one to tell whether the sample is not testing now several times what it did as it came from the machines? Is it possible to determine what the original sizing test was? What are the conditions under which samples of paper must be kept to maintain original sizing quality? These are questions which must be answered if the Valley tester is to take its rank as a useful scientific instrument for paper testing.

Lagerloef Sues Western Company

Suit to collect $72,347.52 from the American Paper Products Company, of Indiana and the St. Louis Union Trust Company was filed in the Circuit Court, city of St. Louis, Mo., Dec. 11 by the Lagerloef Trading company, Inc.

It is charged in the suit that the Finnish Cellulose Association, predecessors of the Lagerloef Company, entered into two contracts with the American Paper Products Company, which was engaged in the manufacture of cardboard and paper products under the name of the Carthage Board & Paper Company, on August 5, 1920, for a large amount of pulp. Later, it is set forth, the name of the company was changed to the American Paper Products Company of Indiana.

At the time the pulp was delivered, it is claimed, the market price for pulp declined and the defendants repudiated their contracts and the plaintiff company sustained a loss of of approximately $72,000. The rights of the Finnish company were later acquired by the plaintiff. Suit was filed against the American Paper Products Company of Indiana. Judgment was rendered against the defendants and an appeal was taken to the United States District Court of Appeals. This court directed judgment be entered against the defendants. Demand for payment of the judgment was made, it is set forth, but was refused.

The petition now filed charges that in May, 1922, the Indiana corporation entered an agreement by which the assets of that company were to be transferred to the Missouri corporation. The assets of the Indiana corporation, it is said, amounted to $500,000. It is alleged that the agreement set forth that after receiving the interests of the Indiana company, the Missouri company was to place a mortgage on all of its combined properties. This conveyance, it is charged, was made to the St. Louis Union Trust Company, which was named trustee for the purpose of securing the issuance of bonds. It is further alleged that this action was taken to defraud the plaintiff as a creditor. The petition states that after making this transfer, it left no assets of the Indiana corporation out of which any execution could be levied.

The plaintiff asks that the transfer of the assets of the Indiana corporaion be adjudged fraudulent and that the American Paper Company be compelled to account for all assets and property from the Indiana corporation.

New Link-Belt Calendar

Following established practice of the past several years, Link-Belt Company of Chicago has again issued a calendar for the ensuing year. In general style the 1924 calendar adheres closely to those issued in the past. Sixteen by twenty-four inches in size, each of the twelve sheets contains not only a large monthly calendar, plainly and legibly printed, but also, in smaller size, the months preceding and following.

The illustrations, however, show a marked improvement over the calendars of previous years. They are from the justly celebrated Chicago artist, Jeffery Grant, and while they accurately portray the construction features of the various types of Link-Belt equipment shown, they have an artistic touch unusual to mechanical subjects.

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[6] L. P. Zhereboff, *Paper Tr. Jr.*, Vol. 76, No. 11, Mar. 15, 1923.

Some Sulphite Mill Calculations

A Collection of Formulas and Graphs Which Will Assist in Designing Apparatus or Calculating Results of Tests

Compiled by W. B. VanArsdel, Research Dept., Brown Company

Part I. Conversion Factors. Slide Rule Accuracy

Length—
1 inch = 2.54 cm.
1 meter = 39.37 inches
1 kilometer = 0.621 mile

Area—
1 sq. inch = 6.45 sq. cm.
1 sq. mm. = 1975 circular mils

Cubic Contents—
1 cu. ft. = 28.32 liters
1 cu. ft. = 7.48 gallons
1 gallon = 3.785 liters
1 liter = 1.057 quarts
1 cu. inch = 16.39 cc.
1 fluid oz. = 29.57 cc.

Weight—
1 pound = 453.6 grams
1 pound (av.) = 7000 grains
1 kg. = 2.205 pounds
1 oz. = 28.35 grams
1 gram = 15.43 grains
1 cu. ft. water = 62.4 pounds
1 gallon water = 8.33 pounds

Velocity—
1 ft. per sec. = 30.48 cm. per sec.
1 mi. per hr. = 0.447 meters per sec.

Pressure—
1 lb. per sq. in. = 2.036 in. mercury, 15°C.
1 lb. per sq. in. = 2.309 ft. water, 15°C.
1 lb. per sq. in. = 51.7 mm. mercury, 15°C.
1 atmosphere = 29.92 in. mercury, 0°C.
1 atmosphere = 14.70 lbs. per sq. in.
1 in. water = 67.85 ft. air, 15° C., 1 atmos.
1 in. mercury=923 ft. air, 15° C., 1 atmos.
1 in. water = 0.036 lbs. per sq. in.
1 in. mercury = 0.491 lbs. per sq. in.
1 kg. per sq. cm. = 14.22 lbs. per sq. in.
1 megabar per sq. cm. = 14.50 lbs. per sq. in.

Gas Volumes—
1 cu. ft. per lb. = 0.0624 liters per gram
At press. 760 mm. or 29.92 inches, 22.4 liters at 0°C. or 24.0 liters at 20°C. weigh M grams; 22.4 cu. ft. at 0°C. or 24.0 cu. ft. at 20°C. weigh M ounces, where M = molecular weight.
1 pound-mol. at 0°, 760 mm. = 359 cu. ft.
In equation PV = RT,
R = .08024 when P = atmos., V = liters per gram-mol. and T = °C. absolute.
R = 0.730 when P = atmos., V = cu. ft. per lb.-mol. and T = °F. absolute.

Temperature—
T absolute = °C. + 273.1
T absolute = °F. + 459.6
Temp. °C. = (°F. - 32) /1.8
Temp. -F. = (°C. x 1.8) + 32

Heat—
1 B.T.U. = 778 ft.-lbs.
1 B.T.U. = 252 calories
1 Kg.-cal. = 3.97 B.T.U.
1 cal. per gram = 1.8 B.T.U. per lb.
1 B.T.U. = 1054 watt-seconds
= 0.293 watt-hours
1 kg.-cal. = 4186 watt-seconds
1 Boiler Horse-power = 33,480 B.T.U. per hr.
1 KW.-hr. = 3415 B.T.U.
1 KW.-hr. = 861 Kg.-cal.
1 H.P.-hr. = 2547 B.T.U.
1 H.P.-year = 6540 KW.-hrs.
1 watt-second = 0.239 cal.
1 ton refrigeration = 288,000 B.T.U. per day
= 200 B.T.U. per min.

Power—
1 KW. = 1.341 H.P.
1 H.P. = 746 watts
1 H.P. = 33,000 ft.-lbs. per min.
1 metric H.P. = 0.986 H.P.
Pumping 1 gall. water per min. against 1 lb. per sq. in. pressure requires 0.000581 H.P.
1 cu. ft. of water per sec. falling 1 ft. = 0.1135 H.P.

Density—
Liquids heavier than water:
Deg. Baume′ = 145 –(145/sp. grav. 60° F.)
Sp. grav. 60° F.=145 / (145 - Deg. Bé)
Liquids lighter than water:
Deg. Baume′ = (140/ sp. grav. 60° F.) – 130
Sq. grav. 60° F. = 140/ (130 + Deg. Be′)

Electrochemistry—
1 gram – equivalent is liberated by 96,540 coulombs.
1 amp.-hr. liberates 0.0373 of one gram-equiv.
1 lb.-equiv. is liberated by 12,160 amp.-hrs.

Constants—
$\text{Log}_0 \times = 2.303 \ \text{Log}_{10} \times \quad \sqrt{2g} = 8.025$
Sulphur dioxide, 0°C., 760 mm.
2.927 grams per liter
5.475 cubic feet per pound
Chlorine, 0°C., 760 mm.
3.220 grams per liter
4.980 cubic feet per pound
Carbon dioxide, 0°C., 760 mm.
1.977 grams per liter
8.11 cubic feet per pound

Testimonial to Dickenson

Walter Dickenson, who for the past twenty years has been connected with Brown Brothers, Limited, Toronto, and for the past ten years in charge of the paper and business supplies department, has resigned his position and has joined forces with B. G. Whitelaw. The firm will be known as Whitelaw, Dickenson & Company. They have taken over the manufacturers' agency business of the late Aubrey Hurst, Ellis Building, Adelaide Street, Toronto, who for many years have represented a number of leading British paper houses.

Mr. Dickenson for some years was a member of the Mills Relationship Committee of the Canadian Paper Trade Association from which he has now resigned. This occasion, and that of his new enterprise was made the occasion of an interesting little gathering of his associates in the Toronto paper trade a few days ago when Mr. Dickenson was presented with a gold watch.

Treatment of Spent Soda Liquor

Washing, Evaporation and Burning the Liquor for Recovery of Soda—Leaching the Black Ash, Causticizing the Carbonate Liquor and Disposing of Lime Sludge

By G. K. Spence

New York and Pennsylvania Company, Johnsonburg, Pa.

THE first liquor draining from the stock after it is discharged from the digester tests about 12° Be' at 60° F. This liquor is made up principally of soluble sodium salts of the organic acids removed from the wood, and at the strength named is equivalent to .95 lb. of 48 percent soda per gallon.

In the past the washing has been done either by the diffusion system or in open pans. Owing to the fact that the stock is washed under pressure in the diffusion system, it has a tendency to pack hard and wash in channels, which accounts for the limited use of this system. The open pans are in general use at the present time for washing stock, which is carried on by direct washing or by the cycle system. The cycle system gives the best results, as it furnishes stronger liquor for the evaporators and reduces the amount of soda sent to the sewer in the wash water. Washing brown stock in open pans has been described by the writer in a paper read before the Technical Association of the Pulp and Paper Industry at the fall meeting in Chicago, September 25, 1919, and published in PAPER for October 15, 1919.

There have been some decidedly progressive steps taken during the past four years along the line of washing spent liquor from brown stock. During the Chemical Exposition in Chicago, in September, 1919 the writer had a talk with Mr. Morrison of the Oliver Continuous Filter Company on the possibility of using continuous filters for washing the black liquor from soda pulp. This company got busy at once and while they have met with many obstacles while working out this problem, they have succeeded in overcoming them and are now in a position to put in a continuous filter installation which will produce results that cannot be duplicated by pan washing. Among the installations which are at present working successfully are the ones located at the Champion International plant, Lawrence, Mass.; the Ford pulp mill at Detroit, the Oxford pulp and paper mill at Rumford, Maine.

W. D. Mount, who is also working on the continuous filter system of washing brown stock, avers that his company has developed the method of handling the stock to such an extent that a 2 percent consistence stock can be handled perfectly, while it is for the Oliver system that best results are obtained by the use of a 1 percent consistence stock.

In this age of high consistence bleaching, the stock as it is doctored from the continuous filter is at the proper consistence for bleaching, if dropped direct into a bleacher; but at present it is necessary to dilute it again in order to screen the stock before bleaching. This appears to be lost motion and if a system could be devised by which the stock could be screened while at a 1 percent consistence and before passing over the continuous filter, it would be a great improvement. This idea has been brought to the attention of Mr. Morrison and Mr. Mount, and the method will be perfected if there is any possible way of doing so.

By use of the continuous filter it is claimed, and the claim has been substantiated, that there is only a drop of 1° Be', in the strength of the liquor caused by the wash water. This means that the liquor going to the evaporators will test 11° Be' at 60° F. Another reasonable claim is that the liquor will be free from stock, and thus obviate the necessity of filtering.

The Elmore continuous centrifugal machine has been tried out experimentally for removal of black liquor from brown stock, with promising results. If the manufacturer of this machine and the pulp manufacturer cooperate on the development of this problem, there is no question but that it can be worked out successfully, provided the power cost will not be too high. The results of experimental trials with this machine are embodied in a report submitted at the sectional meeting of the Soda Pulp Committee in New York, April 12, 1922, and published at that time.

Emil E. Lungwitz is advocating the use of the Haubold self-unloading centrifuge for the above mentioned purpose. He is willing to demonstrate the efficiency of this machine to any one interested, and it no doubt has possibilities.

There is no system of pan washing so perfect that there will not be some stock washed through the bottom of the pan. This stock must be removed before passing the liquor to the evaporators, in order to get the proper efficiency from the machines. The writer has found the stock in this liquor to vary from 700 pounds to 1,200 pounds, when handling 350,000 gallons of weak liquor in twenty-four hours. An efficient filter will reduce this stock content to 15 lb. in twenty-four hours, when handling this amount of liquor.

Liquor Should be Measured

It is advisable to install a Venturi-meter to measure all liquor sent to the evaporators. This measurement, together with an average strength test of the liquor, will give a good check on the amount of soda handled by the machines, and the relative efficiency of it. In the evaporators the weak liquor which tests from 9° Be' to 10° Be' is concentrated to about 37° Be' before it is sent to the rotary incinerators.

Evaporation of spent liquor was thoroughly reviewed in a paper submitted by the writer at the annual meeting of the Technical Association in New York, April 11, 1923, and published in the trade papers.

In order to send hot liquor to the rotaries it is advisable to stagger the flow of liquor in the evaporators; that is, to feed the weak liquor in the second effect; flow from the second to the third effect and finish in the first, or steamheated effect. It is also advisable to pipe the liquor from the evaporators direct to the rotaries, and have the piping so arranged that any excess liquor backs up into the rotary liquor storage tank, and when the supply of liquor from the evaporators is not sufficient it is made up from the storage tank. In this way the rotaries are supplied with the hottest liquor.

Rotary Incinerators

The rotaries should be provided with sight feeds so that one may be able to tell at all times the amount of liquor being fed to them. The tendency in recent years has been to increase the length of rotaries, and at the present time there are a number of 30-foot rotary installations. It is a mistake to increase the length of a rotary and not increase its diameter, as this makes it necessary to speed up the gases passing through the rotary and flue, and results in the loss of more ash up the stack. (The subject of "Rotary Room Problems" was presented in a paper by the writer before the Technical Association, February 5, 1919, and published in the Convention number of PAPER, February 12, 1919.) The black ash from the rotaries contains about 77 percent sodium carbonate.

Many attempts have been made to recover the black ash from the stack gases. It has been tried in a wet way by spraying the gases passing up the stack with water or weak liquor, but has not proved successful, owing to the fact that the material reclaimed forms a dirty conglomerate mass difficult to handle. It is too dirty to send to the leachers, not strong enough to burn without previous evaporation, and contains too much suspended solid matter to send to the evaporators.

The B. F. Sturdevant Company, under the personal supervision of G. C. Derry, a member of T.A.P.P.I., has done considerable experimenting with a fan separator for recovering black ash from the rotary stack gases. They have met with fair success in an experimental way but have not, as yet, made any practical installations.

The Research Corporation has been following up the proposition for several years and made considerable improvement recently in the Cottrell precipitation process for the recovery of black ash from the stack gases. They are now in a position to guarantee results to be obtained with such an installation, and it is the opinion of the writer that the time is not far distant when some of the large soda pulp mills will have Cottrell electric precipitators installed for this purpose.

The advantage to be derived from steam boiler installation at the back of rotary incinerators to utilize the waste heat from them is questionable. When using long rotaries the temperature of the waste flue gases does not exceed 450° F., and this heat can be better utilized for heating water. Heating tubes can be arranged in a chamber behind the rotaries for the circulation of water from a hot water tank, but these tubes must be easily accessable so they can be cleaned from time to time.

Research on Recovery of Waste Products

Regardless of the extensive amount of research work carried on during the past seven or eight years, we are still burning up the wood alcohol, acetone and other valuable products in spent liquor which are recoverable but not as yet on a paying commercial basis.

In 1912 the writer examined blow-off liquor from soda pulp digesters and found it to contain wood alcohol and acetone, but the quantity present was so small that its recovery was not a paying proposition.

In 1914 Prof. Alfred H. White brought to the writer's attention the possibility of recovering wood alcohol and acetone in paying quantities from the spent soda liquor by destructive distillation before recovering the soda present. In conjunction with him an extensive line of research was conducted on this important subject. Both rectangular and cylindrical verticle retorts were tried without success, the principal trouble being that the liquor would pass too rapidly through the retorts, regardless of the speed at which they were fed, and reach the door at the bottom of the retort before the destructive distillation was complete. An inclined cylindrical retort showed enough promise to warrant trying out a 24-retort semicommercial unit. This installation was fully described by Professor in a paper presented at the annual meeting of the Technical Association, February 7, 1917, and published in PAPER, vol. xix, page 23.

The results of experiments with this semicommercial unit showed that for each cord of wood cooked six gallons of wood alcohol and .9 gallon of acetone could be recovered. While working on the distillate it was discovered that ammonia could be recovered in paying quantities if this process could be worked on a commercial basis. However, the fuel and labor cost was much too high to make this idea commercially successful and it was therefore abandoned.

In 1919 experiments were continued, and varying amounts of quicklime was mixed with the liquor before retorting it. These experiments were conducted in a small experimental way and also in rotary retorts used for retorting acetate of lime. The addition of lime increased the proportion of acetone to methyl alcohol, but there was no apparent improvement in the ultimate results.

Dr. Drewson had carried on a similar line of experiments, and as lime increased the percentage of acetone, this method of treatment was adopted. The U. S. government being in urgent need of acetone, was sufficiently impressed with Dr. Drewson's idea to install three large plants at a cost of millions of dollars for the recovery of methyl alcohol and acetone from spent soda liquor. Only one of these plants was operated and that one for a very short time, when the armistice was signed. Knowing the cost of production to be much higher than the value of the product, these plants were at once scrapped when there was no further call for acetone at any price.

While searching the patent files during this research work the writer found specifications for a patent granted to Hayden M. Baker, of Rochester, N. Y., dated April 24, 1866, which covered all phases of the destructive distillation of spent soda liquor even to the addition of quicklime to the liquor. It seems, however, that after Mr. Baker's work very little was done toward developing the idea for almost half a century. This problem is far from being solved, but it offers great possibilities and should be followed up by those who are in a position to do so.

Leachers

The gravity and pressure leachers are still in use for washing the soda from the black ash. These systems, while answering the purpose fairly well, have their disadvantages. The results are not entirely positive as there is a tendency to leach in channels and to incompletely wash hard lumps. The system suggested by Mr. Trostel, if perfected, would have a tendency to eliminate the possibility of having unwashed ash. In this system the ash is passed through a crusher and washed on continuous filters, the filters working in tandem. Weak liquor is used on the first and water on the second. This method of washing was fully described by Mr. Trostel in a paper presented at the annual meeting of the Technical Association, April 15, 1920, and published in PAPER, April 21, 1920.

Disposal of Leached Black Ash

While some of this ash has dried, ground and treated for various purposes, a very small proportion of it has found a market at the present time.

It has been tried out with some success for case-hardening; has been used in limited quantities as an adulterant for blacks used for various purposes; has been briquetted for fuel; and after special treatment has been used with some success as a filtering and decolorizing medium.

The cost of drying the leached ash has rendered its value as a fuel prohibitive. It acts very much like a sponge and when drained will contain 80 percent moisture.

Wheeler & Woodruff and others, who have studied this carbon, advocate the necessity of activating it before considering its use as a decolorizing agent. The Industrial Chemical Company, after years of research with a large technical staff, has succeeded in marketing a very limited quantity of this black ash, specially treated and sold under the trade names of Filchar, Nuchar, etc.

However, when all is said, the market is so limited and the quantity produced so large that there will have to be new uses developed for it before the field of disposal will be large enough to make it a paying proposition to recover this ash.

Causticizing the Carbonate Liquor

The pan, batch, causticizing system is still in use in the great majority of soda pulp mills, but these installations are generally supplemented with some form of filter for washing the liquor from the sludge after causticizing it.

By the old system after decanting the strong liquor the lime sludge was given three or four washes by decantation, depending upon the capacity of the alkali room. When using a filter press in connection with the alkali room it is only necessary to give one wash by decantation, and then wash the sludge to the filter where the washing is completed with a comparatively small quantity of wash water. This additional installation has increased the capacity of the alkali room 100 percent, and cut the loss of soda in this department, which at times was as much as 3 percent, to about .2 percent.

The filters are either batch, as represented by the Kelly press, or continuous, as represented by the Oliver, Mount, and Industrial. When reclaiming the lime it is advisable to use the continuous type; but when used only as a means of increasing the capacity of the alkali room and cutting down the loss of soda in the sludge dumps, it is the opinion of the writer that more uniform results can be obtained by use of the batch type.

The W. D. Mount continuous causticizing system has been installed in several soda pulp mills and from all reports is giving very good satisfaction. It is compact and requires much less floor space than the ordinary batch system.

The Dorr counter-flow system has been tried out in one soda pulp mill, but on account of the great amount of space necessary to furnish the required amount of liquor, it has not appealed very strongly to the soda pulp manufacturer.

Disposal of Lime Sludge

When compelled to avoid dumping lime sludge into the stream, the pulp manufacturer has been forced to study out some means of disposing of this sludge. The first step was to consider sedimentation basins and a number of pulp manufacturers resorted to this means of disposal. This is an expensive method of disposal as it requires a large area of land, which might be used for other purposes.

After the introduction of the filter press it was decided that the cake from the press being in a semi-dried condition (containing from 40 to 50 percent moisture) it might prove profitable to dry this lime and market it for agricultural purposes, or clean it up, spend the calcium hydrate in CO_2 towers and market it as whiting. A number of large installations were made for this twofold purpose. As long as the whiting and agricultural lime market could absorb this product it was about a break-even proposition; but as this was only seasonable the result was that there were times when it was necessary to resort to the old methods of disposal, being impossible to store the quantity produced. In addition, storing meant rehandling, and rehandling meant a loss.

The next step was to consider reburning and using the reclaimed lime for causticizing purpose, which meant a stable outlet for the reclaimed lime. This has been considered by pulp manufacturers who have studied the proposition from all angles to be the most feasible method of handling the situation. In fact about all of the original agricultural lime and whiting plants in soda pulp mills have been converted into lime reburning plants. By this method there is a slight margin of profit and the pulp manufacturer is his own stable market for the disposal of the reclaimed lime.

Beauty in Paper Machine Design

IT is good and pleasing to refresh our memory from time to time with the pioneer work of early American engineers and paper machine designers. This thought is prompted by the appearance in the November issue of *The Super-Calender,* of The Pusey & Jones Company, of a tribute to the artistic bent of the late Thomas H. Savery, Sr., who was the founder of the Pusey & Jones Company. It may be noted parenthetically that the traditions of the elder Savery are being carried on in a worthy fashion by his son, Thomas H. Savery, Jr., of Chicago, through his connection with the Nash Engineering Company.

It is presumably Vincent G. Hazard, field engineer of The Pusey & Jones Company who writes so appreciately of the influence exerted by Mr. Savery in the artistic design of papermaking machinery, for Mr. Hazard is himself a veteran in the service of the firm, who loves to recall the incidents of his early association with the founders of his firm.

Taking for his text the heading of an article in the *American Machinist* for September 27, 1923, entitled "Is Beauty an Important Factor in Machine Design?" the writer in *The Super-Calender* dilates on Mr. Savery's attainments and ability in the designing and construction of papermaking machinery. He declares that an experience of thirty years under the influence and tuition of Mr. Savery compels him to reply, in answer to the question contained in the title just quoted, "Yes, beauty is an important factor." He then proceeds to give some reminiscences of his early associations with Thomas H. Savery, Sr., as follows:

"The late Mr. Thomas H. Savery is considered by many people to have been the father of the American Paper Machine, that is, through himself and through the influence which he exerted over those around him, the greatest mechanically of the paper machine, and of its productive ability were more largely carried out than by the efforts of any other person.

"We have told the story before in *The Super-Calender* (see the issue of April, 1912) of how The Pusey and Jones Company, came to build their first two paper machines in 1867, for the Rockland mill of Jessup & Moore Paper Company, followed as years went on by the construction of many others. The writer entered their drawing room in 1877 when three paper machines were under construction, Nos. 10-11-12, for the Augustine mill of the same company, following a fire. For about thirty years he continued making designs under Mr. Savery, for almost every piece of apparatus used in a paper mill, and he should be therefore well qualified to speak of Mr. Savery's attainments and ability in designing and constructing machinery. One of Mr. Savery's first points when having the frame of a machine laid out, was to see that it should be pleasing to the eye as well as be fitted for its duty mechanically. He was very quick with his own pencil, and he could hardly talk ten minutes without requiring a piece of blank paper on which he continually made sketches illustrating his verbal directions. The draftsman of course followed out the design to scale on the drawing board, and often he had done so successfully, but on Mr. Savery's next visit to the drawing room, he would look for a few minutes at the design, then shake his head slowly, and say—'Now can't we make this a little more pleasing to the eye by shaving off a little bump or fatness here, and filling out just a little there,' and always the result was immediately recognized as being very much better.

"He held in great contempt what he called 'dry-goods-box design,' straight lines, square corners, no fillets, and he said, 'It doesn't cost very much more to make a pattern of pleasing appearance, than it does one of great crudity, but the effect ever after is vastly better.' He was not at all in favor of fancy gingerbread work, and even the painting of his machinery was very modest and relieved only by striping, until in 1883 the five-leaved rosette was adopted, which was cast on all castiron work, and brought out more plainly to sight by being painted with aluminum.

"The arms of pulley patterns were made straight and appropriately tapered instead of being made of uniform section and double curved like the letter 'S' which was a style much affected at that time. This kind of pleasing design was well carried out by the then foreman of the pattern shop, William Walker, who also had an instinctive and innate sense of beauty and appropriateness. He one day said to the writer, 'fillets should in many cases not be made circular in shape by a compass, but should be tapered back with a very long gradually decreasing curvature, that is so much more pleasing to the eye than the usual draftsman's compass fillet. Thus the fillet by which the arm of a pulley is connected to the rim should begin some 3", 4" or 5" up on the arm, gradually swelling the sectional area of it, and more sharply swelling out into its juncture with the rim.' 'Why,' Mr. Walker continued, 'you won't find the branch of a tree joined to the trunk by a radius fillet.'

"A customer once said to him, 'Why, Mr. Savery, your prices are the highest, and we find by looking around there are other builders of paper machinery who build a substantial machine. In fact we have just come from a builder who put 5" journals on his breast rolls,' and Mr. Savery jumped and snapped out, 'I wish they would make then 10", there would be no surer way to kill their machine. We make the journals of our breast rolls small in diameter, but obtain the proper amount of bearing surface by making them long. The fourdrinier wire must drive the breast roll, and the more friction on the journals the shorter the life of the wire. You say our prices are the highest, that is another reason why you should buy our machines, because no one can consistently and continually go before the world and obtain the highest prices without there being some valuable reason and compensation for obtaining such high prices.'

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

Southern Forestry Conference

Important Meeting at New Orleans Voices Southern View on Necessity for State and Federal Aid

An epochal conference, in its probable result on the development of the South, was held at New Orleans late in November. It was known as the Forestry, Reclamation and Home Making Conference, and the discussions which it inspired received only the slightest mention in the northern press. Such speakers as Secretary Wallace of the Department of Agriculture, United States Senators Ransdell and McNary, and Henry Hardtner, the pioneer in southern reforestation, discussed the general subject, and the sentiment on the four day conference was as follows, as expressed in the resolutions on forestry:

"The area of cut-over land, especially in the South, is rapidly increasing and without adequate provision being made for its reforestation or other use.

"All of this land has some value for future forest growth; it can be a source of wealth to the community if properly protected from fire and controlled in such way as to encourage reforestation.

"A considerable portion of lands formerly in forest and which have been denuded has greater value for grazing than for forest growth; such lands should be utilized for grazing.

"Within or adjacent to these forested, cut-over, or grazing areas are relatively small tracts of land, with soil and other conditions favorable for cultivation; such areas should be devoted to the making of small self-supporting farm homes whenever the need arises.

"The continued utilization of those farm lands and the permanence of the small farm homes which may be established on them is largely dependent upon the proper control and protection of the grazing and upon the systematic utilization of the forest products.

"Resolved: That we advocate a systematic study of all timbered, cut-over or waste lands with a view of determining the best use of these for growing timber, grazing and agriculture, also the adoption of a national policy leading to co-operation with reclamation districts, formed under state laws, to bring about the use of feasible farm lands within or adjacent to the cut-over land and the creation of opportunities on these for farm homes as rapidly as they may be needed.

"America's forest resources are being steadily depleted and we recognize the necessity of making plans without further delay for timber production in order to insure a permanent and adequate timber supply for the nation.

"Every proper encouragement should be given to all efforts wisely aimed at elimination of waste and conservation of forest resources in their utilization.

"If proper forestry methods are practiced on a sufficient area of forest lands the problems of timber shortage in the United States can be greatly alleviated.

"In most regions the problem is of a size and character removing it from the possibility of solution by individuals, unaided by the federal and state governments. Federal and state forests should be extended and legislation should be enacted which will encourage the production of timber by individuals.

"It is universally recognized that at least 75 per cent of the problem of regrowth is fire protection. Immediate steps should be taken to extend co-operation between the federal and state governments and individual owners. Public indifference and carelessness, as well as deliberate acts of individuals contribute greatly to the fire hazard.

"Protection should be afforded to the forests wherever practicable, not only from fire, but also from the spread of insects and preventable disease.

"Present tax laws in most states make private reforestation impracticable. Such changes should be made by the various states in laws relating to taxation of forest property, as will permit and promote private reforestation.

"If adequate reforestation plans are commenced now practical reforestation will reach a point sufficient to assure an adequate, permanent supply of timber for saw purposes before the present supply of standing timber is exhausted.

"Federal and state regulation in forestry should not extend to the impairment of the right of property in privately owned timber lands.

"Resolved: That the federal and state governments be urged to make sufficient appropriations and give adequate co-operation and assistance to private owners for prevention and suppressions of forest fires and afford all possible protection against pests and tree diseases; that the area of all public forests be greatly extended through the acquisition of federal and state owned forests for regrowth of timber and for demonstrating the practical benefits of forestry methods, and that the state and federal governments study and devise just and practicable laws for taxation of forest property so as to encourage and permit participation in timber production."

Running through all of the forestry statements that come out of the southern pine-growing states we detect a viewpoint that is not evident in the paper-making regions, and as the lines become closer drawn on forestry there may be expected a still further difference between the attitude of the paper men and the lumbermen. The lumbermen are showing an increasing tendency toward dependence on the government and state forests for future material, while the paper industry is recognized by the lumbermen as being close to the point where it can practice forestry economically. Only sane tax laws to encourage the growing of forests can change this attitude on the part of the lumbermen, and modify their belief that trees can not be grown for lumber uses by private enterprise.

Facts from School of Experience

Forestry possibilities in the middle west, lake states and the south have figured in reports made to the Woodlands section of the American Paper and Pulp association.

Karl Swenning, forester of the Mead Pulp and Paper Company, believes that their work in the Ohio valley indicates yield from planted cottonwood of not less than 45 cords per acre in 20 years. He explained that this company considered 20 years to be the completion of both the growth and financial rotation of cottonwood.

R. H. Laftman of the Bogalusa Paper Company, says his company expects to grow merchantable pine pulpwood in 14 years, this, of course, being due to the extremely rapid growth of Loblolly.

R. S. Kellogg of the News Print Service Bureau, believes that in the northeastern states pulp companies might anticipate, with a spruce pulpwood rotation of 40 years, a growth of approximately one-half-cord per acre per annum; that in the southern pine regions it was not unreasonable to anticipate a growth of two cords per acre per annum; that on the Pacific coast the same growth might be obtained under optimum conditions but with a longer rotation; that with the use of cottonwood in the Mississippi River valley pulp and paper companies could produce more wood fiber per acre than anywhere else in the United States, and that companies using the soda process might well investigate the possibilities of that region.

At a meeting of the section, E. W. Kiefer of the Port Huron Sulphite & Paper Company, Port Huron, Mich., in commenting on his experience with the peeling of pulpwood stated that his loss was 15.8 percent hand barking, and that with the Morrow machine barkers the loss was 28 percent. He finds there is an advantage in peeling pulpwood before storage, and said that the time was probably not far off when much of his company's wood would be put up in peeled condition. C. W. Hurtubis of the Hammermill Paper Company, Erie, Pa., suggested that wood cut during the winter season peels almost as easily in the next sap season as though it were cut during the sap season.

Harry Fletcher, of the Fletcher Paper Company of Alpena, Mich., emphasized the necessity of fire prevention, and surprised the audience with the statement that he would prefer spruce that had been slightly scorched to green wood, in view of the fact that this wood would stay preserved as well as peeled wood and that the resulting pulp was whiter than that obtained from ordinary dried pulpwood.

Favors a National Forestry Policy

Continuing the interest which President Harding took in the forestry question, President Calvin Coolidge in his first message to Congress expressed his concern in this matter, and said that he was looking forward to the constructive recommendations which should be made by the Senate Committee on Reforestation. He coupled highways and forestry in the following paragraphs of his message:

> "Highways and reforestation should continue to have the interest and support of the government. Everyone is anxious for good highways. I have made a liberal proposal in the budget for the continuing payment to the states by the Federal government of its share for this necessary public improvement. No expenditure of public money contributes so much to the national wealth as for building good roads.
>
> "Reforestation has an importance far above the attention it usually secures. A special committee of the Senate is investigating this need and I shall welcome a constructive policy based on their report."

Thus does the president carry out the spirit of interest shown when he received Senators Moses and Kayes of New Hampshire, who urged that the appropriations under the Weeks Law for purchase of additional forest land be restored to the pre-war figure from the $450,000 allowed under the last appropriation. Charles Lathrop Pack was also assured of the President's deep interest in forestry on a recent visit to the White House.

Books on Paper And Lumber Industry

"Pulpwood and Wood Pulp in North America" is the title of one of the best works on this subject ever offered the public, and the author is R. S. Kellogg, secretary of the News Print Service Bureau. Especially notable is the fact that the quantity of statistical material which the book contains is largely given in chart form, rather than in the usual hard-to-read tabular form. Divided into five parts, the book takes up separately the subjects, wood pulp, pulpwoods, timber supply, timber production; and last, but not least, the topic, "A Permanent Industry(?)."

At the same time that this valuable work comes from the McGraw-Hill Company's presses, there is published by John Wiley & Sons a new book by Nelson Courtlandt Brown, entitled "The American Lumber Industry." This book is announced as completely covering the resources, production, distribution and utilization of lumber in the United States. It carries a foreword and introduction by John W. Blodgett, president of the National Lumber Manufacturers Association, and W. B. Greeley, chief of the United States Forest Service.

Reforestation on Canadian Prairies

An interesting forestry development is being noted in the western Canadian prairies which were originally known as treeless country.

From 1901 to 1923 seventy million seedlings and cullings have been sent to the west and distributed free of charge as is done by the New York State Conservation Commission. As a result, there are now 40,000 shelter belts, the value of which settlers estimate as being from $500 to $5,000. These woodlands not only provide shelter from wind, but give added attraction to the country.

How Thick Is an Inch Board?

"The United States Department of Agriculture will not jeopardize the success of the great lumber standardization movement by standing inflexibly on its recommendation as to how thick an ordinary inch board should be." This is the statement made by Secretary Wallace on the eve of the general conference of lumber producers, distributors, and consumers in Washington this month to arrive at lumber standards.

"How thick is an inch board?" has been an outstanding point of difference among lumber producers and users since the standardization movement began several years ago. Recently, this seemingly minor point came into still greater prominence when the Central Committee did not agree with the research findings of the Forest Products Laboratory in the matter. The laboratory considered that 26/32 inch was the thickness to which "inch" softwood lumber should be dressed in order best to serve the requirements of use. The Central Committee's recommendation, which allows the manufacture of boards one-thirty-second of an inch thinner, is apparently not so satisfactory to the majority of retail lumber dealers and to many users as is the thicker size.

There is great danger that in the present intense controversy over sizes the lumbermen, dealers and wood-users will lose sight of the great benefits to be gained by the immediate adoption of the lumber standardization program as a whole, says Secretary Wallace. And he adds: "By its effect on the conservation of forests it has an important relationship with the policy of reforestation which President Coolidge pointed out in his message to Congress has an importance far above the attention it usually secures. The standardization of names for the hundred different native softwoods will alone save the consumer endless confusion. He can not purchase wisely when, for example, the same kind of pine is being offered him at various prices under thirty different names. Nor can he change from one wood to another and be sure of the quality he will get when the two woods are graded under different rules, one permitting more defects than the other in grades of the same name. If two woods can be used for the same purpose there is no reason why they can not be graded alike."

The Seinzhenier Paper Co., St. Peter street, New Orleans, La., has suffered a fire loss estimated at $100,000.

Waste in Pulp and Paper Industry

False Economy in Shutting Down

By B. T. McBain, *Assistant General Manager, Nekoosa-Edwards Paper Co.*

THE idea that seems strong in the minds of many mill people—that it is good business to shut their mills down once in a while to help the market or, in the case of a slowing up of the market simply to save the pay roll, is to my way of thinking only a waste of everything else but the pay roll. Everything is on hand for full production—power is available in the river, coal is on hand for fuel, the mills are in repair and there is storage space for the product.

I do not know of one time when there was a slack period but that following it there was a rush period when all the stock piled up during the slack period was disposed of.

Why should you charge interest against the finished product in the warehouse when figuring its cost when selling? You would have had everything piled up in the yard or in the warehouse in some other form and no interest would have been charged against it. All you are out, if you run, is the interest on the labor in most cases and that is all you save when you shut down. Of course, if the stock remains on hand over a year, new stocks of raw material are necessary and that is a different story.

Your overhead runs against your plant whether it is running or down. Taxes, insurance and depreciation are as sure as death and the undertaker. You must heat your plant and must keep it well lighted under insurance regulation. If you are down one day, in most plants the fixed charges increase the conversion costs at least 4 percent for each day down. If you have your own pulp mills, sulphite, kraft or groundwood, your raw material conversion costs also are up 4 to 5 percent for each day you are down.

Then again, your sales and general expense items remain the same for the month whether you run or are shut down and this expense is increased per ton about in proportion to the other items mentioned. If your cost is $100 per ton on a certain item when running full production and full time you can safely add at least $3 per ton on the finished product for the increased cost due to each day's shut down, or 4% on all items except the wood in the pulps, the chemicals and like materials.

Just look at your costs per ton for a 27-day month as compared with February, with never over 24 days operating, and you will get an idea of the difference. But, usually, when a mill is down a day or two, there are so many repair jobs you have been wanting to do that your repair costs increase greatly per ton of product for the days you are down. And how does it help the market? If the market is weakening and the jobber quits buying you simply confirm his judgment that there is a softening when you shut down your mills, even for a day, to help the market. Again, what help does a 100 ton mill give the market when it shuts down one, two or three days? It isn't a drop in the puddle when compared with the total production of the country or even of your sales district.

This idea of helping the market by cutting prices also hits me in the funny bone. Who ever heard of making a market by cutting prices? It never has been done and never will be done. While, on the contrary, withdrawn prices—refusing to accept business at cut-throat prices, at figures below your cost, will do more to wake up those who need paper, but who are afraid to buy because of a falling market, than any other procedure and there should be a law not only allowing such action, but making it imperative.

The life of this country of ours depends upon its business prosperity, manufacturing as well as farming, yet the one must work alone while the other is almost ordered by law to combine. Why? Farmers co-operate, "In Union There Is Strength." Manufacturers do not have enough faith in each other and need more team work.

Future of Riordon Co. Uncertain

Reorganization Plan a Failure—Bondholders Preparing to Offer a Plan

The plan for the reorganization of the Riordon Company, Limited, has been abandoned, and it now looks as though the future of the concern lies in the hands of the American bondholders.

In September the reorganization plan that had been very carefully worked out by a committee was announced, and for a time it looked as though it would come though, but there was not the response in the form of new capital that had been expected. Now the payments made in this connection will be returned.

When a few weeks ago it was reported that the 8 per cent bondholders had agreed to forego payment of arrears of interest in cash by accepting preferred stock, which would have meant an improvement of $1,500,000 in the working capital, it was thought that the reorganization would certainly be accomplished. But the confident predictions then made were evidently based chefly on hope.

It is now announced that the two bondholders' committees have undertaken to formulate a new plan for the reorganization of the company and that negotiations to this end are now under way. What will become of the interest of the preferred and common stockholders it is impossible to say, but it is quite possible that both may be wiped out.

The company's mills are operating as before, the bank loans being sufficient for the carrying on of operations in the woods during the winter.

In their announcement Messrs. Killam and Donham, the reorganization managers, say: "Meanwhile it is only through the efforts of the bondholders' committees and by raising large sums directly or indirectly on security of the deposited bonds that it has been possible to provide the temporary financing necessary to keep the market intact, the mills in operation and the enterprise a going concern. The plan of September 7th, 1923, was formulated for the purpose of giving to the shareholders and unsecured creditors of the company an opportunity, by contributing substantially to the new money required, to participate correspondingly in the ultimate profits of the enterprise. The lack of any general response on the part of the shareholders and creditors makes it evident that they are not prepared to assume the burden of financing the reorganization."

Blotting Paper from Wood Pulp

As a result of investigations recently conducted by the Forests Products Laboratories of the forestry branch of the Department of the Interior, Canada, in their experimental paper mill, blotting paper with excellent absorptive qualities has been produced entirely from pulp wood.

An interesting feature of the new product is that it contains a large proportion of pulp made from a wood which, though plentiful, has found little employment in the Canadian pulp industry.

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"A Friend In Need"

The many friends in the papermaking field of Judge Charles F. Moore will be deeply touched by the news that this "friend of many men" now lies helpless in his bed, the victim of paralysis.

There are probably few men who are so well known to those in the paper industry as Judge Moore. For many years he has been referred to as "the permanent toastmaster" at the dinners of the Technical Association. His connection as legal adviser to many paper concerns and his voluminous writings on many phases of the paper business have brought him into personal contact with many in the field and this acquaintance has been widely extended by his many other activities.

It is now within the power of his friends to extend to Judge Moore a helping hand of which he stands in immediate need. The way in which this can be done is set forth in an appeal sent out by the "Judge Moore's Book" Committee. The membership of this committee is as follows: N. R. Hopkins, Hugh P. Baker, H. F. Harrison, Chas. A. Gordon, John Matthews, L. D. Post, Henry W. Stokes, Martin Cantine, W. S. Cowie, Arthur C. Hastings, Arthur H. Nevius.

The appeal of the committee reads in part as follows:

> "In a little house on Long Island a friend of many men lies helpless in his bed. Paralysis has killed part of him. Judge Charles Forrest Moore, writer, lecturer, the kindly humorous philosopher is utterly unable to walk—unable to keep on giving his brains, his heart and his life to the service he loves.
>
> "Judge Moore always gave all he could, careless of any return except the love of men. The greatest men in the land have called him 'friend.'
>
> "But now the love and affection for the Judge must be translated into quick action. He needs help. There is no question of charity in it. It means that we and you should pay an infinitely small part of the debt we all owe the Judge.
>
> "If we could take you to his room, if you could see him lying there, broken in body but happy and whole-souled in spite of need, *you* would not hesitate—no man would refuse to do his share.
>
> "We want this to be as personal an appeal, as intimate as if you were standing by the bedside.
>
> "Some of his friends have made it possible for you and all of us to help the Judge. His best speeches and lectures have been gathered together. He had edited them. They are being printed in a beautiful book that the hands of affection are making.
>
> "There will be no profit from this book to anyone but the Judge. The price is $10. The book will be ready early in January. But we do not want to wait. The time of the Judge's need is *now*. We must know about how many copies to print so that the greatest amount of good can be done.
>
> "We want you to sit down, and send us your check made payable to N. R. Hopkins, treasurer, by the first mail you can make. The result must be an overwhelming tribute to this man. It cannot be unless every man responds. Get one book at least. Take five or ten, if you can, for distribution among your friends. But do quickly whatever your heart tells you to do."

Orders for books and remittances should be mailed to N. R. Hopkins, treasurer, "Judge Moore's Book" Committee, 200 Fifth Avenue, New York.

The Coming Year

The year 1923 is about over. Ahead looms 1924. What has it for the paper industry? It is a moot question.

The year 1923 has been troubled with labor dissensions, unfair foreign competition, high building costs, low prices and similar things to drive the paper manufacturer mad. The outlook for 1924 holds much that is better.

Labor is gradually settling down and the prospect for the year is that there will be a greater stability than at any time since the war.

There is no immediate hope for a removal of the unfair foreign competition troubles. The mass of preceding cases and the vast quantity of cloying red tape necessary to be unwound before President Coolidge could possibly consider an increase in tariffs upon paper imports, make it impossible to forecast any great sunburst of hope in his direction. However, abuses of the tariff will be punished.

Better prices for the product of the paper industry are expected with the better business conditions that are being forecast for the year. Business leaders in many lines are free in their predictions of a boom year in 1924. Those who have spoken in the paper industry are extremely hopeful. Among these optimistic expressions are predictions that prices will be better as the demand for the product increases.

On the whole the outlook is good. It is presidential election year and far be it from any governmental administration to cast a monkey wrench in the machinery during such a time. Taxes will undoubtedly be reduced. Railroad freight rates are expected to go down and it is not an over-sanguine expectation. The mild winter and the lack of strikes in the coal mining industry is likely to keep the price of that commodity down. The steel market is firm but not unduly high.

The paper industry enters the year 1924 with the best prospects in several years. The troubles of the last few years are subsiding, the industry as a whole is far more substantial, the failures that were bound to come are rapidly being masticated and the leaders in the industry are facing the baby year with a smile of hope.

From everywhere greetings and good wishes come to PAPER. They come on all kinds of papers from thin slices of pulp wood to the most expensive cards and papers. The spirit of the holiday and the New Year cannot down. It must be given expression.

PAPER extends to every reader and every friend the wishes for both a happy and a prosperous New Year.

Cost Figures That Help Sell

Every manufacturer realizes that when his plant operates at less than capacity, the cost of his product rises. He cannot, however, raise prices to correspond with the costs. Rather, he lowers prices so as to get more work into the plant, and by enabling him to spread the overhead expense over more product to reduce his costs. In this way he attempts to get back the cost of labor and material plus a part of the overhead that goes on whether the plant is busy or not, writes William R. Basset, president of Miller, Franklin, Basset & Company, Inc.

Usually the shading of prices for this purpose is done by guess work without a cost system properly designed for the purpose; if so the prices may be cut to an extent that makes the loss greater than it would be if the plant were shut down.

Informative figures can be obtained without an unduly complicated cost system. It simply requires that a normal figure for each item of expense in a department be determined based upon the normal activity of that department.

Each month the normal and actual figures are compared. Those items which fluctuate with the activity of the plant are in one group and those which do not are in another.

Knowing accurately the labor and material cost of the product it is then possible to accurately determine what the result on profits will be if a given amount of business is taken at a given price. Unless you have such a method of forecasting costs, your cost system is of doubtful value as a guide in setting selling prices, for business is seldom exactly normal. Actual cost figures must therefore be aided by a knowledge of normals and abnormals.

Year's Paper Production Was High

"Although the production of paper in the few weeks preceding the annual inventory period is not likely to be large, it is now evident that the volume of paper production in the past year has been high," says the market review in the *Paper and Pulp Industry*, the monthly publication of the American Paper and Pulp Association, which adds, "When final figures are available it may be found that the volume is nearly or quite equal to that of any preceding year.

"With a prospect for generally good business throughout the coming year in all industry, the paper manufacturers should expect an increasing demand after the first of the year both to replenish stocks, and to meet current demand. There are no basic business conditions which warrant any pessimistic sentiment as to the coming months.

"The American Paper and Pulp Association on production show that October production was about 12 percent higher than in September, and in some grades back to the high figures of June. Fine papers have been continuing active and holiday sales have not been without a good effect on the wrapping paper group. The percentage of return from sales may have been smaller during 1923 owing to sharper competition than was experienced in 1920, but no industry can be considered in an unprosperous condition when sales of its products are near to the high record."

Handsome Christmas Greeting

A very handsome four-page folder carrying Christmas greetings has been issued by the Great Southern Lumber Company, Bogalusa Paper Co., Inc., and Bogalusa Turpentine Co., Inc., of Bogalusa, La.

Heavy parchment paper has been used for the folder and the entire message is carried on the first page. At the top is a halftone reproduction of men sowing seed, with the caption, "Sowing Pine Seed." This picture and the copper plate engraving carrying the message have been printed in appropriate spaces impressed on the rough surface by the hot-plate process, giving the folder an air of impressive elegance.

The message is as follows:

> At Christmas time our thoughts turn to the happiness and welfare of our customers and friends.
>
> It is fitting, therefore, that we send you a message of assurance of a perpetual supply of lumber, paper and naval stores, made possible by our program of reforestation.
>
> As the years roll by, we will at each Christmas, portray to you the growth of our planting, thereby, giving concrete proof of future prosperity to the users of "Bogalusa" brand products and ourselves.

Extra Dividend by St. Maurice Paper Co.

The St. Maurice Paper Company in addition to paying its quarterly dividend of 1½ per cent towards the end of December, has announced an extra dividend of 5 per cent on business to the 19th of December.

This bonus is the first of its kind announced in pulp and paper circles since the depression of 1920-21.

The incident is indicative of general conditions in the newsprint industry. St. Maurice is a subsidiary of the Union Bag and Paper Company. Bonuses by other newsprint companies are considered probable.

Import Pulp for Artificial Silk

Courtauld's, Limited, the big British artificial silk manufacturing firm, has bought 240 acres of Land at Cornwall, Ont., where they will erect a big Canadian branch.

As the required pulp will be imported from the Scandinavian peninsula, the promoters were asked as to the possibilities of using Canadian pulp. The information was elicited that it could not be adapted to the fine work required in yarn manufacture. It was entirely too coarse. The imported pulp, on the other hand, was obtained from trees grown on preparade land and cut when not yet full grown. This resulted in a finer grade.

Construction News

South Jacksonville, Fla.—The Florida Paper Mills Co., recently organized as a subsidiary of the Grass Fibre Pulp & Paper Corporation, Leesburg, Fla., is making ready to lay foundations for the first unit of its proposed mill on site acquired at South Jacksonville. It is estimated to cost about $200,000, with power house, machine shop and other auxiliary buildings. The company is said to have purchased machinery to an amount of about $100,000, and will place further orders at an early date. Gilbert Leach is secretary and treasurer of the parent company, in charge.

Chicago, Ill.—The La Salle Paper Co., 171-73 North Dearborn Street, is taking bids on a general contract for the erection of a new two-story and basement building, 50x115 feet, at Adams and Peoria Streets, estimated to cost $75,000. It will be used for general operating service. A. Epstein, 2001 West Pershing Road, is architect.

Tuscaloosa, Ala.—The Chamber of Commerce is negotiating with a paper manufacturing company, name temporarily withheld, for the construction of a local mill, and is offering inducements in way of a suitable site. It is stated that the plant will cost in excess of $1,000,000, comprising a number of producing units, with power plant.

Middletown, Ohio.—The W. B. Oglesby Paper Co., is completing plans for the erection of a new unit at its Sorg-Oglesby paper mills, to be a two-story, 100x100 feet. The installation will consist of three washer machines, a number of rotaries, equipment for the manufacture of mill bleaches from fluorine gas and lime water, and auxiliary apparatus. It will cost in excess of $125,000, with equipment. Thomas G. Scott & Sons, Middletown, are architects. L. C. Anderson is vice-president.

Godbout, Que.—The St. Regis Paper Co., Ltd., Montreal, Que., has awarded a general contract to the Canadian Comstock Co., Montreal, for a local hydro-electric power plant, estimated to cost about $100,000, with machinery. The installation will include water turbine, generator, switchboard and auxiliary equipment, with transmission lines.

St. Louis, Mo.—The Orchard Paper Co., has acquired a building at 1113 South Twelfth Street, and will remodel and improve for a local plant. Equipment will be installed at an early date.

Cohoes, N. Y.—The Mohawk Paper Makers, Inc., will commence the construction of a new one-story power house, with capacity of about 750 hp. for general mill service. It will cost close to $100,000, with machinery.

Eau Claire, Wis.—The Dells Paper & Pulp Co., Dells Dam, has plans nearing completion for extensions and improvements, including the remodeling of its two-story pulp mill. Additional equipment will be installed. The work is estimated to cost $500,000. L. A. DeGuere, Wood Building, Wisconsin Rapids, Wis., is architect and engineer.

Worcester, Mass.—The United States Envelope Co., Springfield, Mass., has leased the former local plant of the Richardson Mfg. Co., and will remodel and improve for extensions. It is proposed to use the structure for the time being for storage service.

New Orleans, La.—The Letellier-Phillips Paper Co., is planning for the rebuilding of the portion of its works at 623-45 South Front Street, destroyed by fire, December 6, with loss estimated at $50,000, including equipment.

Valatie, N. Y.—The Centennial Paper Mills, Inc., is planning for the installation of additional equipment at its power plant, including steam turbine, 200 kw. generator, and auxiliary equipment.

Kalamazoo, Mich.—The Kalamazoo Vegetable Parchment Co., has work nearing completion on its new mill, in course of construction for a number of months past, and plans to have the unit ready for service early in January. It will represent an investment of close to $3,000,000. All machinery will be electrically-operated, with rated capacity of 100,000 pounds of fine and waxed papers per day.

New Orleans, La.—The Great Southern Lumber Co., Bogalusa, La., is perfecting plans for the erection of its proposed local mill, to be equipped for the manufacture of paperboard products, estimated to cost close to $1,000,000, with power house, machine shop and other subsidiary structures. It is expected to lay foundations in January.

Edmonds, B. C.—H. W. Kent, Portland, Ore., and B. A. Strawbridge, Seattle, Wash., are organizing a company to construct and operate a wood pulp and sulphite mill on site selected at Edmonds, Vancouver Island, estimated to cost in excess of $250,000, with equipment.

New Companies

Philadelphia, Pa.—The Frank H. Hodgson Co., has been incorporated under Delaware laws with capital of $350,000, to manufacture wall paper and kindred products. The incorporators are Frank H. Hodgson, Charles A. and Henry Asam. The company is represented by the Corporation Guarantee & Trust Co., Land Title Building, Philadelphia.

Camden, N. J.—The Victor Wall Paper Co., has been incorporated with a capital of $50,000, to manufacture and deal in wall papers. The company is represented by the New Jersey Corporation Guarantee & Trust Co., 304 Market Street, Camden.

Port Chester, N. Y.—L. Gans, Inc., has been incorporated with a capital of $15,000, to manufacture paper goods. The incorporators are L. and M. Gans, and J. Cohen. Baruch & Rosen, Port Chester, are representatives.

Financial

Albany, N. Y.—The Perforated Wrapping Paper Co., has filed notice of increase in capital from $120,000 to $480,000, for general expansion.

New York, N. Y.—The Porto Rico Paper Supply Co., 134 West Fourteenth Street, has arranged for an increase in capital from $6,000 to $24,000.

Lansing, Mich.—The Dudley Paper Co., recently increasing its capitalization to $300,000, is planning for the sale of a block of preferred stock, the proceeds to be used for genera operations and expansion.

Plant Operations

All of the paper mills in the Mechanic Falls, Me., distric are running full, with regular working forces, and are said to intend continuing on this basis for an indefinite period.

Of the twenty-two paper mills on the Pacific Coast, practically all these plants are now running at regular capacity, employing full working quotas. The mills have a gross rated output of 2,000 tons per day, including newsprint and general commercial paper. The growth of paper manufacture from wood pulp is particularly marked in Oregon and Washington, where mills are now in operation at Oregon City, Lebanon and West Linn, in the first noted state, and at Camas, Wash. Other plants are starting up at Salem and Portland, Ore., and at Vancouver, Wash. It is said that raw material in this section costs $3 a cord, as compared with $12 a cord and above, in the eastern districts.

The Provincial Paper Mills Co., Ltd., is maintaining active production at its plants at Thorold, Mille Roches, Georgetown and Port Arthur, Ont., giving employment to regular working forces. The mills have a total rated output of about 100 tons of paper per day, as well as 60 tons of sulphite and from 15 to 20 tons of ground wood pulp.

Business Opportunities

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Santiago, Chile, in the market for American machinery for printing wall papers, Reference No. 8395. Also, of a company at Simcoe, Canada, desiring to purchase corrugated paper boxes, No. 8457; and of a company at Halifax, N. S., in the market for pulp wood grinding equipment, No. 8461.

Carl H. Nystrom, chemical engineer, who has been abroad for several years, has just returned from Sweden to resume active interest in the paper industry of the United States. Before going abroad, Mr. Nystrom was identified with the engineering departments of several well known paper and pulp mills here.

Farmers Oppose Embargo

The Canadian Pulp Wood Commission is having a holiday, but the farmers continue to protest against the proposed embargo on exports of pulpwood.

At the recent convention of the United Farmers of Ontario at Toronto a resolution was adopted strongly declaring against it. Settlers from northern Ontario contended that with an embargo on pulp wood prices would certainly drop, and in support of this view they pointed to the effect of Americans entering the Canadian market. It was also pointed out that the selling of wood was the only means that the settler in the north has of getting ready money during the first few years on the land.

The indications are that the strong Progressive group will fight the proposed embargo tooth and nail during the coming session of Parliament.

The Ontario Government is not saying much about the subject, but as the development of northern Ontario is one of the strong planks in its policy, and as it is desirous of assisting settlers in every way possible, it would probably be inclined to put the soft pedal on embargo talk.

Owing to the lack of snow in the northern woods it is quite certain that the proposed demonstration of snow hauling of pulpwood will be postponed from December until late in January or early February. The demonstration, however, will take place at Piercefield, as originally planned.

Myron S. Baker has been appointed manager of the Indianapolis, Ind., office of the Diem & Wing Paper Co., with headquarters in the National City Bank Building.

Buck, Kaier & Co., Inc., importers of wood pulp, have moved away from 342 Madison Avenue to 9 East Forty-sixth Street.

New York Trade News

Frank E. Dunaway, formerly sales manager of the Becker Woodpulp Company of America, Inc., 501 Fifth avenue, is now associated with the Woodpulp Trading Company, of 501 Fifth Avenue, New York. Mr. Dunaway is one of the best known salesmen in the pulp trade.

At a recent meeting of the board of directors of the International Paper Company, Owen Shepherd, treasurer of the Company, was elected a member of the board.

The firm of Johaneson, Wales & Sparre, Inc., wood pulp importers of 16 East Forty-first Street, has taken additional space at that address which greatly enlarges the company's offices.

The Publicity Paper Corporation, paper importers and dealers, of 1476 Broadway, has filed notice with the Secretary of State at Albany of an increase in capital stock from $30,000 to $50,000.

The Merchants Paper & Twine Company is the name of a new concern recently organized and incorporated under New York state laws to deal in paper and twines at 102 Prince Street, New York. W. R. Wisser, of the Paper, Twine & Board Company of New York was one of the incorporators. The new firm will handle general line of paper and will specialize in wrapping papers.

Frank C. Overton, of Castle & Overton, importers of and dealers in wood pulp and other papermaker's supplies of 200 Fifth avenue, returned a few days ago from a several month's tour of Europe. Mr. Overton's trip abroad was mainly on pleasure, and he was accompanied by Mrs. Overton.

Harry Rosenberg, formerly with the Emanuel Salomon Corporation, the American Woodpulp Corporation and other concerns in the paper mill supplies trade, has opened an office at 145 Nassau Street, New York, for L. Sher & Sons, of Reading, Pa., packers of hosiery and underwear clippings for paper mills. Mr. Rosenberg wil lalso deal in other descriptions of papermaking material

The announcement is made that M. O. Millar, Jr., has withdrawn from the firm of Millar & Volker, Inc., packers of paper manufacturers' supplies of 410-414 South Seventh Street, Elizabeth, N. J. The business will be continued by George Volker under the same firm name. Mr. Millar formerly was with the Barrett Company, manufacturers of roofing papers, in the purchasing department.

Westinghouse Specialist Dies

Ralph E. Gilman, special engineer in charge of turbo-generator engineering of the Westinghouse Electric & Manufacturing Company, died in the Methodist Hospital, Los Angeles, December 5. Mr. Gilman on account of illness, had been granted a leave of absence from his duties in East Pittsburgh, Pa., to go to the coast in an effort to improve his health.

He was a graduate of the Leland Stanford University of Palo Alto, Cal., receiving his E. E. degree in 1898. He entered the employ of the Westinghouse Company immediately after his graduation and completed the apprentice course of the company in January, 1901. The next two years he was located in the engineering department. In 1903 he was transferred to the British Westinghouse Company and spent the next five years in London, England. In 1908, Mr. Gilman was recalled to East Pittsburgh and assigned to special duties in the power engineering department. He was in the department continuously until the time of his death.

Mr. Gilman leaves his widow, Aimmie Gilman, of Palo Alto, California.

Doings in Canadian Paper Field

Harmony River Mill to Increase Output

With a group of Boston pulp and paper men at the helm of the reorganized company owning and operating the Harmony River Mill, indications are that production will be materially increased during the current winter. The change in majority control was effected recently.

Although not one of the best known pulp mills in eastern Canada, the Harmony River Mill is one of the oldest of eastern Canadian pulp manufacturing plants.

Under the new arrangement, the bulk of the pulp produced at this mill will be shipped to the United States.

Included in the purchase are important pulpwood land holdings in and about the area in which the mill is located. The new owners plan extensive improvements and additions.

Labor Market Easier

With the return of many of those who migrated to the United States and western Canada during the summer and fall of this year, the labor problem is not so acute. A number of pulpwood operators who were operating at about fifty per cent strength have recruited sufficient men to operate at full strength. Wages have dropped several dollars per month, since the return of the men.

Little snow has fallen and this is hampering woods operations greatly. However, snow is expected very soon.

It is believed that the pulpwood cut of the 1923-1924 winter season will sum up in excess of the 1922-1923 winter season. January, February and March are expected to be excellent cutting months.

S. R. Armstrong, who is conducting the sales of the Mattagami Pulp and Paper Company for the receivers, has returned to Toronto from New York, and is now at the mill at Smooth Rock Falls, Ont. It is expected that the relining of the third digester will be complete by the first of the year which will complete the relining of all the digesters, the combined capacity of the three being 150 tons of unbleached sulphite a day.

Frank J. D. Barnjum, of Annapolis Royal, N. S., was a caller on the Toronto paper trade a few days ago and while there took occasion to comment upon the heavy export f Christmas trees from various parts of Canada. He stated that the depletion of young growth was becoming most alarming. During December no less than 750,000 fir, balsam and cedar trees have been shipped from British Columbia across the border. The farmers receive on an average 2½ cents for each of these trees while the American contractors realized all the way from one dollar upwards. The wholesale export of Christmas trees was rapidly undermining the future supply of pulpwood in Canada and measures should be taken to stop it, said Mr. Barnjum.

L. R. Wilson, the newly named general manager of the Abitibi Power and Paper Company, Iroquois Falls, Ont., has made arrangements for a turkey to be delivered at Christmas to every employee of the Abitibi Company whether in the mill, woods, merchandising, townsite, forestry transportation departments and who is a householder living in Iroquois Falls, the Wye or Little Canada.

Intention of the Riordon Company to proceed with power development at Chelsea, on the Gatineau River is seen in the notice in the Quebec Official Gazette that the Gatineau Company, a subsidiary of the Riordon interests, intends to apply for authorization to have constructed a hydro-electric power house, dam and head works at Chelsea.

The Interlake Tissue Mills, Limited, head office Toronto, has evolved something new in a towel cabinet for tissue towel users. It is a vertical cabinet and instead of the towel being drawn from the bottom as is done with the horizontal cabinets they are extracted from the front on a level with the arm. It is refilled from the top and is attached to the wall with two screws only. It is of metal and is made in white or green.

C. Nelson Gain, who recently left the Don Valley Paper Company at Toronto where he was general superintendent, to accept the general management of the mills at Merritton and St. Catharines of the Garden City Paper Company and the Canadian Vegetable Parchment Company, was waited upon by the employes of the Toronto mill just before his departure for St. Catharines and presented with a handsome walnut smoking set. J. C. Worts, manager of the company, presided at the informal gathering and brief addresses were given by several of the mill men and executives to all of which Mr. Gain replied, expressing the hope that he would always be able to keep in touch with the men with whom he had dwelt so long in perfect harmony.

An agreement is reported to have been reached between the City of Fort William and the Great Lakes Pulp and Paper Company whereby the company will erect a plant in that city at a cost of not less than $3,000,000. One unit, the pulp mill, is to cost $800,000 and is to be in operation in a years time and the paper mill, which is to cost $2,200,000, is to be completed and in operation in two years. The plant will have a capacity of 100 tons of newsprint daily, and no fewer than 600 men are to be employed 250 working days each year, according to the agreement just reached between the parties.

A dispatch received in Toronto from Detroit a few days ago announced that Clifton Howe, dean of the School of Forestry at the University of Toronto, has been mentioned as a possible successor to Professor Filbert Roch, who resigned several months ago as director of the Forestry School of the University of Michigan at Ann Arbor. The position has been left vacant because of inability to find a suitable man.

"British Trade" is the name of the new publication which has made its appearance with headquarters at 8 University Avenue, Toronto. The paper is issued by Weston Wrigley, and is the official publication of the Canadian Association of British manufacturers and their representatives. Its mission is to further the interests of British trade in the Dominion.

Returning to Toronto after a visit to the Cornwall mill of the Howard Smith Paper Mills, Limited, and the Glengarry Pulp and Paper Co.'s mill at Cornwall and the Mille Roches mill of the Provincial Paper Mills, Limited, A. P. Costigane, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association, says that in all the mills visited improvements have been completed and due attention paid to the minimizing of physical hazards in mill operations.

The Canadian Pulpwood Commission will resume its sittings in Ontario on January 14 at Port Arthur. Later on sessions will be held at North Bay, Sault Ste. Marie and Cochrane. During the month of March sittings will be held in Quebec, the latter part of the month being spent in New Brunswick.

On April 1st the Commission will leave for Winnipeg, Edmonton and Regina and from the latter point the body will go to British Columbia where several sittings will be held. It has been pointed out by the commission that while they have the power to take evidence under oath they do not propose to use it.

A special sixty-page edition of the *St. John Telegraph-Journal* to honor the opening of the new dry-dock in that city was printed on newsprint from the Bathurst Company's new newsprint machine. It is pointed out that the mill, which is the first Maritime newsprint mill, will pay particular attention to the needs of Maritime newspapers and exporting surplus production to the United States.

The mill of the Nashwaak Pulp and Paper Company, which is situated at Reversible Falls, St. John, N. B., has been reconstructed during the last twelve months, increasing its former capacity 33 1/3 per cent. Eighty tons of bleached sulphite are now being produced daily.

R. S. Pratt of New York City, a man vitally interested in the pulp and paper industry, has arranged to pay half the cost of a lookout tower near his hunting and fishing lodge on the north shore of New Brunswick. Mr. Pratt has built a number of cabins and has also built a telephone system extending about ten miles. He is donating the use of the telephone system as well as half the cost of the tower. In that territory during the past few years, forest fires have devastated many thousands of acres of valuable pulpwood lands. It is believed the new tower and the use of the forest telephone system will limit the damage. The tower will be ready in the spring.

Export Statistics by States of Origin

Beginning with January 1, 1924, the Department of Commerce will compile statistics of exports by state of original shipment in compliance with the demand of shippers in the interior, particularly the middle western states. Heretofore the statistical reports have shown only the exterior port from which such exports cleared for the foreign country.

The now report will not show, as might be assumed from thd title, the exports of all products traced back to the original state of production—that would be quite impossible. The staple agricultural products of the Mississippi valley states are to a great extent shipped from the original state of production to northern or eastern concentration points. They may change hands several times before the sale to a foreign country is completed, and in many cases they lose their identity as to state of production by the time they reach the seaboard. This statement applies to also to many manufactured articles, orders for which are placed with the export agencies located at the seaboard who distribute them to mills located in different states. The finished products are shipped from the mills to the seaboard and there assembled and shipped out as an entirety. All shipping documents are prepared at the port, and it would be impracticable to require the export offices to seggregate the products by state of origin in the shippers' export declarations.

All goods shipped on through export bills of lading, for which the declarations are prepared by the shipper in the interior, will be credited to the interior state of shipment. Goods consigned from interior points to seaboard ports, to be there consolidated or reconsigned for export, will also be credited to the state of original shipment if an export declaration prepared by the interior shipper, showing the place of original shipment, is filed at the custom house. Merchandise forwarded from the interior to the seaboard for export by commission merchants, forwarding, or other export agents, and the export declaration prepared by them will in most cases be shown as exported from the port of final shipment, and will so appear in the statistical reports.

The export statistics are compiled from the shipper's declaration filed by the exporter with the Collector of Customs at the port of exportation. The declaration shows the name and address of the exporter, the place from which shipped, the route of shipment, whether by rail or vessel, the port of exportation, the country of ultimate destination, and the description, quantity and value of the exported commodity.

The state of original shipment to be shown in the new report will be the place of shipment as shown by the exporter in the declaration. The completeness and accuracy of the published report will depend directly on the care exercised by the exporter in giving accurate information regarding the state of original shipment, as well as the description, quantity and value of the goods shipped. In order that the government export statistics may be complete and accurate, it is important that the original shipper in the interior, who has personal knowledge of all the facts pertaining to the shipment, prepare the export declaration. Many inaccuracies have shown up in the published statistics on account of the practice of shippers of delegating the preparation of the declaration to forwarding or shipping agents at the port of exportation, who have no knowledge of the goods except what is shown on the bills of lading.

Even in cases where merchandise is consigned to a forwarding or shipping agent at the seaport, it is advisable for the original shipper to prepare the export declaration, showing the interior place of shipment, and mail it to the forwarding agent for filing at the custom house. It will also facilitate the handling of declarations at the port if exporters will show in the column "Class No. Schedule B" the number of the particular commodity class under which the merchandise should be included. That practice will also improve the accuracy of the statistics, as the original shipper is usually more competent to decide the correct classification than the statistical clerks at the custom houses. The export declaration is used only for the compilation of statistics and the information shown therein is regarded as confidential.

Copy of Schedule B, Statistical Classification of Exports from the United States, may be obtained upon request from the Bureau of Foreign and Domestic Commerce at Washington, D. C., its district offices located in principal cities, or any custom house. In quantities they may be obtained for five cents per copy from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Plans are now under way for the addition of certain new equipment and buildings at the Chillicothe Plant of The Mead Pulp & Paper Company, some time after the first of the year.

Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp association, and Colonel W. Du B. Brookings, manager Natural Resource Production department of the Chamber of Commerce of the United States, of whose departmental committee Dr. Baker is a member, have been named to represent the chamber at the coming national standardization conference to be held in Washington, under the auspices of the Department of Commerce.

The Commonwealth Paper Co. has been incorporated at Providence, R. I. The capital stock consists of 250 shares of stock without stated par value. The incorporators are Frederick U. Weigert, Gladys L. Weigert, Fay R. Hunt and Bertha M. Hune, all of Providence.

George E. Williamson, executive engineer of the Strathmore Paper Co., has been chosen president of the Safety Council of Springfield, Mass., which is doing pioneer work in giving lectures and instruction to motor vehicle drivers. Regular courses have been established and both day and evening classes

courses have been established and both day and evening classes.

New Developments in Paper Making

Cellulose from Corn Cobs

Corn cobs have been atracting much attention recently as a source of many important chemicals which can be distilled from them by destructive distillation. The possibility of obtaining cellulose from this raw material is also being considered, as is evident from United State patent No. 1,472,318 which is concerned with a process for deriving a paper making material from the cobs.

In order to do this the cobs are first broken up and then boiled in dilute mineral acids and washed to remove a portion of the acid and such soluble matter as can be removed with water. Then the mass is boiled in a dilute solution of caustic soda. After this treatment the caustic soda is removed, first by centrifugal force and then by mixing the residual mass with hot water. The residue must be boiled once more in order to remove the caustic soda which adheres tenaciously to the cellulose.

* * *

Detection of Mineral Matter in Paper

The mineral substances that are commonly found incorporated with paper are china clay, pearl hardening (calcium sulphite), and agalite or talc. In addition to these may be present alum from the sizing materials, and in coated papers blance fixe (barium sulphite) and satin white (a mixture of calcium sulphite with alumina.) All these substances are incombustible and hence are found in the ash when the sample of paper is incinerated. The separation and identification of these various mineral substances may entail some difficulty. The following notes on the direction of the mineral matters is taken from H. A. Bromley's paper and its Constituents.

Satin white and pearl hardening are entirely soluble in warm dilute hydrochloric acid. They undergo no change in dissolving. Their presence may therefore be confirmed by the addition of barium chloride to the solution, which will cause the formation of a white precipitate of barium sulphate if these substances were originally present in the paper.

China clay, on the other hand, is insoluble in hydrochloric acid. It is soluble in boiling sulphuric acid, but is best detected by treatemnt with a fusion mixture. In this way, that is by the fusing the china clay, the alumina in the same is converted into the carbonate of alumina and the silicate of alumina into the soluble silicate salt. This enables the two substances to be separated and identified.

Blance fixe is also insoluble in acids, and is detected, as with china clay, by fusion. The fusion yields barium carbonate and sodium sulphate. Agalite is also fused and in this way is converted into magnesium carbonate and sodium silicate.

When the presence of calcium and of a sulphite is definitely proven, it indicates that pearl hardening is present in the original paper. In the same way calcium, alumina and a sulphite indicates the presence of satin white in the original paper, and alumin and silica indicate china clay.

* * *

Transfer Paper

The process patented in British patent No. 203,816, is concerned with making transfer paper which comprises two outer sheets or webs, which are coated on their outer surfaces. Between them are arranged one or two other sheets of paper, all the sheets being of the same weight and separably secured together.

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Durban, South Africa, in the market for American machinery for printing and handling street car tickets. Reference No. 8362.

* * *

Curious Use of Paper

Paper has been used for a great variety of purposes but, according to the French journal La Papeterie, this is a new one. In a church near Milan, Italy, it is said that the organ has tubes which are made from paper instead of metal. Thus appropriately paper, which serves to convey thoughts in words, now serves likewise to propagate sound.

* * *

Paper With Metallic Coatings

In the processes that are commonly used to coat paper with a metallic film the paper is coated with bole in a coloring machine and then a coating of glue or other adhesive preparation is applied by hand. Then the metallic film is applied directly on the adhesive. The worker uses the blowpipe in this process which is both inconvenient and laborious as well as injurious to the health of the worker.

A new process has been invented and patented in German patent No. 376,614 to avoid these disadvantages. The paper web is first given a coating of an adhesive in a lacquering machine. An adhesive is used which attains its maximum adhesive powers at a high temperature. Various resins, waxes and fatty substances are used in preparing this adhesive, such as shellac, copal resin, beeswax, carnauba wax, paraffine, etc. The coated paper is then passed over a heated body and the metallic film is placed on the paper and presseed by means of a cold press roll. The union of the metallic film and the paper takes place at that moment when the adhesive preparation has attained its maximum adhesive power. The paper is immediately dried after it leaves the hot body and is ready for use. The surface is smooth and even.

* * *

Paper Making Machine

In United States patent No. 1,472,572 there is patented a machine and method for making paper which consists of the following essential points. The paper making machine comprises a paper web forming part, a felt apron which is adapted to receive the paper web after it has been formed and special means for extracting the water from the web by means of an air blast. The machine also contains a second felt apron, a set of plain press rolls working with these aprons and a special means located directly in front of the press rolls for extraction of the water both from the felt aprons and from both sides of the paper web.

* * *

H. H. Schwartz has arrived from Cleveland, Ohio, to superintend the erection of the main paper mill building for the Columbia River Paper Mills corporation at Vancouver, Washington. He plans to have the work completed in sixty days. The building is a modern style of paper mill architecture and will contain 22,000 square feet of glass; the tiling of the walls is to be three feet high and the remainder of the structure is to be constructed of steel frame work and glass. The whole of this three-units mill is expected to be in operation in April of next year.

The Brown-Wales Co., of 493 C street, South Boston, Mass., has leased to Lyle A. Brown the fourth floor of its building at C and Fargo streets. Mr. Brown will use the quarters for manufacturing paper specialties.

Paper Drying

The paper to be dried is carried over arched belt arranged above the heater. The belt is made of fabric which is pervious to air from all directions. It travels with the web. The heater is open at the top, but the supporting run of the belt, which is of net-like construction, breaks up the heat and also forms cells for the temporary entrapping of air, which prevents scorching. Patented in British patent No. 202,392.

* * *

Constitution of Pine Wood

Different methods employed in investigations of pine wood are criticized and preference is given to that of Klason (Svensk. Kem. Todskr., 1921, 33, 150).

If the hydrogen in concentration of the sulphite solutions be properly adjusted the cellulose molecule is not attacked. The hemicellulose, however, is decomposed. When an acid mixture, composed of 80 grams of sodium hydrogen sulphite and 200 cubic centimeters of tenth normal hydrochloric acid made up to one liter with water is used, cellulose and dextrose are scarcely attacked, but the pentosans are readily decomposed.

If, instead of 200 cubic centimeters of tenth normal hydrochloric acid, 500 cubic centimeters are substituted in the above mixture, it acts more strongly and the digestion liquor contains 2.94 per cent of the cellulose as sugar. After heating for four days at a temperature of 100 degrees C with the stronger of the above two mixtures, only 20 percent of the dextrose is decomposed, whereas arabinose under the same conditions is decomposed to the extent of 93 to 96 percent. Xylose treated under the same conditions as above shows a greater resistance, as only 72 percent of it is decomposed. A method is suggested for estimating accurately the relative amounts of cellulose and hemicellulose and the lignin by difference.—Chem. Zentrallblat, 1923, 94 IV, 505.

* * *

Glue in Coating Paper

The Bureau of Standards at Washington has been making experiments in which glue has been used in coating paper. Experiments were made both with bone glue and casein glue. A high grade of English paper clay was used as the coating material.

The results obtained from this series of experiments indicated that the water resistance of paper coated with the aid of glue compared favorably with that coated with the aid of casein containing no formaldehyde. The glue had been mixed with chrome alum for this purpose.

The conclusion has been reached that the degree of waterproofing attained by the use of chrome-alum glue is sufficient to render the paper available for ordinary half tone printing. There are, however, certain difficulties which arose in coating papers in this way in that it was rather hard work to obtain a perfectly even coating due to the fluidity of the coating mixture. More work is being done to overcome these technical difficulties.

* * *

Waterproof and Fireproof Paper

British patent No. 202,884 is concerned with a process for the manufacture of waterproof and fireproof paper for use in making dress patterns, for decorative purposes and packing.

In making this paper zinc chloride, a ten percent solution, ammonium phosphate, ammonium sulphate and other similar salts are used as fireproofing agents and may be applied before or after the sizing process.

Crepe effects are obtained by crimping the sized paper before it is dried, and if a paper with a spongy texture is required, the crimped paper may be covered on one or both sides with a thin sheet of uncrimped treated paper.

Box Board Association Formed

The following announcement has been issued from the office of John R. Mauff, executive vice-president of the new association recently formed in Chicago:

The Box Board Association, an Illinois corporation with executive offices in room 1014 Wrigley Building, Chicago, has been organized, following a two days' session in Chicago at which a personal representation of a large majority of that branch of the paper industry was present.

The importance of this new association to the welfare of the box board trade is best indicated by the announcement that George M. Seaman, president of the Eddy Paper Corporation and president of the Seaman Paper Company, has accepted the office of president, and Walter P. Paepcke, president of the Chicago Mill & Lumber Company, the office of vice-president.

Not only do these names insure the welfare of the industry itself, but the public, and all collateral interests will be safeguarded as one community of interests, in serving which the association will be accomplishing something of inestimable value to the prosperity of its members and those with whom they come in contact in the commercial world.

That Mr. George M. Seaman has the ideal leadership spirit and ability for a movement of this character with its inevitable far-reaching benefits will be best understood by a consideration of the highly successful results obtained by the News Print Bureau, and through which the news print industry, the public and all concerned, so greatly benefited. His prominence as an active figure in the paper industry as a whole, has also been demonstrated in his various other accomplishments requiring indefatigable work.

Such leadership, backed up by a bureau of statistics, functioning in conjunction with a department of graphic charts, should be a guarantee that this association will be the eye of the box board industry, through which it may see and realize the actual facts, requirements and demands surrounding that very important and large branch of the paper industry and guide and conduct the trend of its activity to the welfare of all who may be therewith concerned and thereby benefited.

Service such as this must of consequence promote fair trading and trading practices and further develop both the domestic and foreign markets for box board and it is inevitable that with the large enrollment of charter members and following this announcement of the purposes and personnel of the organization virtually the entire industry will be enrolled in membership in the near future.

John R. Mauff has been elected executive vice-president and the board of directors is composed of names well known in and out of the paper industry world: G. H. Wood, H. L. Rauch, Geo. W. Gair, E. T. Gardner, John Jacobs, M. W. Waldorf, Walter P. Paepcke, George M. Seaman, and W. H. Richardon.

H. S. Hershman, Inc., of New Haven, Conn., has been incorporated to manufacture paper supplies. The company has a capital of $50,000. The incorporators are Harry S. Hershman, Isadore Hershman and Barnett Sachs, all of New Haven.

The Hickory Paper Box Co., has acquired a site and will erect a factory in Hickory, N. C.

A notable addition to the permanent literature of Papermaking is Dard Hunter's "Old Papermaking and the Watermarks of the Old Papermakers," the first book in any language dealing in a comprehensive way with the methods of the early papermakers.

New Uses of Paper*

Some of the Many Ways in which Paper has Supplanted Other Materials in Manufacturing Processes

By Warren B. Bullock

Director Information Service, American Paper and Pulp Association.

In discussing the subject of new uses of paper an effort will be made to avoid the technical and to discuss the subject of paper making and the use of paper by the public in the simplest terms.

In fact, the material to be presented to you is so organized as to serve, if desired, for your own use in case you wish to discuss paper with your classes in elementary chemistry. There is an unlimited field beyond if you wish to go further, but this talk today will contain nothing that could not be used by yourselves in talking of paper, its manufacture and uses, to students in elementary chemistry.

Basic Methods of Manufacture

To have an appreciation of recent development in the paper industry, it may be well to run back briefly to the basic methods of paper manufacture. First of all, paper is essentially a forest product. Ninety-five per cent or more of all the paper made in the United States is made entirely or in part from wood. The balance is from other vegetable fibers, such as are contained in the rag papers. The industry is sixth among America's industries in value of product when we include printing and the manufactures of paper such as boxes, and the annual value of the product is in the neighborhood of a billion dollars. We use enormous quantities of wood, something like six million cords a year, and in converting this wood into paper lies the field of the paper mill chemist.

While the making of paper is a highly developed form of utilization of forest products, it is at the same time a highly developed chemical industry, and therefore of particular interest to the teachers of chemistry. Through the entire process of converting a tree into a sheet of paper, chemistry is everywhere applied.

Have you ever thought of the extent to which you use paper in your daily life? Leave out the use of paper for school books, for writing examinations, for reports of the variety which every school teacher knows. If in this group, there is a husband, the chance is that your first act on rising in the morning is to go to the door and get your daily newspaper—and the milk bottle with a paper cap. If you are an extra good husband you go into the kitchen, stand on a floor covered with linoleum—a form of paper made of mechanical pulp and oil, and light the fire. If you have a wood or coal stove, the chances are you use old paper for tinder. In any event it is more than an even bet that you put on the fire a coffee pot with coffee from a paper box, or a cereal from another paper box. When you return to your room to finish dressing you stand on a rug which you may think is cloth, but which is really tightly twisted paper, woven into the form of fabric. Your house itself may be roofed with shingles made of paper of a special kind—a felt paper, treated with asphaltum or some similar substance, and so treated as to be absolutely fireproof.

And so you might go through the day. If you are a commuter your railroad ticket is paper, or if you go by trolley, you may proffer a paper dollar to the conductor. If you have an automobile you still may have paper, either in the form of paproid cushions, and your limousine undoubtedly has its curtains hung on paper rods to avoid the rattle of a metal roller.

At night when you lounge at home, you may listen to your phonograph with music imprinted on plates composed in part of pressed wood flour—mechanical pulp.

Furniture and Clothing of Paper

In New York there is a paper company office which has paper furniture. It is in appearance made of willow, but in fact the chairs and other articles are made from strong fine paper tightly twisted until it resembles willow, and then woven into form. During the war the Teutonic nations carried this process still further, by weaving threads consisting only of paper, tightly twisted, into cloth, and then making up clothing from this paper cloth. This is a rather coarse fabric cloth, but it was exceedingly cheap, and being waterproofed, was not subject to ready deterioration by water. This is not being extensively made at present, but for a time it was used in large quantities in Austria and Germany.

This process of making paper cloth must be differentiated from the manufacture of artificial silk, and yet the latter is worth discussing, as it is a closely allied forest product. The paper cloth of Germany is made from twisted paper threads, woven into fabric. Artificial silk is a chemical process, but not unrelated to the making of pulp by the sulphite process. In the artificial silk process, the cellulose is entirely dissolved in a fluid of which the essential elements are caustic soda and carbon bi-sulphide. This solution, in consistency like thick syrup, is forced through tiny holes in a brass or metallic plate, and hardened by precipitation in alcohol or some such liquor. This gives tiny filaments which are then assembled, twisted, and worked into threads or yards from which the silk stockings or other articles of wear are woven.

The artificial silk process has a curious relation to a peculiar use of paper for food protection, the greaseproofs and vegetable parchment groups. The greaseproof papers are made by beating the pulp until the cellulose becomes partly gelatinized by mechanical action. The vegetable parchment is paper treated with sulphuric acid, which actually changes the chemical form of the cellulose—too intricate a chemical process for me to attempt to explain to a groug of chemists. In the vegatable parchment the treatment is stopped before the cellulose is dissolved. In the artificial silk, the cellulose is entirely dissolved.

The protection of food from filth by the use of special papers is a rapidly developing phase of the paper industry, and in this group we have some types of paper cans, butter boxes, and cheese containers. The use of paper bottle caps is surprisingly large. If in New York City we figure there are five million people, with an average of five to the family, there will be an average of about one milk bottle per day per family, or a total use of a million of these paper caps daily in New York City alone.

The paper clothing sold in Germany for a few cents of our money is made with a cotton thread for wrap, and the paper threads form the woof. Incidentally it might be mentioned that the developments of paper for various uses was a notable feature of German war industry. Paper pulp was used as a base for high explosives, and an artificial absorbent cotton made of paper pulp was developed for hospital use. This artificial absorbent cotton is now being largely made in the United States also. We have gone them one better in

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* *Presented before New England Association of Chemistry Teachers, New Haven, Conn., Dc. 8, 1923.*

America by making at the Forest Products Laboratory at Madison, Wis., a cattle food from wood chips and sawdust, treated chemically to produce a digestible form of cellulose.

But to return to the more unique uses of paper. A company has been formed in the south to manufacture paper rain coats, to be put up in packages small enough to go into a pocket, and sell for 25 or 50 cents. They are waterproof, but one may readily doubt whether they will serve for more than one using. It would be interesting when caught in a sudden shower, to pull a raincoat from your pocket and laugh at the weather man.

The use of crepe paper for decoration will soon be in evidence in every home, as Christmas draws near, and we are now offered paper Christmas trees, as a means of saving the young trees of our forests, and at a price that may put the Christmas tree out of many markets.

Some poor shoes are made with paper soles, but even the good shoes have paper heel boards, box toes, and counters. Candy manufactures use paper for imprinting trade marks in the bottom of candies. Car wheels, barrels, waterpails, clothes lines, spoons, dishes all are made of paper, and from the cradle made of paper willow, to the crepe lined box in which our mortal remains are buried, we use paper from the cradle to the grave. Celluloid with all its manifold uses is basically a paper, or a cellulose product.

Wharf Piling of Paper

Out in San Francisco, they are using paper piling for the wharves, to combat the marine boring worms, which will not attack paper. We have book worms but they do not attack the pressed paper such as is used for piling, car wheels, or the paper piping which has been developed so that it carries screw threads, and is impervious to moisture and heat.

Dolls and toys, mill equipment, such as the cones and spindles used by the New England textile mills, are made of paper and in fact, the uses of paper are too numerous to attempt to list.

A unique use of paper, recommended by the government authorities for home dressmaking, is the making of dress forms so that every woman can be her own dressmaker. An undergarment is used as a base, and strips of gummed paper tape, such as is used for sealing packages, are pasted all over this garment while being worn by the woman whose figure is being reproduced. After the gummed tape has been pasted all over the dress form, it is removed, coated with shellac, and the home dressmaker can build her own gowns on a dress form made on her own body.

The telephone company uses some five million pounds of paper a year for insulating telephone wires. Fine paper is tightly twisted about the wires in the cables, and affords the best insulation for switchboards as well.

On the streets you see motor delivery wagons, with bright trade marks on their polished sides. This is another unique paper process, by the use of decalcomania. This is nothing but the use of what children call transfer paper, by which figures are transferred from a sheet of paper to such articles as they wish to decorate.

Of the world's production of about 14,000,000 tons of paper a year, this country makes about one half, and its consumption is even larger, for our imports are larger than our exports. This year's imports will total in value nearly $110,000,000 of which a large portion is for our newspapers.

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Paper Making Machinery
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WIRE WORKS

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Can't Be Beat

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BRASS
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You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

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Improvements at Dells Pulp & Paper Co.

THE Dells Pulp & Paper Company of Eau Claire, Wis., is carrying on an extensive construction program. The work on the new dam is about one-third completed. The forms are all in for the new gate section dam. This dam will consist of steel and concrete structure with thirteen steel tainter gates 26 feet wide and 20 feet deep. It is the intention to have the spillway capacity enough to discharge 116,000 cubic feet of water per second. This is a larger capacity than the old dam, but the railroad commission insists on the new dam having a capacity which will take care of any normal flood. The dam is 400 feet long and built for a 26 foot head. It is situated about 100 feet below the present dam and it is built on a sand rock bottom. The apron, which is all on, is 75 feet in length the full width of the river. Some of the piers are partly poured. The low water in the river is greatly facilitating the work.

The excavation for the pulp mill and power house is completed and it is expected that construction work will begin in the near future with the idea of completing the entire job by spring to take advantage of the spring water.

The power plant and grinder room is a structure 120x116 feet, all reinforced concrete construction. The building and flumes are built at a head of six feet above the present head and the wheels are also set so there can be a drop in the tail race of four feet which can be secured by excavating a distance of 1700 feet down the river.

This shows in the foreground the forms for the new gate section dam. There are to be 13—20x26′ tainer gates. The building in the background is a new power house built in 1922. Just beyond the power house and other shore (the power house is in the river) is where the new pulp mill is being built

One horizontal Allis Chalmers hydro-electric unit of the propeller type of 1600 HP is being installed; in adition to this there will be three similar horizontal units direct connected to three four-pocket grinders on each shaft. The Green Bay Barker Company of Green Bay are building the grinders. A 20-ton travelling crane for handling the generator and other equipment will be placed in this building. The waste wheels are so arranged that in event they wish to give up grinding these can be direct connected to generators. The water turbine installation will include the White hydrocone built in horizontal position.

The wet machine and screen rooms will be in a separate building located on high land adjoining the present paper mill. This is about 150 feet from the grinder room.

This building will be 60x120 feet and two stories high with a basement consisting of a decker stock chest under the entire building. In this building there will be twelve wet machines, five Improved Paper Machinery Company screens, the necessary knotters and sliver screen as well as two Wood's thickeners. The entire department will be motor operated.

This photo shows the place where the new pulp mill is to go. Building on the left is the power house. In foreground is tail race and cofferdam. Building in center of picture with the end boarded up is the old grinder room. White building behind the derrick is one of the paper machine buildings

The production of pulp under the new scheme will probably be 110 tons per day and it is expected that with better operating conditions in the water power plants and the stoppage of leaks through the old dam and old wooden flumes that this company will be enabled to produce sufficient pulp even during the low water season to take care of its own plants.

Contemplated extensions to the present paper and pulp mill building will consist of new floors, additional walls and roofs, increasing the heighth of some of the buildings, the covering of some areas now unoccupied, with steel and general fireproof construction throughout.

The total cost of these improvements will approximate $700,000. When this work is completed the company will have a most modern and up to date plant throughout.

This photo shows a close-up view of the old dam from downstream

L. A. DeGuere, of Wisconsin Rapids, is the engineer in charge of the project and the construction work is under the direction of W. E. Ule, of Stevens Point

To Start Work on New Plant

The Florida Paper Mills Co., of Jacksonville, Fla., a subsidiary corporation of the Grass Fiber Pulp & Paper Corp., Leesburg, Fla., of which Gilbert Leach is secretary and treasurer, will soon begin actual work on erection of their plant in South Jacksonville. First work of construction will be building of a half-mile of railroad track and a hard surface road to take care of transportation. Have about $100,000 worth of machinery to be installed.

The Arthur D. Little Co., Cambridge, Mass., is planning the erection of a paper pulp mill in Jones county, Miss., according to report from Laurel, Miss. C. R. Carpenter, a representative of the mill, having been there looking over conditions.

The Orchard Paper Co., has acquired the building at 1113 S. 12th Street, St. Louis, Mo., and will remodel for a factory, office and warehouse, installing front of steel sash and stucco, and equiping building with sprinkler system.

Adams Company Making Addition

The Adams Paper Company is constructing an addition and making alterations to its mills at Wells River, Vt. Herbert Crabtree, manager of the company, is in charge of the work.

The addition will be of brick, one story, with 10,000 square feet of floor space, and will cost in the vicinity of $70,000. James Lowe of Woodsville, N. H., has the contract.

The walls on the addition are up and it is planned to have the building closed in before heavy snowfall.

Making Pulp Grinders

The Bath Iron Works at Bath, Me., one of the largest shipbuilding companies in the country, is devoting much of its attention at present to the manufacture of Warren magazine pulp grinders. Shipments of the pulp machines are now being made to the Great Northern Paper Company. The machines are designed for wood in four foot lengths and are of heavy construction, each unit weighing approximately 95,000 pounds.

Paper Companies to Take Part

Development of the Dead River region in Maine as a power source together with the power possibilities at Long Falls, Me., will be discussed by Gov. Baxter of Maine and representatives of some of the large power companies operating in that region. For this purpose, a conference will be held in Boston early in the New Year.

The Hollingsworth & Whitney Company, the Great Northern Paper Company, the International Paper Company and other large companies having interests in that region will participate in the conference at the invitation of Gov. Baxter.

Some months ago representatives of these companies and textile interests formed a corporation known as the Kennebec Reservoir Company and appeared before the Maine Legislature for authority to establish a power reservoir near the head waters of the Kennebec. This authority was granted by the Legislature but Gov. Baxter succeeded in bringing about its defeat by vetoing the measure.

It is now believed that the attitude of Go. Baxter has changed and that he will assist in arranging plans for the development of this important water power project.

A Paper of Distinction

Silvertone Transparent Manifold Parchment

Assures Satisfaction to Particular People

Manufacturers of
"Quality Papers at Quantity Prices"

WOLVERINE
PAPER COMPANY
OTSEGO, MICHIGAN

CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 7.00
M. F.	6.00 @ 6.75
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.75 @ .85
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	52.50 @ 55.00
Chip	47.50 @ 50.00

Paper and Board

New York, December 24.—Reports from New York trade sources generally tell of a slowing down of demand for many kinds of paper. This is not surprising since the approach of the year's end and the inventory-taking period invariably is the signal for consumers to curtail buying, and the market at present is in a quieter condition than has been noted in some time. Of course, holiday activity has stimulated demand for certain kinds of paper, but the movement of supplies for holiday purposes has about ceased, and the trade is now in a waiting position, expectant of good business and favorable market conditions in the new year.

It cannot be said that there is any great weakness in prices of paper. At the same time the price tone is far from strong. Quotations on some kinds of paper are wavering, with the tendency unmistakably downward. This is to be expected with demand slowed down, and yet manufacturers are not exerting pressure on the market, most of them apparently pursuing the wise policy of watching and waiting and permitting the market to follow its own course. Certain descriptions of paper are firm. There is no sign of easiness in newsprint, bag paper and in numerous specialties. On the other hand, consumers are finding manufacturers willing to grant slight concessions on book, writing, wrapping, tissue and other papers, particularly when tonnage orders are concerned. Paper mills want business and they are not allowing a matter of fractional differences in price to stand in their way of landing orders when shading quotations will result in the securing of business.

Newsprint continues in active demand and the movement from mills to consuming centers keeps up on a large scale. Production of newsprint in the United States in November totaled 119,720 tons, compared with 122,073 tons in October, while shipments from mills were 117,176 tons, against 124,894 tons in October. The output of Canadian mills in November was 110,839 tons, contrasted with 114,475 tons in the preceding month, and ships from mills totaled 110,786 tons, against 112,996 tons in October. These figures show that mills in Canada shipped out practically all the paper manufactured during November, while U. S. mills shipped out all but slightly more than 2,000 tons.

Book paper is in somewhat of an unsettled market position. Manufacturers are holding to their previous quotations but it is no secret that they are frequently granting some concessions to customers. This is particularly true when tonnage orders are involved. Book paper producers want business. Most mills are fairly well fixed with contract business but they need more transient business to warrant larger operations, and there is keen compeptition for such orders as come into the market from transient buyers. The average price quoted on machine finished book paper is 6.50 cents a pound f. o. b. New York, but lower prices than this are reported; probably some m. f. book is being secured by consumers down to 6 cents. Coated book is quoted at about 8 cents per pound upwards f. o. b. New York, with the high qualities bringing around 11 cents and even up to 21 cents per pound New York.

Wrappings are quiet since demand for the pre-holiday retail trade has subsided. No further change in quoted prices is reported but the tone of quotations is rather easy, and buyers experience no difficulty in purchasing No. 1 domestic kraft wrapping at 6 cents a pound f. o. b. New York, and at less in exceptional cases. Tissue papers are holding in price but the market for them is much narrower than prevailed a short while ago. Manufacturers enjoyed a fairly large demand for tissue for the holiday trade and prospects are bright for a resumption of buying on an equally broad scale after the turn of the year.

Boxboards display a hardening price tone. In fact, quo-

SCANDINAVIAN PULP AGENCY, INC.

342 Madison Avenue
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WOOD PULP

of every description
FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement & Manufacturing Co.
ATHENS, Wis.

CURRENT MARKETS—Continued

tations have been advanced slightly by Eastern mills, plain chip now being quoted at $47.50 per ton f. o. b. New York and news board at $52.50 in a majority of instances. It is stated that some consumers have been looking ahead and placing orders for board for future delivery, and while manufacturers are far from rushed, they are managing to keep moderately busy. The Box Board Research Service reports that board mills in the East operated at 63 per cent. of their capacity in the week ended December 8, 13 mills reporting making 2,553 tons of board, receiving new business amounting to 2,173 tons, and having 2,803 tons of unfilled business on hand, while Western board mills ran at 75 per cent. of capacity, producing 7,852 tons of board, receiving new business totaling 5,641 tons, and having unfilled business on hand amounting to 17,233 tons.

Quotations follow:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract ..	3.50	@	3.75
Roll, transient ..	4.00	@	4.25
Sheets, contract ..	4.00	@	4.25
Sheets, transient .	.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic ..	6.00	@	6.50
No. 2 Domestic ..	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50

Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	7.00
M. F.	6.00	@	6.75
Lithograph	8.50	@	14.00
Coated & Enameled	8.00	@	12.00
White No. 1	.90	@	1.00
Manila No. 1 ...	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.00	@	6.50
No. 2 Fiber	5.00	@	5.50
Card Middles ...	4.00	@	4.50
Common Bogus .	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	52.50	@	55.00
Straw, in sheets .	55.00	@	60.00
Binder Boards ...	80.00	@	85.00
Chip	47.50	@	50.00
Manila Lined Chip.	70.00	@	75.00
Woodpulp	75.00	@	80.00

Mechanical Pulp

Mechanical pulp is moving in a steady manner and in fairly large volume, according to reports. There is a consistent demand emanating from newsprint, board and other consuming mills, and probably a stronger factor than the current demand is that stocks are unusually small and that grinders are failing to accumulate any surplus of pulp to amount to anything, shipments being about on a par with the present output. Quotations are well maintained at around $40 per ton f. o. b. grinding mills for domestic ground wood for prompt shipment. Foreign ground wood is selling at $38 a ton ex dock New York, and importers are reported bringing in considerable quantities from abroad.

Foreign and Domestic Chemical Pulp

It cannot be said that there is any noticeable strength in the chemical pulp market. At the same time indications point to a much steadier undertone, and it would seem as if prices have at last reached a level at which they show every sign of holding. Sellers are not pressing matters like they were a short while ago and sentiment in the trade is vastly improved, most traders looking for an upward reaction in prices and therefore being content to wait and watch developments.

Papermakers are said to be placing orders for fair amounts of pulp but buying is very spotty. Kraft pulp has worked down to around 2.60 cents per pound ex dock New York for No. 1 foreign kraft, and it is stated that some sales at 2.50 cents have been made. Strong foreign un-

The

St. Regis Paper Company

and the

Hanna Paper Corporation

Daily Capacity
425 Tons

Newsprint
Catalog
Butchers Manila
Packers Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite

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PORTLAND MAINE
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CURRENT MARKETS—Continued

bleached sulphite is selling at around 2.65 cents and probably at a little less. Bleached sulphite is quoted at 4 cents per pound at pulp mills for No. 1 domestic, and at about the same basis for No. 1 foreign, but both domestic producers and importers are shading prices in some cases. Quotations ex dock New York and f. o. b. pulp mills are as follows:

Sulphite foreign—			
Bleached No. 1..	4.00	@	4.50
Unbleached No. 1.	2.65	@	2.80
Unbleached No. 2	2.50	@	2.75
Easy Bleaching	3.00	@	3.25
Sulphite, domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No. 1	2.70	@	2.90
Unbleached news grade	2.50	@	2.70
Easy Bleaching	3.00	@	3.25
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.60	@	2.75
Kraft, domestic	2.75	@	3.00
Sulphite screenings, refined	1.75	@	2.00

Domestic Pulp

Papermaking rags exhibit a firm tone. Indications are that consumers are buying in a cautious manner and generally in small quantities, yet there is enough business to be creative of strength in values, while the situation at the supply source is lending firmness to the market, dealers contending that they are not receiving normal amounts of rags from collection sources. Low grades are especially firm. No. 1 roofing stock is quoted at 1.80 to 2 cents per pound f. o. b. New York, with sales reported at the higher figure, while No. 2 stock is bringing 1.50 cents New York. Thirds and blues are quoted at 3 cents or slightly less f. o. b. New York for repacked, and around 2.50 cents for miscellaneous packing. White rags are firm, and new cuttings tend higher. Sales of blue overall cuttings at 9 cents a pound New York have been reported. Quotations f. o. b. this city are:

New Shirt Cuttings,			
No. 1	12.75	@	13.00
No. 2	6.00	@	6.25
Fancy Shirt Cuttings	6.25	@	6.50
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.50
White Lawns	11.00	@	11.25
New Muslins, unbleached	11.50	@	11.75
Light Silesias	8.25	@	8.50
Black Silesias	4.75	@	5.00
Overall Cuttings, Blue	8.75	@	9.00
Washables	5.25	@	5.50
New Black Mixed .	4.50	@	4.75
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.75	@	2.90
Thirds & Blues, repacked	2.85	@	3.00
Thirds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags, No. 1	1.80	@	2.00
Roofing Rags, No. 2	1.45	@	1.55

Imported Rags

The low grades of foreign rags are in principal demand, dark colored cottons for roofing paper mills particularly, and sales of these rags at 1.65 cents a pound ex dock New York have been recorded. Blue cottons are in fair call, and linens are moving in a steady way. Quoted prices are well maintained throughout the list at the following ranges ex dock New York:

Lins., White, No. 1	12.00	@	13.00
Ger. Blue Cottons..	2.50	@	2.75
French Light Blues.	2.75	@	3.00
New Light Prints .	5.50	@	5.75
New Unbleached ...	9.50	@	9.75
German Linen, blue.	4.00	@	4.50
German Linen, grey	6.00	@	6.50
German S. P. F.'s.	6.00	@	9.00
German Light Prints	2.50	@	2.75
Dk. Colored Cottons	1.60	@	1.65

Bagging, Rope, Etc.

Prices of old rope continue to display somewhat of an easy tone, due, it would appear, to the withdrawal of a good many customers from the market. No. 1 domestic manila rope is reported selling at 6.50 cents per pound f.o.b. New York and perhaps at a trifle less, while foreign

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FRANKLIN, OHIO
Eastern Sales Office: 110 E. 42nd St., New York

CURRENT MARKETS—Continued

manila rope is said to have sold down to 6 cents a pound ex dock New York. A little better demand is noted for old bagging though no change in prices has occurred. No. 1 scrap is quoted at 1.25 cents a pound f.o.b. New York, and roofing bagging at 90 to 95 cents a hundred pounds New York. Prices f.o.b. this city follow:

Gunny, No. 1	1.30	@	1.40
Foreign	1.20	@	1.30
Wool Tares, light ..	1.20	@	1.40
Scrap Bagg., No. 1.	1.15	@	1.25
Roofing Bagging ..	.90	@	1.00

Wool Tares, heavy .	1.40	@	1.60
For. Manila Rope .	6.00	@	6.25
Domestic Rope	6.50	@	6.75
Mixed Strings	1.00	@	1.25

Old Paper

Generally speaking, there is a fairly steady tone to waste paper prices, but some grades have sagged slightly. Demand is of moderate volume but it is apparent mills are buying merely to cover their immediate needs. Old magazines have eased to where sales at 1.50 cents a pound f.o.b. New York have been reported though some packings of this grade command well above this price. Old kraft paper also is slightly lower, sales at 2.10 cents a pound New York having been noted. Shavings are steady, dealers in New York quoting around 3.90 cents per pound for No. 1 hard white, and an average of 3.15 cents for No. 1 soft white shavings f.o.b. New York. Folded newspapers are selling at 85 to 90 cents a hundred pounds New York, and No. 1 mixed papers at 55 to 60 cents. White blank news is firm at 2.25 cents a pound New York as a minimum. Quotations f.o.b. New York are:

No. 1 Hard White Shavings	3.80	@	4.00
No. 2 Hard White Shavings	3.25	@	3.50
No. 1 Soft White Shavings	3.00	@	3.25
Box Board Chips ..	.65	@	.70
No. 1 Colored Shavings	2.00	@	2.25
Magazine flat stock.	1.50	@	1.65
No. 1 Crumpled ...	1.25	@	1.35
Solid Ledger Books	2.15	@	2.25
Ledger Stock	1.90	@	2.10

Kraft No. 1	2.10	@	2.20
New Manila Cuttings	2.00	@	2.25
New Manila Env. Cuttings	2.75	@	3.00
Bogus and Mill Wrappers	.80	@	.90
News, strictly overissue	1.10	@	1.15
Folded News	.85	@	.90
No. 1 Mixed Papers	.55	@	.60
White Blank News.	2.25	@	2.35
Common Paper	.40	@	.45

Twines

The pre-holiday activity in twines has subsided and the market is quieter and devoid of feature other than that the price tone is quite steady. Raw materials are in a strong position and are gradually creeping upward in cost, which of course makes for firmness in twines. Quotations are as follows:

Sisal Hay, pure ...	12.25	@	13.25
Manila Hay, pure..	16.25	@	17.25
Sisal Lath Yarn ..	11:25	@	12.25
Manila Rope, pure, ¾ inch diameter.	14.25	@	15.25
Hardware Rope	11.25	@	12.25
Jute rope, ¼ diam. and over, coils ..	12.00	@	14.00
Sail twine, A grade.	19.00	@	

Jute Wrapping twine, A grade	19.00	@	
Papermakers Twine.	10.50	@	
B. C. Hemp, 18 ...	.39	@	.40
B. C. Hemp, 24 ...	.38	@	.39
B. C. Hemp, 36 ...	.37	@	.38
American Light India— No. 6	14.50	@	
No. 7	13.50	@	

Chemicals

The movement of papermaking chemicals is mainly against contracts. Consumers are engaging in little current buying, notwithstanding which quotations are well maintained, there being no changes of notes reported.

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and

With quality wires and high power service we have hit the Bull's Eye consistently

Wisconsin Wires

Wisconsin Wire Works
Appleton Wisconsin

CURRENT IMPORTS

IMPORTS AT NEW YORK

Week of December 17-22

Paper

Str. America, Bremen—A. Frankan & Co., 4 cs.; Flacideal Company, 100 cs. pressboard; Parsons & Whittemore, 630 rolls newsprint; J. W. Hampton Jr. & Co., 64 cs. wrapping.

Str. Maryland, London—W. H. S. Lloyd & Co., 34 bls. hanging; Sternburg & Co., 1 cse. hanging; Order, 4 cs. writing.

Str. Nortonian, Liverpool—J. C. Robold & Co., 10 bls. tissue; P. D. Winter, 6 bls.

Str. Seydlitz, Bremen—Globe Shipping Company, 11 cs. photo; Wilkinson Bros. & Co., 134 bls. and 195 rolls wrapping.

Str. Cedric, Liverpool—F. J. Emmerich & Co., 2 bls. hanging; Oxford University Press, 5 cs. printing; J. J. Gavin & Co., 2 cs. photo; A. C. Dodman, Jr., Co., 3 bls. hanging; Keuffel & Esser Co., 3 cs. drawing; B. F. Drakenfeld & Co., 24 cs. printing.

Str. Columbia, Glasgow—Blauvelt-Wiley Paper Mfg. Company, 24 bls.; P. D. Winter, 6 bls.; Perry, Ryer & Co., 73 cs. printing.

Str. Columbia, Trieste—Equitable Trust Company, 4 cs. cigarette; J. P. Heffernan Paper Company, 23 bls.. printing; Order, 144 bls. wrapping and 12 cs. cigarette.

Str. Berengaria, Southampton—A. C. Dodman, Jr. & Co., 5 cs. hanging; Hoole Service Company, 23 cs.; Standard Products Corporation, 18 cs. cigarette; F. J. Emmerich & Co., 6 bls. hanging.

Str. President Adams, London—Order, 53 rolls wrapping.

Str. Ignazio Florio, Genoa—H. Behr & Co., 21 cs.

Str. Chicago, Havre—Whiting-Patterson Company, 6 cs.; Houbigant, Inc., 16 cs. cardboard; Japan Paper Company, 5 cs.; Gribout Freres, 9 cs.; Order, 2 cs. hanging.

Str. Zeeland, Hamburg—W. Hartman & Co., 23 rolls newsprint and 66 bls. and 542 rolls wrapping; Seaman Paper Company, 40 bls. and 51 rolls wrapping; Chemical National Bank, 390 rolls newsprint; C. G. Keferstein, 397 rolls hanging; Draeger Shipping Company, 764 rolls hanging; Safran & Co., 54 bls. wrapping; Steffen, Jones & Co., 13 bls. wrapping; New Jersey Worsted Mills, 4 cs.; J. W. Hampton, Jr. & Co., 19 cs. writing; Hanover National Bank, 235 rolls and 177 bls. wrapping; Order, 52 rolls newsprint; from Bremen—National City Bank, 485 rolls hanging; from Antwerp—A. C. Dodman, Jr. & Co., 12 cs. hanging; P. Puttmann, 12 cs. printing; Gevaert Company of America, 19 cs. photo; P. C. Zuhlke, 161 cs. printing; C. W. Williams & Co., 7 cs.; Order, 3 cs. hanging; from Southampton—Dupont Cellophane Company, 20 cs.; J. Manheimer, 66 bls. filter; Columbian Steamship Company, 5 cs.

Str. Esther Dollar, Genoa—Japan Paper Co., 40 cs.; from Marseilles—DeManduit Paper Corporation, 2 cs. cigarette.

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CURRENT IMPORTS—Continued

Str. Nordbo, Hamburg—American Shipping Company, 3 cs. writing.

Str. Vincent, Havre—Standard Products Corporation, 40 cs. cigarette.

Str. Westphalia, Hamburg—National City Bank, 5 cs.; P. H. Petry & Co., 6 cs.; F. J. Emmerich & Co., 6 bls. hanging; Millians Supply Company, 3 cs.; O. G. Hempstead & Sons, 7 cs. writing; Irving Bank-Columbia Trust Company, 594 rolls and 12 bls. wrapping; Maurice O'Meara Company, 20 bls. printing; Guaranty Trust Company, 6 rolls newsprint; Hanover National Bank, 330 rolls and 200 bls. wrapping; Keuffel & Esser Company, 40 cs. drawing; J. E. Linde Paper Company, 108 bls. printing; Rice & Fielding, 8 cs.; Order, 157 rolls newsprint.

Str. Yorck, Bremen—R. Reiner, 18 cs. pasteboard; Alpers & Mott, 38 cs. pasteboard; Buschmann Bros., 75 bls. strawboard; O. G. Hempstead & Sons, 4 cs.

Wood Pulp

Str. America, Bremen—H. Hollesen, 1,800 bls.; Order, 1,260 bls.

Str. Malmen, Husum—Pagel, Horton & Co., 1,500 bls. sulphite and 2,400 bls. sulphate; from Hornfors—Pagel, Horton & Co., 1,800 bls. sulphite.

Str. Seydlitz, Bremen—American Woodpulp Corporation, 75 bls.; Castle & Overton, 1,925 bls.; E. Naumberg & Co., 1,768 bls. sulphite; H. Hollesen, 2,595 bls.; North German Lloyd, 6 bls.

Str. Norefjord, Larvik—Kidder, Peabody Acceptance Corporation, 10,000 bls. ground wood; from Drammen—Bulkley, Dunton & Co., 2,500 bls. ground wood.

Str. Karmoy, Botwood, N. F.—Tidewater Paper Mills Company, 11,200 bls. ground wood.

Str. Zeeland, Hamburg—M. Gottesman & Co., 400 bls.; A. J. Bracher & Co., 148 bls.

Str. Yorck, Bremen—American Woodpulp Corporation, 225 bls.

Old Rope

Str. Maryland, London—Ellerman-Wilson Steamship Line, 15 coils.

Str. Columbia, Glasgow—Brown Bros. & Co., 28 bls.; International Acceptance Bank, 66 coils; H. S. Head, 112 coils.

Str. Columbia, Trieste—Equitable Trust Company, 61 bls.

Str. President Adams, London—Ellerman-Wilson Steamship Line, 6 coils.

Str. Chicago, Havre—Irving Bank-Columbia Trust Company, 66 bls.

Str. Vincent, Havre—E. J. Keller Company, 53 bls.

Str. Westphalia, Hamburg—Brown Bros. & Co., 64 coils and 9 bls.

INTERNATIONAL
Wire Works

"The Fourdrinier that took the
Ire out of Wire"

INTERNATIONAL WIRE WORKS
MENASHA, WISCONSIN

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Old Bagging

Str. Nortonian, Manchester—Mechanics & Metals National Bank, 75 bls.

Str. Chicago, Havre—Kidder, Peabody Acceptance Corporation, 249 bls.

Str. Union City, Liverpool—Equitable Trust Company, 200 bls.

Rags

Str. Maryland, London—Order, 51 bls.

Str. Nortonian, Manchester—Equitable Trust Company, 37 bls.; International Acceptance Bank, 112 bls.; Irving Bank-Columbia Trust Company, 47 bls.; E. W. Dutton, Inc., 38 bls.; Order, 6 bls.

Str. Seydlitz, Bremen—Kidder, Peabody Acceptance Corporation, 35 bls.

Str. Southwestern Miller, London—Order, 83 bls.

Str. Ignazio Florio, Algiers—Mechanics & Metals National Bank, 355 bls.; from Leghorn—Order, 277 bls.

Str. Nordbo, Hamburg—Coal & Iron National Bank, 52 bls.

Str. Union City, London—Kelly & Co., 188 bls.; from Liverpool—G. P. Lotterhand, 8 bls.; W. D. Lane & Co., 4 bls.

Str. Vincent, Dunkirk—Maurice O'Meara Company, 79 bls.

Str. Yorck, Bremen—Goldman, Sachs & Co., 60 bls.

Paper Stock

Str. Columbia, Glasgow—Order, 59 bls.

Str. Egypt Maru, Genoa—Guaranty Trust Company, 94 bls.

Str. Union City, Liverpool—Daniel M. Hicks, Inc., 48 bls.; Order, 12 bls.

Str. Vincent, Dunkirk—Daniel M. Hicks, Inc., 102 bls.

Str. Westphalia, Hamburg—Order, 108 bls.

Talc

Str. Ignazio Florio, Genoa—C. Mathieu, 850 bags; Italian Discount & Trust Company, 1,500 bags.

Str. Esther Dollar, Genoa—Bankers Trust Company, 300 bags.

Str. Egypt Maru, Genoa—L. Salomon & Bros., 200 bags; Order, 200 bags.

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Str. Bonheur, Buenos Aires—Bank of America, 834 bags.

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Heller & Merz Co., New York.
National Aniline & Chemical Co., New York.

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Ferguson, Hardy S., New York.
Hardy, George F., New York.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
Wallace & Co., Joseph H., New York and Montreal.

BEARINGS

Link-Belt Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BEATING ENGINES

Black-Clawson Co., Hamilton, O.
Dayton Beater & Hoist Co., Dayton, O.

BELT CONVEYORS

Link-Belt Co., Chicago, Ill.

BLEACH

Penn. Salt Mfg. Co., Philadelphia, Pa.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOX BOARDS

Standard Paper Co., Kalamazoo, Mich

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Black-Clawson Co., Hamilton, O.

BOND PAPER

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

BRASS WIRE CLOTH

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
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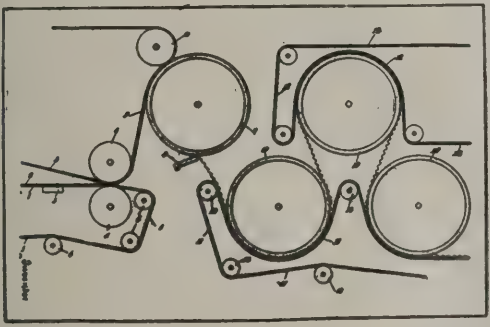

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Manitowoc Eng. Works, Manitowoc, Wis.

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DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

DISC EVAPORATORS

Manitowoc Eng. Works, Manitowoc, Wis.

DRYER FELTS

Fitchburg Duck Mills, Fitchburg, Mass.

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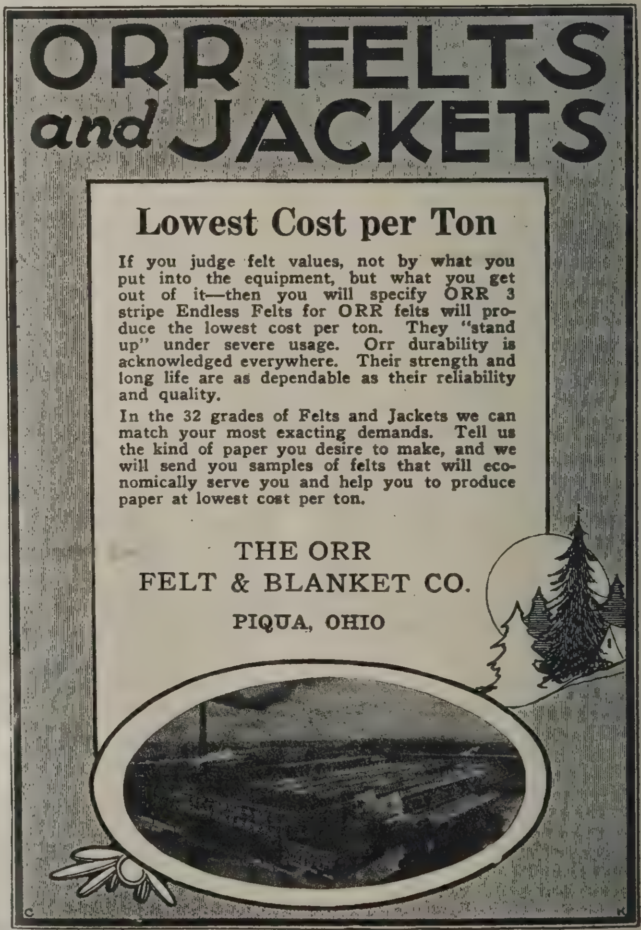

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Hardy, Geo. F., New York.

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Wallace & Co., Joseph H., New York and Montreal.

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Shuler & Benninghofen, Hamilton, O.

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PAPER MACHINE DRIVES

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Hanna Paper Corp., Watertown, N. Y.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.
Sherman Paper Co., Watertown, N. Y.
Standard Paper Co., Kalamazoo, Mich.
West Virginia Pulp & Paper Co., New York.

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American Woodpulp Corporation, New York.
Castle & Overton, New York.
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PLUGS

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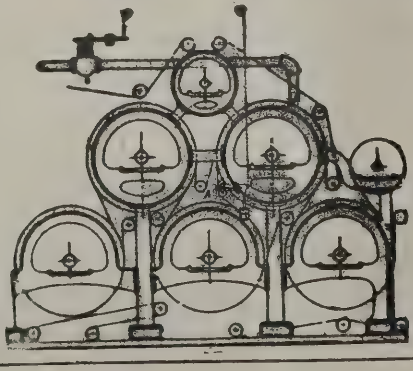

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Vol. XXXIII No. 11

PAPER

January 3, 1924

The Magazine of the Paper Industry

The Hopes and Fears of 1924

Written for PAPER

By **DR. HUGH P. BAKER**

Executive Secretary, American Paper and Pulp Association

NO industry can be considered unprosperous which for a year has enjoyed a production of almost if not quite record volume. No industry of the importance of the paper industry can fail to share in the prosperity if the country as a whole is enjoying good business. The paper industry, therefore, with a high record of production during 1923, and wth every prospect of good general business in the early months of 1924, is justified in looking forward with optimism to the coming year. Although no exact figures will be obtainable until the 1923 census is completed, the statistics compiled by the American Paper and Pulp and affiliated associations are such as to warrant the statement that the volume of paper production in 1923 was higher than that of 1922, and probably close to the high record established in 1920, the banner year in the history of the industry in the United States.

> **WHO KNOWS BETTER?**
>
> ***What man in the paper industry is better qualified to issue a statement on the coming year than Dr. Baker? His words may be accepted with confidence in their accuracy and as a foundation upon which to lay business plans for the year. He is not a foolish Pollyanna in his optimism, but he does view the year with faith in the fundamental soundness of American industry. He furthermore believes there is plenty of business for those who will get out and hustle for it.***

GOVERNMENTAL statistics on paper production show the total was 7,334,614 tons in 1920, and 7,017,800 tons in 1922. The statistics compiled by the American Paper and Pulp Association in 1923, estimating the December production in accord with seasonal conditions of other years, indicate that the 1923 production will be certainly over 7,100,00 tons, and possibly as high as 7,350,000 tons. The Federal Trade Commission discontinued collecting paper production statistics with May, 1923, and the work was then taken up by the American Paper and Pulp Association, and its affiliated associations. Estimating the total production for the months during which the Association was collecting these statistics, on the percentage of the total mill capacity reported to the Association, it is found that the year's production has passed the volume of business done in 1922, when the paper industry was rejoicing in returning prosperity after the slump of 1921.

As far as the leaders in the paper industry can judge, there is no reason to doubt that the first months of the coming year will see generally good business. In this good business the paper manufacturer may expect to share, and an incerasing demand may be anticipated after the first of the year, both to replenish stock and to meet the current demand.

There is no doubt that the paper manufacturer in the year just closed experienced sharper competition than was felt in 1922, and the return from sales may to this extent have been smaller than in the years of business boom. No industry, however, as said before, can be suffering severely when its volume approaches record figures. The coming year will bring its problems to the paper industry, as to all other industries. A political year is one whose trend is difficult to forecast. The paper industry together with other basic industries, has felt the stress of foreign competition to an increasing extent, as the foreign producers have returned toward normal production. The low labor costs abroad, the tendency of the Germanic countries to sell their products at bankrupt sale prices, have given the domestic manufacturers the problem of how to continue to maintain an American wage scale, without the loss of business to the cheap foreign made paper. The industry, however, is determined to fight abuses in the import of foreign papers, through undervaluation, dumping or improper classification, and to do all that is possible to retain the domestic markets.

THE problem of the raw material reserves of the industry is another question that is engaging the attention of the paper makers, and in an effort to solve the problem, especial attention has been paid to the development of a national forestry policy which will enable the paper manufacturer to grow trees profitably, as forest crops from which his raw material will be derived.

In general, the state of the paper industry at the opening of another year may be considered satisfactory. Basic conditions seem to be sound, the industry itself is in a good position to go forward after the inventory period is ended, and the mill stocks on hand are about normal, so that any increase in demand will mean an increased production to meet the requirements of the trade.

Gustave Lindenmeyr Dies

Gustave Lindenmeyr, head of the paper firm of Henry Lindenmeyr & Son, 32 Bleecker Street, and a director of the Commonwealth Bank, died December 27, 1923, at Pasadena, Cal., after a short illness.

He was 64 and lived at 11 West Eighty-first Street. He was born in New York and had been president of the paper company for more than thirty years. His wife, a brother and three sisters survive him. The body is expected to arrive here on Tuesday.

Multiple Effect Evaporation

Basic Information Bearing on Evaporator Design and Operation—Study of the Problem of Evaporating Waste Sulphite Liquor

THE functions of a multiple effect evaporator such as is used in some of the operations of a soda pulp mill are described and elucidated by Hugh K. Moore, of the Brown Company, in a communication to *Chemical and Metallurgical Engineering* for December 17, 1923. He takes up the principle involved and illustrates the method of attacking an evaporation problem by giving a specific example —xiz., evaporation of waste sulphite liquor.

What are the fundamental considerations in evaporation? Here are at least the more important:

1. Temperature spread.
2. Individual temperature differences (including rise in the boiling point).
3. Static head of liquor over heating surfaces.
4. Viscosity of liquor at different concentrations and at different temperatures.
5. Velocity of liquor over heating surfaces.
6. Specific gravity.
7. Boiling point.
8. Prevention of corrosion.
9. Temperature level and heat conductivity.
10. Sequence in evaporation.
11. Elimination of condensation.
12. Elimination of entrained air and non-condensable gases.
13. Elimination of steam from liquor so as to avoid foaming.
14. Keeping conducting surfaces wet.
15. Keeping surfaces free from incrusting matter.
16. Mechanical construction.
17. Number of effects.

Temperature Spread

Temperature spread in an evaporator is the difference in temperature of the initial steam and the final steam going to the condenser. In designing an evaporation plant the chemical engineer is often called upon to design an evaporator that will fit in with existing conditions in the mill—viz., the condensing water may be limited in amount, or it may rise to a high temperature during certain seasons of the year, or the steam available may be at low pressure, or there may be a limit to which the substance can be heated or a limit to which the liquor may be cooled, and there may be many other considerations which will readily occur to you all.

If the condenser water goes to 85 deg. F. in the summer, you have limited the temperature of the steam going to the last effect to 25 deg. above the limit if the condenser water is 60 deg., other things being equal. (This is a general statement, however, for there may be limitations on the vacuum pump which may modify this to a certain extent.) If the amount of condensing water is limited, you may have to heat it hotter than you would like and a temperature limit is again set below which you cannot go. On the other hand, you may have live steam or exhaust steam, and so you may be limited on this end also.

How It Works Out

Thus assume two cases, one with initial steam at 100 lb. gage pressure, and steam to the condenser at 2 in. absolute pressure, and the other having the initial steam at 5 lb. gage pressure, with vapor going to the condenser at 6 in. absolute pressure. In the first case there is a possible temperature spread of 228 deg. F., while in the second case the spread is only 88 deg. F. It will be seen from the above that the engineer may be seriously handicapped from the start. For in the first case he could use large temperature differences between effects, and a small evaporator or more effects with a small temperature difference.

In the latter case he must confine himself to a very few effects with a large temperature difference, or if he increases the number of effects, the temperature difference between them will have to be so exceedingly small that he will require an evaporator of enormous size. This must be so self-evident that no further attention will be given this phase of the subject and we shall pass on to that phase of the subject in which the allowed temperature spread may be the same. Under these conditions the greatest economy will be in that evaporator which utilizes the least part of this allowed temperature spread, other factors of course assumed to be equal.

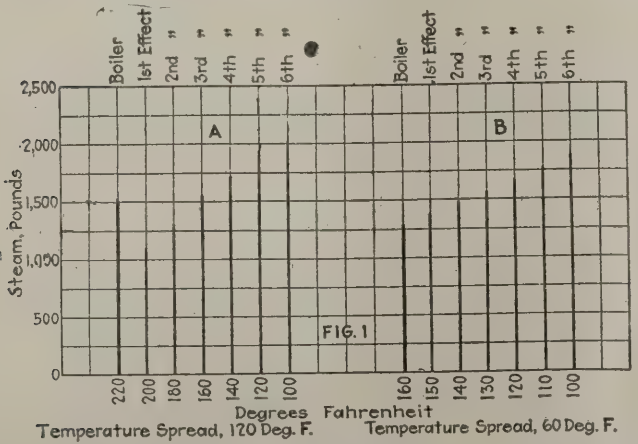

FIG. 1

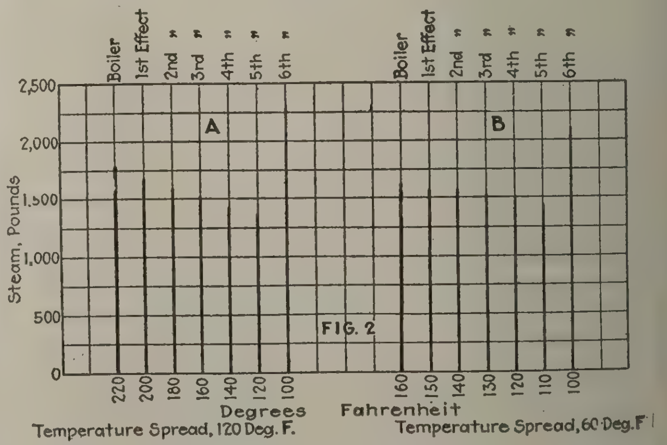

FIG. 2

Figs. 1 and 2—Showing Effect of Decreasing Temperature Spread With Uniform Temperature Differences

To illustrate this point two charts, Figs. 1 and 2, are printed herewith which are calculated on a theoretical basis, all factors considered equal with the exception of the temperature spread, which is, of course, governed by the individual temperature difference. In these charts loss by radiation will not be taken into consideration; first, because this factor is largely within individual control, and, second, because this is governed by too many factors to be considered in a general discussion of the principles of evaporation, in which size, surrounding temperatures and the individual temperatures of each effect, etc., are not considered; though, of course, it will be readily seen that the lower the average temperatures the lower is the heat lost from this cause. What we wish to show is that if by some means or other we can get a higher heat conductivity per square foot of heating surface and thus lower the individual temperature differences and thus the total temperature spread, we can with the same size of evaporator, other things being equal, obtain a greater economy in that evaporator which has the lowest temperature spread. It should also be stated that as in this discussion we are to consider several variables and that as inasmuch as the only way to see the effect of any one variable is to keep all the others constant, unless specially mentioned it must be understood that the above method will be adhered to.

Let us assume as a basis 1,000 lb. of solids the specific heat of which is 0.5, in a water solution such that the percentage of solids will be 8.54 per cent, that the temperature of the liquor is 160 deg. F., the number of effects six, the temperature spread allowed 120 deg., with the steam going to the condenser at 100 deg., and concentration to 50 per cent. Rise in boiling point or radiation will not be taken into consideration and as tabular data for calculation of the charts would consume much space, only those absolutely essential will be included. In Fig. 1 is shown (*A*), forward or parallel flow evaporation, using a temperature difference of 20 deg. F., (*B*), the same with a temperature of 10 deg. F. In Fig. 2 is shown (*A*), backward or, counter-current flow with a temperature difference of 20 deg. F., and (*B*), the same with a temperature difference of 10 deg. F.

A study of these charts will show that by decreasing the temperature spread from 120 to 60 deg. we have raised the ratio of water evaporated to steam used from 6.18 to 7.67 in the case of parallel evaporation, and 5.49 to 6.02 in counter-current evaporation. It will also be noticed that the steam to the condenser is decreased in both cases.

In the above theoretical examples we have assumed a uniform temperature difference of 20 deg. F. in *A*, Fig. 1 and Fig. 2, and a uniform temperature difference of 10 deg. F. in *B*, Fig. 1 and Fig. 2. Such uniform temperature differences rarely, if ever, in actual practice and the charts are submitted only to show a principle which every engineer must take into consideration, if he is to design an evaporator which will operate at the greatest efficiency.

Individual Temperature Differences

In order to reduce the total temperature spread, it is self-evident that we must reduce the individual temperature differences between the heating on one side and the liquor undergoing evaporation on the other side. The first natural impulse is to say this should be done by increasing the heating surface. Unfortunately, the solution does not lie with so simple a remedy, for by doing so you increase the first cost, increase the cost of maintenance and repairs, and increase radiation losses and fixed charges, to say nothing of the chances of increasing leaks and the cost of labor. We naturally have no other course

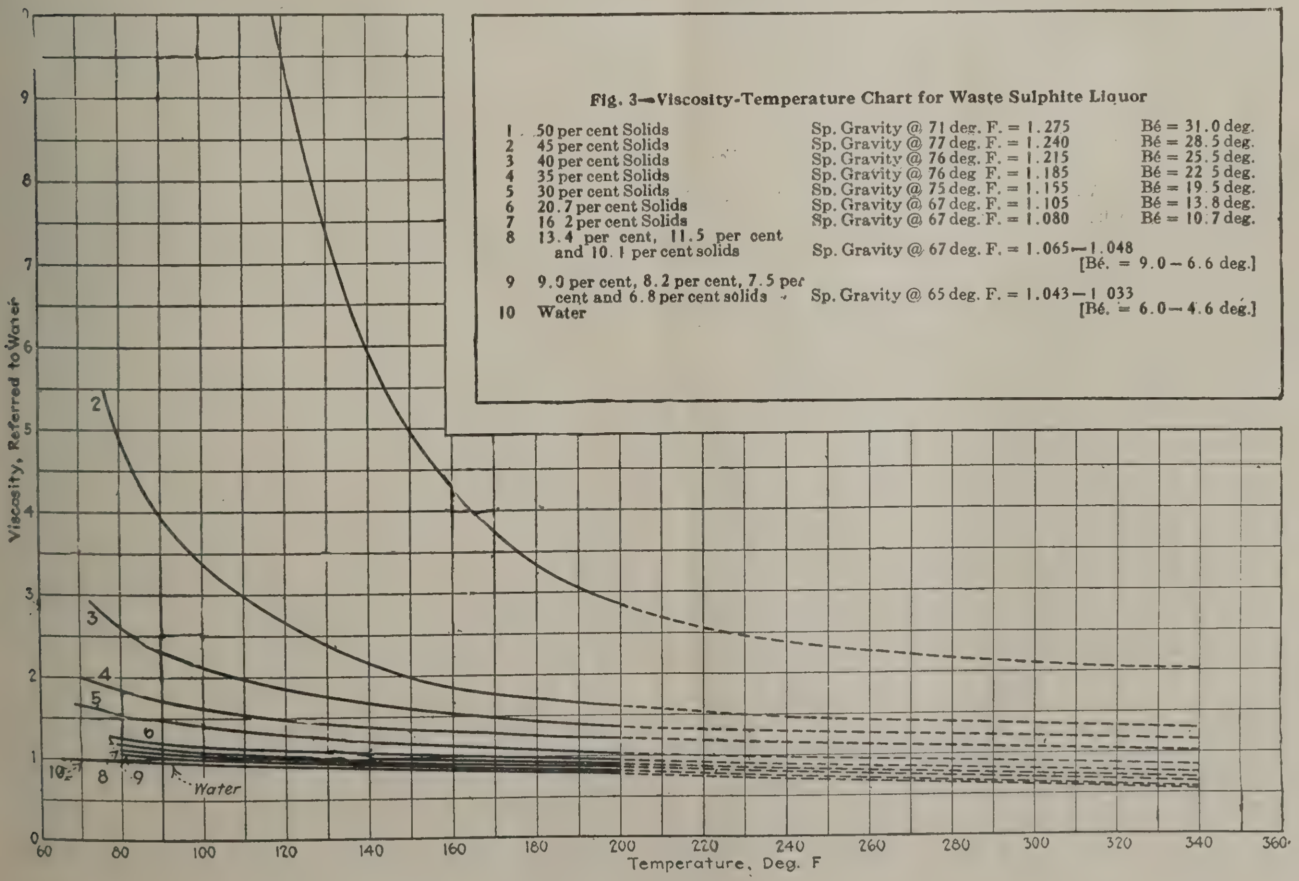

Fig. 3—Viscosity-Temperature Chart for Waste Sulphite Liquor

1	50 per cent Solids	Sp. Gravity @ 71 deg. F. = 1.275	Bé = 31.0 deg.
2	45 per cent Solids	Sp. Gravity @ 77 deg. F. = 1.240	Bé = 28.5 deg.
3	40 per cent Solids	Sp. Gravity @ 76 deg. F. = 1.215	Bé = 25.5 deg.
4	35 per cent Solids	Sp. Gravity @ 76 deg F. = 1.185	Bé = 22 5 deg.
5	30 per cent Solids	Sp. Gravity @ 75 deg. F. = 1.155	Bé = 19.5 deg.
6	20.7 per cent Solids	Sp. Gravity @ 67 deg. F. = 1.105	Bé = 13.8 deg.
7	16 2 per cent Solids	Sp. Gravity @ 67 deg. F. = 1.080	Bé = 10.7 deg.
8	13.4 per cent, 11.5 per cent and 10.1 per cent solids	Sp. Gravity @ 67 deg. F. = 1.065—1.048	[Bé. = 9.0—6.6 deg.]
9	9.0 per cent, 8.2 per cent, 7.5 per cent and 6.8 per cent solids	Sp. Gravity @ 65 deg. F. = 1.043—1 033	[Bé. = 6.0—4.6 deg.]
10	Water		

when we are dealing with large capacities in comparsion with small capacities, but what we are primarily interested in is the greatest efficiency at the minimum cost.

How to Eliminate the Static Head

The first of all requisites is to get rid of static head. In evaporators of small capacity this subject may not assume great importance, though even there it may be appreciable. Let us assume that the pressure in the last effect is 2 in. absolute or 28 in. vacuum.

Let us assume, for instance, that in the last effect we have a static pressure equivalent to 1 in. of mercury over the lowest part of the heating surface. This static head amounts to 1.13 ft. of water and corresponds to a difference of 14 deg. F. in temperature, the difference between 2 in. absolute pressure and 3 in. absolute pressure. It will readily be seen that if only deg. F. difference of exchange is used, under these conditions hardly any heat at all will be transmitted through the lower heating surface, because the static head of 1.13 ft. of water raises the boiling point 14 deg., while we have only 10 deg. leeway and the only heat transmitted is that used in heating the liquor. In fact, if we stick to 10 deg. difference of exchange we find that only 0.79 ft. of water will correspond to a static head of 10 deg. In most solutions, however, we have a liquor of a much higher specific gravity than water. Let us assume a specific gravity of 1.3; then we find that 0.61 ft. of this solution will correspond to 10 deg. of temperature difference. Now if this difference of 10 deg. is to be maintained, we find that the depth of the bottom heating surface can be only 7.3 in. below the surface of the liquor, with the bottom heating surface hardly functioning at all. If large capacities are to be obtained, the only way of obtaining such is to increase the length and breadth, which means costly construction subject to mechanical weaknesses, with an enormous increase of radiating surface, or we may increase the heating surface by increasing the number of units, a procedure which is in its effect the same as in the first alternative.

Now let us suppose that the capacity has to be so large as to require a difference of 12 ft. between the bottom and top heating surface, and let us assume the liquor has a specific gravity of 1.3; we find this is equivalent to 15.6 ft. of water, or 13.8 in. of mercury, which corresponds to a temperature difference at the bottom of 81 deg. F.; the bottom heating surface, even with this enormous difference of exchange, scarcely functions in evaporation, though it may heat the circulating liquor, and we find the static head has made in this effect alone a difference of more than eight effects. Again, this temperature difference of 81 deg. F. corresponds to 15.8 absolute pressure, inas much as we have assumed an absolute steam pressure to the condenser of 2 in. absolute (28 in. vacuum, barometer 30 in.) which corresponds to a temperature of 100 deg. F. Now let us again, on the preceding effect, assume a static head of 12 ft. with a specific gravity of 1.25. We then have an absolute pressure of 29.1 in. (0.9 in. vacuum, barometer 30 in.), or a boiling point at the bottom heating surface of 211 deg. F., and we have lost 30 deg. F., corresponding to three effects of 10 deg. temperature difference each, and yet only two effects have been used. These illustrations show that in evaporation a large unit may be less efficient than a small unit, and thus quite different from most operations where the reverse is more apt to be true. Hence it will be seen that the elimination of all static head is desirable as one of the positive means of reducing individual temperature differences and consequently the total temperature spread.

In the above charts we have assumed a constant temperature difference, but such rarely occurs in practice—first, because most liquids tend to increase in viscosity, and second, because the amounts of heat transferred in different effects vary. The more viscous the liquor the less is its conductivity, as a rule. The reason for this is that most liquids are poor conductors of heat and that most of the heating of such is accomplished by heating the individual molecules. The greater the number of molecules coming in contact with the heated surface the greater is the heat transferred. The more viscous the solution the less is the transfer of heat, for the number of molecules coming in contact with the heated surface in a given time diminishes with increasing viscosity. Most solutions, however, tend to become less viscous as their temperatures are increased; from this fact it would appear that an evaporative process should be conducted in such a way as to neutralize the tendency to great viscosity due to concentration by an increased temperature, unless other consideration make it inadvisable. To illustrate how the vocosity may change with temperature, Fig. 3 shows a viscosity-temperature chart of waste sulphite.

The values are obtained from a Stormer viscosimeter. It will be noted from this chart that the viscosity of waste sulphite liquor up to 29 per cent varies little from that of water, and that an increase of temperature decreases the viscosity only slightly. When, however, we come to deal with a 50 per cent waste sulphite liquor, we find that the viscosity is many times greater than either water or sulphite liquor of concentrations less than 30 per cent, while at high temperatures it may be only four times that of these other liquids. The logical course of evaporation of this liquor, provided we do not have other interfering considerations, would be to have the concentrated liquor emerge from the evaporator which is at the highest temperature.

Velocity Over Heated Surfaces

It is a well-known fact that with increase in velocity over the heated surface we get an increase in heat transfer. The laboratory of the Brown Co. has already made a contribution on this subject. (G. A. Richter, *Trans.* Amer. Inst. Chem. Eng., 1919., vol. 12, Part II, pp. 147-149.) We must consider this factor when we come to evaporator design. Especially is this true when the liquor is so viscous that the only way of getting a high heat conductivity is to get a high velocity over the heated surfaces.

Specific Gravity—The same considerations which we have taken into account in relation to viscosity and velocity apply in many cases to specific gravity. Thus a highly attenuated gas, such as steam in the last effect of an evaporator (vacuum end), will move a light, mobile body over the heated surfaces much faster than a heavy viscous body, and as before stated, the greater the velocity the greater the heat conductivity.

Boiling Point—The individual temperature differences may be greatly affected by the rise in the boiling point. A 50 per cent solution containing a substance of large molecular weight may not have as high a boiling point as a 25 per cent solution containing a substance of small molecular weight. Furthermore the boiling point may be influenced by the kind o solution. If it is colloidal, the boiling point may not rise to the same extent as would be the case if we had a true solution. The knowledge of this is important, for this point alone may determine the nature of the evaporating process.

In order to avoid repetition, the effect of the rise in the boiling point on the process of evaporation will be discussed in connection with the prevention of corrosion of tubes.

Certain liquors have an acid radical which is so lightly held that long-time contact with heated surfaces may liberate the radical with the tendency to corrode the tubes. In such cases the difficulty may be eliminated either by so conducting operations that the time element may be reduced to a fraction of a second, or a sufficient amount of alkali may be added to anticipate this dissociation. The deciding factors will be cost and quality of resulting product. We have two alternatives before us: we may feed each effect of a multiple effect evaporator from a common source so that weak liquor enters each evaporator and we may take a concentrated solution from each evaporator—that is, the liquor goes through each effect in parallel instead of going through them in series—viz., from one effect to another—or we may pass the liquor through all, neutralizing it enough in one operation or in proper stages. If the rise in the boiling point is large the first method may so increase the individual temperature difference, and thus increase the total temperature spread, as seriously to detract from the efficiency. It furthermore may defeat its own ends by raising the temperature in the first effects enough to neutralize the advantage sought. If the rise in the boiling point is low, we may adopt this method without serious loss in efficiency. If the liquor is of such a nature that neutralization will be detrimental, the parallel flow method may offer a way out of this difficulty.

EXPOSITION PLANS BOOMING

WITH every mail bringing in letters indicating that the Second Paper Industries Exposition, to be held at the Grand Central Palace, New York, the Week of April 7th, 1924 will be far bigger and better than the 1923 Exposition. The first notices sent to prospective exhibitors have brought in a response that was surprising in view of the fact that the notices were sent out shortly before the busy holiday season. Paper manufacturing companies that did not exhibit last year are engaging space, and some of those that did exhibit a year ago are asking for the reservation of more space than they used at the first exposition. The replies from machinery and supply companies are especially encouraging to the management, while the returns from the container group have been such as to justify the establishment of a special section for the companies making bags, boxes, cans and special containers.

The educational side of the Exposition will be particularly worthy of note, as plans are being made for the installation of even more exhibits of this type than were included in the 1923 Exposition. Features and programs of special interest to printers, lithographers, and other large users of paper will be featured during the week, and the special features will be such as to prove of great interest to the ultimate consumer which was largely represented in the attendance a year ago.

Work is now under way toward the arrangement of special days for particular groups, as was done last year when there was a Clean Food Day, a day for the printers and other special programs. There will be some special program features every day of Exposition Week.

The Technical Association of Paper Industry will repeat its holding of a special program at the Exposition, as the association's annual convention is held during the week, and features of special interest to the paper mill superintendents will form part of the week's program, even if it is not possible to hold a special superintendents' program the latter part of the week.

FOLLOW NEPCO MILLS IN EXTENSION WORK

Success Achieved at Port Edwards and Nekoosa Mills of the Nekoosa Edwards Paper Co., Port Edwards, Wisconsin Induces Other Concerns to Introduce Courses

THE success achieved in the vocational educational work conducted through the University Extension Division of the University of Wisconsin during the past two years by the Nekoosa Edwards Paper Company is inspiring other paper mills in both the Wisconsin and Fox River Valleys to introduce similar work in their mills for their employees.

Employees of the Wausau Sulphate Fibre Company of Mosinee, Wisconsin, with the co-operation of company officials, have taken up courses similar to those now being given at Nekoosa and Port Edwards, and other paper mill concerns along the Wisconsin River may inaugurate the work at an early date.

First Class at Mosinee

At Mosinee the first class was held Thursday evening December 13th, thirty of the mill employees attending the initial meeting of a class in shop drawing and this group will meet each week to report and review the studies which are sent out by the University.

Norman Stone of Wausau is in charge of this and other classes, acting as local director. The lessons are all under supervision of the university and reports are made by each student direct. Another group for the study of electricity met Monday at Mosinee, and still another will take up "Paper Mill Work" on Wednesday the 19th.

Marshall C. Graff, of the University of Wisconsin Extension Division, has been instrumental in gaining the interest of the paper mill concerns all along the valley, and he says he believes other companies will back the movement, which has proved so helpful to the companies and to the men in the paper mills.

Fox Valley Mills Interested

The success of the paper mill study courses has attracted the attention of the paper concerns in the Fox River Valley also, and delegations were sent to Nekoosa the past week to watch the classes at work, and Judson G. Rosebush of Appleton, largely interested in the Appleton Paper Mills, made a personal visit to investibate and is planning to introduce similar courses in the Fox River Valley.

NEW REORGANIZATION OF RIORDON

Bondolders Putting Up More Money To Run Business

THE Reorganization Managers, who have been endeavoring to develop a reorganization of Riordon Company on behalf of the Shareholder interests in the company, have formally stated that this plan has been abandoned.

In part, their statement reads:

"The Plan of September 7, 1923, was formulated for the purpose of giving to the shareholders and unsecured creditors of the company an opportunity, by contributing substantially to the new money required, to participate correspondingly in the ultimate profits of the enterprise. The lack of any general response on the part of the shareholders and creditors makes it evident that they are not prepared to assume the burden of financing the reorganization."

Concurrent with this announcement comes the statement that the Bondholders, who have had much to do with the operation of the pulp and lumber mills of the company and the sale of output ever since the mills were reopened in 1921, have undertaken to formulate a new plan for the reorganization of the property.

Since 1921, the Bondholders have raised and put into the enterprise a very substantial amount of new money.

It is stated by those now in control that there will be no interruption to production and shipments of Bleached Sulphite at Kipawa and Hawkesbury Pulp Mills, which are continuing to be operated by Riordon Pulp Corporation, Limited, under lease from Riordon Company, as they have been for many months past, the output being marketed exclusively by Riordon Sales Corporation, Limited, as in the past.

United States Paper and Pulp Statistics

Paper Production for 1923†

	No. MILLS	*TONS*	*No. MILLS*	*TONS*	*No. MILLS*	*TONS*
GRADES	*October*	1923	*Sept.*	1923	*August*	1923
Newsprint	67	122,073	67	110,209	67	132,604
Book	63	52,480	64	51,205	61	59,744
Paperboard	112	113,624	112	96,477	114	117,932
Wrapping	87	52,458	91	49,678	89	50,563
Bag	30	9,609	29	6,230	28	8,720
Fine	86	25,312	86	23,395	86	22,859
Tissue	50	11,052	48	9,457	47	9,192
Hanging	10	6,745	10	5,513	10	5,284
Felts and Buildings	16	13,142	16	12,073	16	11,320
Other Grades	61	16,012	65	14,469	65	15,288
TOTAL	——	422,507	——	378,706	——	433,506

Imports of Pulp Wood and Wood Pulp for 1922-1923

(Bureau of Foreign & Domestic Commerce)

Pulp Wood—Cords

	Oct.	*Sept.*	*Aug.*	*July*	*June*	*May*	*April*	*March*	*Feb.*	*Jan.*
Rough	29,341	40,168	60,012	73,564	30,528	13,004	22,581	29,578	27,311	34,475
Peeled	71,399	84,349	83,128	92,651	89,793	76,310	68,612	52,748	64,013	82,712
Rossed	14,600	8,283	13,454	18,240	11,337	12,136	7,525	5,046	4,413	7,203
TOTAL	115,340	132,800	156,594	184,455	131,658	101,450	98,718	87,372	95,737	124.390

Wood Pulp—Tons

By Countries for Sept. 1923

		Chemical	
Country	Mechanical	Bleached	Unbleached
Canada	20,288	9,466	23,565
Finland	336	420	6,244
Germany	209	1,055	3,296
Norway	4,175	4,179	3,649
Sweden	530	5,766	26,062
Others	.....	208	255

Totals for 1923

		Chemical	
	Mechanical	Bleached	Unbleached
September	25,538	21,094	63,071
August	25,155	18,770	81,290
July	17,376	26,236	53,982
June	18,806	27,177	73,580
May	17,368	25,967	46,964
April	17,186	23,031	47,369

Imports of Printing and Wrapping Paper—Pounds

(Bureau of Foreign & Domestic Commerce)

By Countries for Sept. 1923

Countries	News Print	Book	Wrapping
Canada	176,912,294	240	86,400
Finland	5,318,195	....	23,540
Germany	10,002,847	62,239	1,351,049
Norway	8,550,124	....	123,701
Sweden	17,973,905	....	3,852,165
Others	1,510,474	32,671	322,799

Totals for 1923

	News Print	Book	Wrapping
September	220,267,839	95,150	5,759,654
August	231,818,743	99,676	7,952,650
July	206,260,451	64,720	9,147,273
June	211,059,152	78,426	6,986,477
May	230,285,232	89,876	9,050,412
April	223,424,387	91,906	7,491,901

Values of Paper Imports and Exports

(Bureau of Foreign & Domestic Commerce)

	Imports 1923			**1922**
Grades	October	September	August	October
Newsprint	$8,580,090	$8,288,882	$8,545,200	$8,336,705
Book Paper	107,214	108,480	96,476	83,117
Board	198,282	255,528	334,333	196,139
Wrapping	430,757	285,065	347,886	403,600
Fine	52,508	54,405	48,164	70,281
Tissue	54,429	74,478	64,529	444,807
Hanging	40,889	45,233	30,531	25,282
All other grades	662,027	552,708	673,312	311,788
Total Imports	$10,126,196	$9,664,829	$10,140,431	$9,871,719

	Exports 1923			**1922**
Grades	October	September	August	October
Newsprint	$109,884	$112,953	$109,275	$108,848
Book Paper	257,459	262,095	316,589	193,016
Paper Board	217,936	236,015	301,973	203,008
Wrapping	163,124	189,417	195,489	198,658
Bag	93,910	72,682	66,772	104,549
Fine	122,027	148,519	164,763	14,062
Tissue	158,084	175,249	167,710	173,469
Hanging	52,030	29,200	35,301	36,829
All other grades	944,387	788,704	814,968	412,494
Total Exports	$2,118,884	$2,014,834	$2,172,840	$1,444,883

Canadian Exports of Pulp and Paper

Canadian Pulp & Paper Association

	September, 1923			*October, 1923*		
	Paper	Pulp	Total	Paper	Pulp	Total
United States	$7,072,584	$2,954,723	$10,027,307	$7,491,691	$3,586,828	$11,078,519
United Kingdom	190,229	1,095,288	1,285,517	143,129	351,711	494,840
All Others	301,438	101,607	403,045	536,665	179,928	716,593
TOTAL	$7,564,251	$4,151,618	$11,715,869	$8,171,485	$4,118,467	$12,289,952

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†Figures collected by American Paper and Pulp Association in cooperation with its affiliated associations and the Newsprint Service Bureau

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

TO SAFEGUARD CHRISTMAS TREES

Forest Men Fear Christmas Tree Trade Will Spread Disease

A PUBLIC hearing to consider restrictions on the importation of Christmas trees and greens from Canada to guard against the possible entry with such products of the gipsy moth will be held by the Federal Horticultural Board, U. S. Department of Agriculture, at Washington, January 4th. In its notice of the hearing the Board declared:

"The gipsy moth is now known to occur in northern Vermont near the Canadian border and may, therefore, be shortly expected to invade Canada if it has not already established footholds across the line. It therefore seems necessary to make provision for the enforcement of such restrictions on the entry of Christmas trees and greens from Canada as may be deemed necessary to safeguard such entry."

As related to this hearing, a conference was held at the same time and place to consider further restrictions on the movement out of New England of Christmas trees and greens on account of the potential risk of spreading the gipsy moth which must attach to such movement. In recognition of such risk, embargoes against Christmas trees and greens from New England were issued by New York, Pennsylvania, Maryland, Virginia, Ohio, Michigan, Illinois and Wisconsin, in an effort to ward off the entrance of the gipsy moth during the 1923 holiday season.

In the case of Illinois and Wisconsin, the embargoes applied only to the area designated as infested by the gipsy moth. Other embargoes applied to all New England but were aimed particularly at trees and greens collected in the wild, i. e., not nursery grown. New York modified its embargo to permit movement from New England of Christmas trees and greens certified by the inspectors of the Department of Agriculture, on the condition that such certification should accompany all shipments whether from within or outside of the teritory designated at infested.

The hearing before the Horticultural Board brings to the forefront the whole problem of the Christmas tree industry in the Northeast. That a problem exists is recognized by the State Departments and the Forestry organizations in this region, whose offices have been abundantly circularized with protests against what is claimed to be a waste of materials greater than exists in any other industry concerned in the use of forest products. It is felt that the discussions of the Board may localize the problem by prohibiting interstate shipments, thereby obligating the individual states to solve their own problem. Thus may the loathsome pest known as the gipsy moth receive to his credit a single white mark against an otherwise very black record.

Don't overlook this department in scanning PAPER. Mr. Simmons, one of the ablest men in forestry in the land, is everlastingly fighting for the future of the paper industry.

With New York, Pennsylvania, New Jersey and Maryland getting millions of Christmas trees from New England and Canada, in addition to the quantities annually cut and wasted within their own borders, the January Christmas tree fires (which witness the destruction of the surplus supply) become almost as great a stench in the nostrils of the sensitive citizen as do the real forest fires of spring and fall.

The Christmas tree industry involves many perplexing problems, including the rights of the private timberland owner, and the income of a great body of farmers who feel that "a little thinning out will help the woodlot," and that a crop of Christmas trees harvested during the lifetime of the present tiller of the soil is equivalent to the proverbial "bird in the hand."

The Forestry Association in New York has been requested by a group of its members to consider at the annual meeting to be held Feb. 5th, the following points in relation to the Christmas tree industry: (1) Is it feasible to attempt legislation with a view to regulation of the cut? (2) Should the species that may be taken for the Christmas trade be limited to balsam only, in an effort to preserve the better lumber trees such as spruce, hemlock and pine? (3) Should Christmas trees be nursery grown, and if so, should the State Department be given an appropriation for the purpose of raising the trees in its own nurseries?

There appears to be no effort, organized or individual, to obtain abandonment of the age-old custom of erecting the Yule tree in the home at Christmas time. But there are lumbermen and pulp manufacturers among the number of citizens who believe that the waste of young coniferous trees in the Christmas tree industry is practicaly offsetting the combined efforts in reforestation in many of our states.

Record Ballot on Forest Policy

That the nation is taking a constantly growing interest in forestry is shown by the manner in which the United States Chamber of Commerce referendum on a forestry policy received attention from the Chamber's membership. The number of ballots cast on the referendum has only been exceeded four times in the chamber's history, and not at all since 1917. Three states voted 100 percent of the membership, twenty-two states voted over 66 percent of the membership and only seven states returned a vote of less than 50 percent of their membership in the chamber.

PORTER IS HUSTLING

Report of Three Years of Activity Reveals His as Doing Things

O. M. PORTER, Secretary of the Woodlands Section of the American Paper and Pulp Association, making a report of three years of activity of the Section, gives a list of important projects which the Section has undertaken, and makes some important recommendations as to future activities for the benefit of the men in the Woodlands end of the paper industry.

The purposes of the Section are:

1. To increase the efficiency of the woods operations of the pulp and paper industry.
2. To encourage the practice of forestry on timberland holdings.
3. To provide a medium for the gathering and dissemination of information which will promote the permanency of the woods operations of the pulp and paper industry.

Following is a partial list, by general subjects of the information which the Woodlands Section has developed for its members:

A—Forest Operations

1. Economy of four feet vs. long log operation.
2. Tugs and booms for open water towing.
3. Methods of sorting four feet pulpwood.
4. Brush disposal.
5. Volume losses from barking.
6. Driving birch and poplar pulp wood.
7. Peeling practices for Southern pine.
8. Shrinkage in cutting up sixteen feet logs.
9. Shrinkage on drives and in storage.

B—Forest Protection

1. The spruce budworm; identification and methods of control.
2. Timberland Insurance.
3. Fundamental forest education.

C—Forest Investigation

1. Forest Investigations; What, Where and by Whom.
2. Number of sticks per cord.
3. Pulpwood decay.
4. Cubic feet space of piled pulpwood.
5. Adirondack spruce increment.
6. Reforestation; methods, costs and yields.
7. Forestry for the paper industry.

D—Statistics

1. Quarterly pulpwood reports.
2. Imports of pulpwood and woodpulp.

The Section feels that the paper industry could well afford to finance its activities as a clearing house for information on woods operations, especially along the following lines, which the Section's limited funds now enable it to handle only partially, if at all:

1. Forest Protection

Fire, insects and fungi.

Methods and costs, by regions and types.

2. Forest Management

Practical working plans.

3. Forest Taxation

Legislative relief.

4. Reforestation

Methods, costs and yields.

5. Woods Operation Costs

6. Logging and Driving Operations

New methods and machinery.

7. Special Investigations

Pulpwood decay, pulpwood supplies, etc.

"The paper industry must pay more attention to its wood operations," says Mr. Porter in summarizing the Section's work. "The Woodlands Section can serve the industry in keeping it informed, in preventing duplication in its woods experiments, and in correlating the data collected by all the several agencies now interested in woods operations and woods investigations."

Moss is Important

A study of the use of moss in forest nurseries by Dr. A. Cieslar of Mariabrom, Austria, has been sent to members of the Woodlands Section of the American Paper and Pulp Association by Secretary O. M. Porter. Dr. Cieslar finds that plants taken from beds which are not cultivated, covered or watered are in every sense the poorest. The best plants are those taken from beds where the interstices are covered with moss. The cultivation of the beds is more important than watering. A covering with moss 5 cm. deep and not more, favors growth as much as watering, cultivating and weeding combined. Percentages of volume production of seedlings by various methods of treatment are as follows: Watering alone, 15 percent; cultivation alone, 39 percent; moss cover alone, 45 percent; moss covering kept moist, 64 percent.

Canadian Foresters Agitated

Canadian foresters are greatly agitated over reports that the University of Michigan has been making advances to secure Dr. Clifton D. Howe, head of the forestry department of Toronto University as head of the forestry department of the Ann Arbor institution. "They would have to hold out to me a tempting inducement before I would think of giving up my work here," said Dr. Howe at Toronto; and one comment from the Canadian foresters is to the effect that it would be a "national calamity" to allow him to return to the States.

Vinnedge Gives Address

The annual address by a prominent lumberman before the Yale Forest School was given this year by R. W. Vinnedge, of North Bend, Wash., vice president of the National Lumber Manufacturers Association, his subject being "The Genesis of the Northwest Lumber Industry and Its Development." The annual lumberman's address is provided for by a special endowment by the lumber industry to the Yale school.

Depletion and Growth In The Western States

SOME important figures on reproduction of timber in the far west, and the amount of timber now available have been prepared for the United States Senate Reforestation Committee by the Western Forestry and Conservation Association. According to the Association, the present annual depletion of merchantable timber by cutting and fire in percentages of the present timber stand is estimated as 0.7 per cent for California; 1 per cent for Oregon; 1 per cent for Montana; 2 per cent for Washington, and 1.4 per cent for Idaho.

Fire prevention expenditure in 1922, outside of National Reservations, aggregated $1,944,643, of which $1,530,886 or 79 per cent of the total, was expended by private agencies; $292,232, by state and $122,525 by Federal.

In the California redwood region, companies which cut more than half of the timber produced have adopted a reforestation policy, others are considering adopting this policy, and only 15 per cent of the production has failed to take an interest in reforestation.

In the California pine region, about 90 percent of the operators have cooperative arrangements with the forest service for the protection of their lands. A movement is also under way to secure tax laws which will permit reforestation as a profitable venture.

The states of California, Oregon, Washington, Idaho and Montana contain hardly a fifth of the potential forest land of the country, according to the report. But much of this forest land is by far the most productive of the country—yielding three, five and even seven times the average for the country in board feet of new growth per acre, per annum. The importance of the region as a permanent national woodlot is therefore out of proportion to the acreage, just as is the present timber stand and present cut.

Oregon now contains more standing timber than any other state of the country. In the report the following figures are given for the present timber stand and rate of growth in that state:

Present Timber Stand in Oregon

M. Feet, B. M.

Commercial Species	Private	State	Federal	Total
Western yellow pine	34,054,746	100,648	41,394,365	75,549,759
Douglas fir	137,456,274	405,242	107,935,540	245,797,056
Others	36,536,787	98,000	37,794,627	74,429,414
Total	208,047,807	603,890	187,124,532	395,776,229

The total timber stand in California is given as 284,505,000 M feet; and in Washington, 282,645,481 M feet.

Rate of Growth

Average period required to produce a 12-inch tree:

	Years		Years
Douglas Fir	50	Western Hemlock	65
Western Yellow Pine	90	Western Red Cedar	55
Sitka Spruce	45		

Average yield per acre of 12-inch trees or larger, B. M. in:

	40 Years	50 Years	60 Years	70 Years
Douglas Fir	12,000	21,500	32,000	41,500
Sitka Spruce	20,000	32,000	45,000	57,000

Average annual rate of wood production per acre for various types considering the volume of the entire trees in cubic feet:

Douglas Fir	Western Yellow Pine	Sitka Spruce
150	30	160

Brompton Company Buys Timber Limits

Several deals involving the purchase of large tracts of timber are reported from Quebec. The Brompton Pulp and Paper Co. has bought the timber limits of the B. C. Howard Company at English Lake in that province, the price being in the neighborhood of $1,000,000. The tract consists of 25,000 acres of free-hold land in Canada and the controlling interest in 40,000 acres of free-hold in the state of Maine. This purchase assures to Brompton between 4,000,000 and 5,000,000 cords of pulpwood, and it is believed that with scientific reforestation its supply will be pratically unlimited.

Add To Timber Limits

The Belgo-Canadian Company has also added to its timber limits through the purchase of several blocks of wood lands in Northern Quebec. This company already had in its own right 15,000 acres of free-hold timber limits and controlled about 1,800 square miles of leasehold limits containing about 6,000,000 cords of pulpwood. The additional purchases are believed to have added from six to ten years to the life of the company's limits. The purchase of about 30,000 cords of pulpwood during this year has already relieved the company of the necessity of cutting that much wood from its own limits.

Buys Timber Limits

The report is current that the St. Maurice Paper Company, head office, Montreal, has purchased some 500 square miles of timber limits on the St. Maurice River, estimated to contain 150,000 cords of pulpwood, from the parent company, the Union Bag and Paper Company. The initial payment will be in the form of 2,500 shares of St. Maurice stock, while future payments will be made in cash over a term of years to a total amount not stated, but which, it is thought, will be about a dollar per cord stumpage, or about $1,250,000. The limits in question are Crown lands, from which the Union Bag Company could not export pulpwood and upon which the St. Maurice Company had already done some cutting.

Comminuting Paper Pulp

Words of Wisdom for Mills Which Must Purchase Pulp for Paper Making

THERE are many mills which do not make their own pulp but purchase by contract or otherwise. A great deal of pulp is imported into this country. The condition in which this pulp generally comes to the mill is such that it requires treatment before it can be properly beaten into condition to be used on the papermaking machine.

There are various ways in which the "laps" of pulp, or tough thick sheets which closely resemble cardboard, are handled. Thus, for example, they may be fed by hand directly into the beater where the comminuting action of the beater roll and bedplate reduces them into increasingly smaller pieces until the individual fibers are separated and finally isolated so they can receive heating action.

While this method appears quite simple, it possesses many disadvantages which detract from its apparent simplicity. It is necessary to convey the pulp to the beater in trucks and it must be fed into the beater by hand thus consuming considerable time and labor. Care must be exercised in introducing the pulp into the beater, for if too much is fed to it, the beater roll is apt to jump and damage may be done to the beater knives. Furthermore, it must be remembered that the primary object of the beater is to beat up stock and not to break up hard, tough rolls or slabs of pulp. There is no doubt that when a beater is used for this purpose, the output is curtailed. There is also still another difficulty in that the wires or other fastenings that are used to secure the bales of pulp may escape the attention of the man feeding the beater and may do considerable damage.

Use of Kollergangs

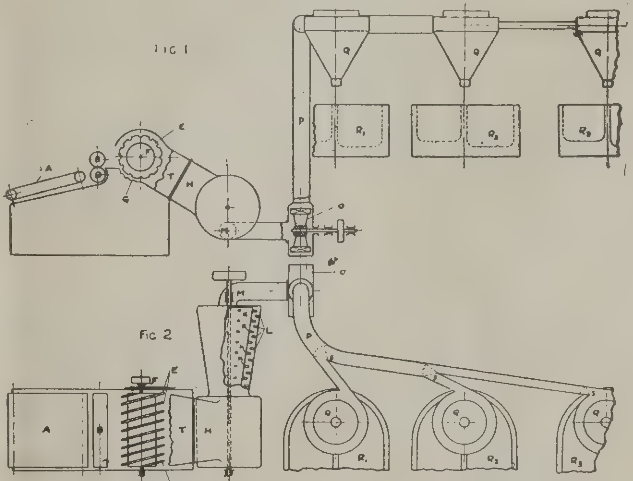
Kollergangs or edge runner mills may be used for obtaining the pulp preparatory to its introduction into the beater. This process is, however, intermittent and is generally avoided except where the quality of the finished paper is such that it repays the manufacturers for the time and expense involved in operating these machines.

It is also rather common practice to put the slabs of pulp through a pulper in which the pulp is moistened with hot or cold water. The material comes out of the pulper in the form of moist balls which are immediately taken to the beater and fed directly into the machine by hand. The disadvantage involved in the use of the pulper is that this machine is usually of small capacity, as one ton of pulp an hour is considered to be a fairly high figure. Moreover, it occupies considerable space and consumes a rather large amount of power per unit weight of pulp delivered by it. Then, again, as the stock that emerges from the pulper is very moist, it must be carrried to the beaters in trucks and fed to them by hand. This is accordingly an operation which consumes considerable time and is costly. Lastly, the handling of wet stock always tends to soil it and depreciate its value.

New Process

A new process which is patented in British patent No. 202,575 is designed, according to the inventor, to overcome these difficulties and disadvantages and to provide a means whereby a battery of beaters can be supplied individually at will with comminuted pulp in a suitable condition for entering the beater from a common central store without the use of manual labor.

The apparatus and its arrangement are shown in the accompanying diagrams. The slabs of pulp are fed to a continuous conveyor A. This belt carries them between two feed rollers B, whence they are cut between the obliquely set saw blades E which revolve on the shaft F and engage with stationary knife edges or teeth at G. The action of these is to tear the slabs into irregular shaped pieces which emerge from the orfice T.



The pieces of pulp then fall into the hopper H of a disintegrator fitted with revolving pins K and stationary pins L. The object of these pins is to break up, knead or comminute the pulp so that it emerges at the point M in quite small pieces which are suitable for being handled by a pneumatic blower at O which blows them through the pipe line P and air separators Q into the beaters R^1, R^2, etc.

In the pipe line P there are provided valves S so that the supply of comminuted pulp can be directed to any beater.

Advantages of New Process

There are very evident advantages of this system over those commonly employed. The only labor that is required is that of feeding the slabs of pulp to the traveling belt. The remainder of the process is entirely automatic. No trucks or other mechanical conveyors are required. It is also important to remember that the pulp is treated without the addition of moisture and this makes it possible to blow it through the pipes without any danger of clogging them. Furthermore, the dry pulp is not nearly so prone to become soiled and dirty as wet pulp.

The beater is used in this process for the exact purpose for which it was designed, that is for beating the pulp to bring it into condition for use on the paper making machine, and not for the purpose of breaking up hard lumps of pulp for which it was not at all intended. Time is not lost in this operation and the output of the beaters is at a maximum.

The large pieces of pulp are ground up in the saw mill and disintegrator and the pulp is perfectly comminuted when it enters the beater. This might not be the case if the saw mill alone were used. If the slabs of pulp were first fed directly to the disintegrators, time would be consumed in grinding up the large lumps, whereas these are reduced to proper size in the saw mill for treatment in the disintegrators. It is far better practice to work with both a saw mill and disintegrator as the beaters are thus kept plentifully supplied with ground pulp and the capacity of installation in maintained at 100 per cent. It has been found by experience that the disintegrators cannot handle the large slabs of pulp with good efficiency.

Capacity of Installation

The capacity of such an installation is interesting. A single saw mill with a single disintegrator and single blower will adequately maintain in operation a battery of six half-ton beaters and supply them with properly comminuted wood pulp at the rate of over four tons of pulp per hour. There is a very great saving effected in both labor, time and space and the finished pulp is of such a high quality that a very good grade of paper can be manufactured from it. Another advantage is the high degree of cleanliness of the pulp.

It is stated that this process possesses a particular advantage in connection with the manufacture of newsprint and other paper which does not have to be beaten in the true sense of the word. The individual fibers of the pulp must only be separated from one another. In making this kind of pulp the slabs of pulp are simply fed into the saw mill and after comminution there and in the disintegrator as described, the pulp may be blown directly into large mixing vats. There the comminuted pulp is diluted with water and passed through one or more continuous operating refiners. After treatment in the refining engines the pulp is ready for manufacture into newsprint on the paper making machine. Sizing materials, weighting substances and colors may be added directly in the mixing vat.

This process is continuous instead of intermittent as is the case where breakers or beaters are employed to break up the pulp. The advantages of this process as applied to newsprint manufacture are apparent, time, space, labor, and power being saved.

In some cases it is advantageous to insert a coarse screen or retaining baffle at the inlet or outlet of the disintegrator. This screen is made in the usual manner and serves to catch any pieces of wire or other foreign bodies which may be mixed with the pulp. This system of comminuting the raw material before introducing it into the beater may also be applied to the treatment of waste paper or boards.

The description of this patent is taken from the original patent specifications and from *Paper Making and Paper Selling*, October 1923.

Paper Man Addresses Civic Association

Walter F. Denicus, receiver for the Myers Pulp and Paper Manufacturing Company of Denver, Colorado, addressing the Denver Civic and Commercial Association, told of the efforts being made to improve the output of the paper mill, but added that it was very necessary to have the cooperation of the entire citizenry, that is, in the saving of all cast off paper which was necessary in the making of box board.

The speaker called the attention of the business men to the fact that they were throwing away thousands of dollars yearly by burning in their furnaces the refuse paper about their places of business.

Colorado Incorporation

The Echo Publishing Company has incorporated; capitalization $10,000. The incorporators are Winona Flavin, Sam T. Green and Mildred Johns. Seat of business Denver, Colorado.

Sweden's New Regulations

Sweden has recently promulgated a new forestry law which brings into force better measures of preservation and sets up restriction against extreme exploitation, say Consular advices.

In some parts of Sweden the proprietary rights of the owners of private forest have been limited by spcial laws and the forests in these districts have been well preserved, but on the whole the forests have been threatened by excessive felling. It is therefore hoped that the new law will fill the long-felt need. The farmers alone have criticized the measure basing their criticism upon the regulations pertaining to the protection of young forests.

Stopped from Taking Office

Supreme Court Justice Edward N. Smith has granted a temporary injunction in the case of Jeremiah T. Carey against M. H. Parker and others. Restraining Parker from taking office as president of the International Brotherhood of Paper Makers before settlement of the present action.

Mr. Parker, of Richmond, Virginia, recently was elected president of the Brotherhood by a recount in which Mr. Carey charged 600 votes for him were cast out.

Changes at Dill & Collins

Several important changes have taken place in the personnel of Dill & Collins Company.

Mr. Howard W. Taylor has resigned as vice- president.

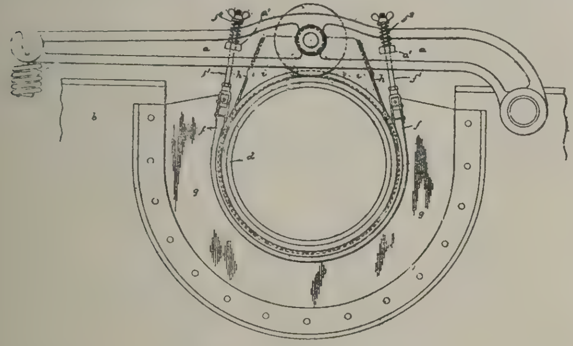
Mr. Herbert W. Mason, of Boston, late treasurer of the S. D. Warren Company, will join our official family as vice-president, on January first, 1924.

New Developments in Paper Making

Paper Pulp Straining Machines

British Patent No. 203,927 is concerned with the construction of paper pulp straining machines of the rotating drum type, wherein the drum is partially immersed in the pulp vat, and wherein the pulp, in its passage through the straining medium, flows inwardly. The improvements which are described in this patent, while primarily intended for use with the inward-flow drum-strainers, are applicable to the drum-strainers of the outward-flow type.

In inward-flow machines it is necessary to provide means for closing the opposite ends of the pulp-vat against the escape of the pulp otherwise than by way of the drum-tank outlet. For this purpose it has been proposed to employ diaphragms formed of flexible material, one edge of which is attached to the pulp vat, while the other edge is attached to a semicircular ring arranged beneath the drum outlet. This ring is furnished with a face-packing which bears laterally against a flange depending from the drum or from a ring in which each end of the drum rests in the vibrating cradle-arm.



Upon a vibratory movement being imparted to the drum the face packings slide upon flange surfaces, while the flexibility of the diaphragms provides for any slight longitudinal movements to which the drum may be subject. It is also usual with inward-flow strainers to hold the drum down in its cradle-arms by providing each of the said arms with a saddle bar. These saddle bars pass over the respective drum trunks and counteract the tendency of the drum, owing to its buoyancy, to rise in the pulp vat. The drum is slowly rotated and is subject to rapid vibrations. On the other hand the means for supporting, rotating and vibrating the drum can be designed in various ways. Saddle bars are used for holding the drum down in the pulp vat. Rubbing packings of the face joint type employed for the purpose of preventing leakage due to the vibratory movement of the drum are not required in this apparatus.

Pitch of Wire in Paper Making Machine

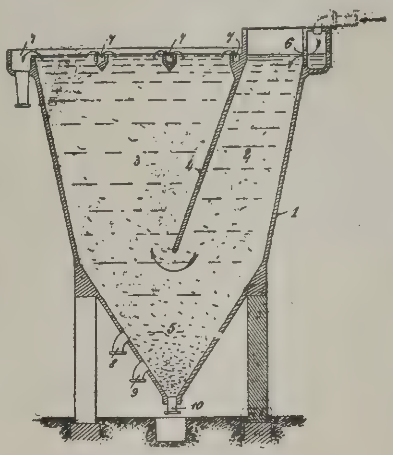
United States Patent No. 1,477,020 is assigned to the Rice, Barton and Fales Machine and Iron Co. The machine that is described in this patent has a Foudrinier wire which is carried on a frame, which also carries suitable rollers including a breast roll on which the wire runs. Means are provided for supporting this framework whereby its position may be altered to change the pitch or inclination of the wire. Means are also provided for supporting the breast roll from this frame so that the roll may have endwise shaking movement relative to the latter. Lastly, means are provided for imparting an endwise shaking movement to the breast roll relative to the frame and thereby shaking the wire with the roll.

Improvement in Paper Making Machine

The paper making machine, improvements in which are patented in United States Patent No. 1,476,894, consists of top and bottom press rolls and a conveyor suitably mounted and adapted to carry the pulp between these rolls. A hopper is provided which is mounted pivotally and provided with a scraper to rest upon the top press roll. Means are furnished for passing into this hopper a suitable quantity of water to act as a carrier of the pulp. The hopper carries adjustable weights.

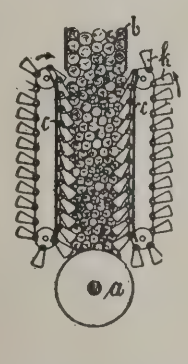
Save-All

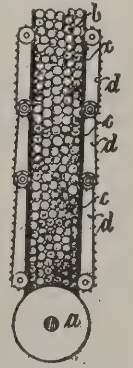
French Patent No. 559,749 is concerned with the design of a save-all. The process of recovering pulp values from waste waters of all sorts consists in making the liquors pass through a decanting device in such a manner that the speed of the same is constantly decreased from the moment that they enter the apparatus to the time that they leave it. This, progressive diminution in the speed of the liquor results in the deposition of the pulp contained in the liquor in the bottom of the decanting device. The figure shows the manner in which the apparatus is constructed. The apparatus is made in the form of a cylindrical tank which tapers off in its lower part to a cone-shaped affair. The upper part of the apparatus is divided into two parts by the baffle *4*. The liquor enters at *6* and is distributed over the surface of the apparatus by a distributing device and leaves at *8* and *9*.



Feeding Device for Wood Grinders

German Patent No. 369,088 is concerned with a device for feeding wood to grinders in a steady stream. It has been observed in the operation of grinding machines in which certain devices were used for gripping the wood for feeding the same to the grind stones, that only those pieces of wood that are in direct contact with these devices are effected, that is are given the desired pressure against the stones. The pieces of wood in the center of the column being fed to the stones are not subjected to the same pressure as those in direct contact with the walls of the feeding shaft. The object of this patent is to avoid these difficulties by increasing the pressure on the pieces of wood in the middle of the mass being fed to the grinders, which is done by increasing the pressure as the column of wood nears the stones. The immediate effect of this is to increase the friction between the individual pieces of wood with the result that this pressure is transmitted to the pieces of wood in the middle of the column with the final result that these pieces of wood are pressed against the stones with as much force as those nearest the device which is exerting the pressure.



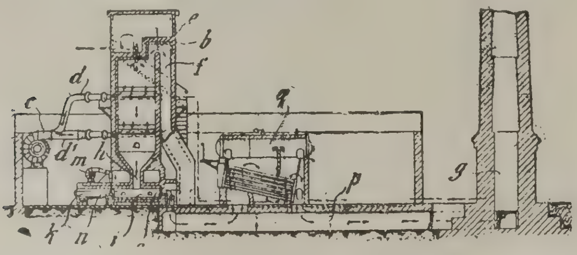


The apparatus for accomplishing this is seen in the figures. The simplest form is shown in the figure where a simple endless chain device is employed. This chain device is made in several parts which renders it possible to increase the speed of any part at will. Thus for example the speed of the part *d* can be independently increased of the others. The way in which the apparatus is operated is to run the lowest section of the chain conveyor at the highest speed and decrease this speed in the other sections in order. This results in a gradual increase in pressure which is transmitted to the wood in the center of the column.

Another method of carrying out this idea is seen in the figure to right. The bars attached to the chain engage the pieces of wood and exert both a downward and lateral pressure against them.

Evaporation of Sulphate and Sulphite Liquors

German Patent No. 347,865 is concerned with an apparatus used for evaporating sulphite and sulphate cellulose waste liquors. The apparatus is shown in the accompanying figure.

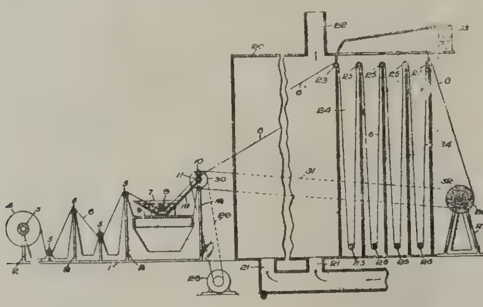


The liquors are partially concentrated by blue gases and are completely evaporated by the heat developed in a firebox. The solid residue is burnt by the admission of air. The figure shows the concentration chamber at *b* in which steam and the flue gas and liquor travel in opposite directions. The evaporated liquor is received at *i*. The firebox is seen at *k*.

Colored Paper

United States patent No. 1,475,923, which is assigned to the Royston Paper Co., is concerned with both a process and apparatus for the manufacture of colored papers.

In the illustration at the extreme left there is seen the roll of uncolored paper which is drawn through the calender rolls 5 and given a thorough ironing out so that the paper surface is absolutely smooth. The paper then goes through a dye bath. After leaving the dye bath which is of the ordinary kind the paper passes between a number of hard-surfaced pressure rollers and enters a box which is heated with hot air. This drying box is seen at the extreme right of the apparatus. The paper travels free while passing through this box, not coming into contact with any supporting surface while it is still wet with the dye. The paper is hung up in festoons is seen from the figure. After the paper leaves the drying box it is rolled up.



The driving arrangement is made in such a fashion that the strip of paper is fed through the apparatus at a constant rate of travel.

Grease and Water Proof Paper

United States Patent No. 1,476,562 is concerned with a process for rendering paper material both grease and waterproof. This is accomplished by using a grease proofing composition of the regular sort which is afterwards coagulated with the aid of acetic acid fumes to render the same moisture-proof.

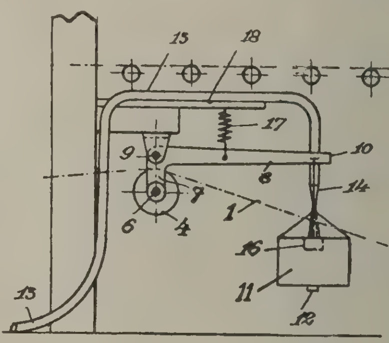
Arrangement for Maintaining Correct Position of Wire

German Patent No. 380,549 is concerned with a device for setting the traveling Fourdrinier wire in the correct position and maintaining it there during the course of its travel. The diagram shows this device. One end of the guide roll 4 is carried in the bearing 6, which is held in the arm 7 of the bell crank 8. The latter swings about the pivot 9. A vessel 11 hangs on the other arm of the bell crank, the arm 10. This vessel has an opening in the bottom which can be easily regulated. The traveling wire is seen at 1 and the mouthpiece 14 of a pipe is arranged obliquely with respect to the motion of the wire. Water passes through the pipe 13 and streams from the nozzle 14.

Under normal conditions the stream of liquid which flows from the nozzle 14 hits the edge of the traveling wire 1 in such a manner that half of the stream of liquid strikes the surface of the wire, while the other half flows away without coming in contact with it, being shunted off by the edge of the wire. This part of the liquid flows off through the channel 16 in the vessel 11.

The outlet 12 in the vessel 11 is arranged in such a manner that when the wire is moving past the same in a normal position the same amount of liquid enters and leaves the apparatus. The level of the liquid in this vessel is therefore constant under normal operation. Hence the effect of the weight of the water on the lever arm 10 is also constant.

The arm 10 of the bell crank lever is also subjected to the pull of a spring 17, one end of which is fastened to a rigid part of the machine. This is fixed in such a manner that the bell crank 8 remains in equilibrium as long as the wire runs in the correct path, that is, the axis of the guide roll 4 is perpendicular to the direction of travel of the wire.



The apparatus works in the following manner. If the wire is shifted in its position more to the anterior part of the machine, the amount of water entering the vessel 11 is decreased. Inasmuch as the same quantity of water flows out of this vessel, the weight of the water in the same is lessened and the spring 17 tends to raise the arm 10. This means that the anterior end of the roller 4, which is held by the lever arm 7, is moved towards the right and hence the wire is made to come back into its correct position by the action of the guide roll on it.

Bleaching Paper Pulp

Paper pulp is bleached by means of an agent containing active chlorine. The excess of the latter is subsequently destroyed or neutralized within the pulp. The pulp is afterwards acidified. This process is patented in United States Patent No. 1,468,693.

Want to Standardize Paper Hat Boxes

As a result of the recent meeting of hat manufacturers, the movement for standardization of paper boxes for hats has received added impetus. Harry McLachlan of Danbury, Conn., president of the National Association of Hat Manufacturers, has been actively at work to attain this result. Dealers have recommended that hats be shipped four in a box, such a box being the most convenient size for handling and storage. The hat manufacturers will probably adopt standard sizes at their next annual convention. Such a plan would increase production of manufacturers of the paper containers and would also result in the more prompt delivery of orders for such boxes from the manufacturers.

Doings in Canadian Paper Field

FARMERS OPPOSE EMBARGO

Claim They Held Money From Harvest To Keep Them Going

AT their recent convention the United Farmers of Ontario endorsed the attitude of certain settlers in the Rainy River District of Ontario, to the effect that there should not be an export duty placed on pulpwood, as these settlers need the harvest from the forests to keep them going until the land can be brought under cultivation, and the Canadian Pulp and Paper Association has presented a statement which brings out some interesting facts in connection with Canada's forests. The Associations asks for the imposition of such an export duty in the interests of keeping Canadian wood at home. It is pointed out that the present rate of depletion of the Canadian pulpwood forests is ruinous to the future of the industry, and, therefore, to the permanent interests of the country. It is also felt that the depletion can be materially reduced, without hardship to any Canadian interest or any injustice to any interest whatever, and the future of the industry be thereby secured, with great benefit to the economic position of the Dominion.

The Association's statement points out that the American interets which are getting a large share of Canada's pulpwood, have made as light as possible of the depletion of the Canadian forests and in 1920 they presented an estimate that the Province of Quebec alone contained a stand of 608 million cords of wood, and that 24,320,000 cords could be cut annually without depletion, if it were conducted as a scientifically-lumbered forest. Exact statistics are not available as to the total amount of pulpwood in Canada, nor the rate of its diminution or destruction by cutting or fire, but there is an estimate set forth by the Department of Interior, of recent date, which puts the total stand of merchantable timber of every kind of soft wood at 871,720,000 cords for the whole of Canada. But of this only 65 per cent can be utilized at present, leaving a total of about 580,000,000 cords in the whole of the Dominion. Unfortunately a large proportion of this stand is not part of the "scientifically-operated" forests but is simply a reserve for the future, the utilization of which cannot take place until the cost of securing wood in more accessible areas has become a good deal higher.

So far as the consumption of the forests is concerned, the statement points out that "in sum, the rate of cutting pulpwood forests is considerably in excess of what natural reforestation can offset, having regard to the limited area in which natural replenishment can take place, and that in addition to this exhaustive cutting, which alone would suffice to produce a grave shortage of pulpwood within the life-time of the present generation, there is a further source of depletion from fire. It is obvious that this process cannot go on without paralyzing in a few years the operations of many of the plants engaged in the pulp and paper industry, and so raising the cost of operation to nearly all of them as to deprive this country of its present invaluable advantage over its competitors in the United States and Northern Europe.

To Renew Its Sittings

The Canadian Pulp Wood Commission will renew its sittings on January 14th at Port Arthur, Ont., and from thence will proceed to North Bay and Sault Ste Marie. A three-day sitting will be held at Cochrane, Ont., on January 24, 25, and 26th. In March sittings will be held in Quebec and there will be a sitting at Edmunston, N. B. In April, the Commission will leave for Winnipeg, Regina, and several other places, going finally to British Columbia.

Cease Work for Season

Work for the season on the townsite being constructed by the Spruce Falls Company, Limited, pulp manufacturers, at Kapuskasing, Ont., near Cochrane, has practically ceased. E. J. Jones, general manager of the company, who was in Toronto recently, stated that excellent progress had been made, with the result that there are now 91 new houses and 19 other houses that have been moved from other locations. The company have just completed a fine new community hall in which is a large assembly hall, rest and recreation rooms, gymnasium and billiard parlor and this building will be ready for occupancy by the first of the year. The Kapuskasing Supply Company and the Imperial Bank have also put up buildings. The Spruce Falls Company are running to capacity turning out 100 tons of sulphite pulp per day.

CANADIAN REPORT ON EXPORTS

Pulp and Paper Exports Valued at More Than Twelve Million, Report Says

The report issued by the Canadian Pulp and Paper Association states that the total exports of pulp and paper from Canada in November were valued at $12,197,577. This was slightly below the value for October exports but was an increase of $771,579 over November 1922.

Exports of paper in November were valued at $8,373,679 and exports of pulp at $3,823,898.

Details for the various grades are as followes:

	NOVEMBER, 1922		NOVEMBER, 1923	
PAPER:	CWTS.	VALUE	CWTS.	VALUE
Newsprint	2,063,900	$7,684,709	1,890,633	$6,733,078
Book Paper	3,263	25,535	2,399	16,778
Writing Paper	1,838	19,392	663	12,901
Other Paper & M'frs.		644,043		468,029
		$8,373,679		$7,230,786
PULP:				
Mechanical	671,196	$1,206,940	659,215	$ 997,007
Sulphite Bld.	269,095	1,091,222	253,713	1,074,864
Sulphite Unbld.	275,748	765,240	527,962	1,205,781
Sulphite	244,010	760,496	290,911	917,650
	$1,460,049	$3,823,898	$1,731,801	$4,195,212

Pulpwood exports in November amounted to 68,943 cords valued at $739,943 which was a considerable decline from the previous month when the quantity exported was 102,138 cords valued at $1,078,707.

For the twelve months ending November 30th, 1923, there was an appreciable gain in the value of pulp and paper exports over the twelve months ending November 1922. Exports of paper in this period were valued at $92,589,172 compared with $74,319,655, an increase of $18,269,516 and pulp exports at $46,790,411 compared with $41,630,201 an increase of $5,160,210, giving a total increase in value of $23,429,726.

Following the details of exports for the twelve months ending November 30th, 1922 and 1923.

	1922		1923	
PULP:	CWTS.	VALUE	CWTS.	VALUE
Mechanical	6,443,012	$9,524,488	6,937,791	$11,707,962
Sulphite Bld.	2,989,475	12,158,761	3,140,646	13,506,350
Sulphite Unbld.	4,239,891	10,749,893	4,498,153	12,165,135
Sulphate	2,984,587	9,197,059	2,897,127	9,410,964
	16,656,965	$41,630,201	17,473,717	$46,790,411
PAPER:				
Newsprint	18,933,376	$67,943,074	22,572,880	$84,595,637
Book Paper	31,352	227,391	47,642	350,529
Bond & Writing	12,773	138,469	23,237	240,091
Wrapping	359,403	2,733,521	407,193	3,046,989
Other Paper & Mnfrs.		3,277,201		4,355,926
		$74,319,656		$92,589,172

The exports of pulpwood in the twelve months ending November 1923 amounted to 1,416,558 cords valued at $13,746,475 which was an increase of 45 per cent. over those for the corresponding period ending November 1922 when the quantity exported amounted to 971,976 cords valued at $10,003,526.

Companies Get Together

Another big deal in Canadian pulp wood limits is that put through between the Union Bag and Paper Co. and the St. Maurice Paper Co., the former's Canadian subsidiary, by which St. Maurice has acquired 500 square miles of limits on the St. Maurice River, Que., which are estimated to contain 1,250,000 cords of pulpwood. It is understood that the initial payment is to be made in 2,500 shares of St. Maurice stock, and that the others will be in cash over a term of years. These limits are Crown lands, from which the Union Bag and Paper Co., could not export pulpwood, and on which the St. Maurice Co. has already done some cutting. This is considered good business for St. Maurice for it looks as though it is paying about $1,500,000 for 1,250,000 cords of wood that may be worth to it from $6 to $10 per cord. The position of this company has been greatly improved during the last year, due partly to the increase of $5 in newsprint prices and to the stronger demand and better prices for groundwood pulp. It is thought probable that the output of newsprint will be increased by at least one new machine, which would bring the company's daily output up to 200 tons. The foregoing transaction has revived talk of the possibility of another big merger of pulp and paper companies operating in the St. Maurice Valley. In the meantime it will not escape notice that while Union Bag has sold large valuable timber limits, it has also increased considerably its holdings of St. Maurice stock.

Weather Bucks Operators

The absence of snow in Northern Ontario and the continued mild weather has resulted in considerable difficulty being experienced by pulpwood operators in getting out their shipments. Settlers who have wood piled in the bush have been unable to haul it to the railway stations for shipment until there is a sufficient fall of snow for sleighing. One large Toronto concern which has contracted for 60,000 to 70,000 cords for delivery during 1924 and should now be sending out 18,000 to 20,000 cords a month is only shipping from 1,500 to 2,000 cords owing to the vagaries of the weather. With the advent of colder days and more snow, shipping conditions in the pulpwood line would be ideal as the car service is excellent.

To Double Capacity

The Port Arthur Division of the Provincial Paper Mills, Limited, head office Toronto, will double its capacity of the present groundwood mill from 20 to 40 tons of groundwood per day, it was announced by General Manager A. G. Pounsford at Port Arthur a few days ago. The contract for the wet machine had been awarded to the Port Arthur Shipbuilding Company for delivery as early as possible. The General Electric Company tender for electrical equipment has been accepted. Arrangements by contract have been made for an additional supply of hydro-electrical energy amounting to 1,500 horsepower, which will be turned into the new department early in the spring.

Short Newsy Items

The Nova Scotia Wood Pulp and Paper Company, with mill at Charleston, N. S., may enlarge the capacity of the plant in the spring. At present the daily capacity is about thirty tons of wood pulp. If plans mature it is likely that an extension to the plant will be started, and the production increased materially.

The mills of the Canada Paper Company at Windsor Mills are being operated to capacity. At present forty-five tons of newsprint are being produced daily. Fifty tons of groundwood pulp are also being produced daily, and also fifteen tons of wrapping and fifteen tons of specialties and colors. Although not one of the best known of Canadian pulp and paper industries, this company has at all times been active. The pulp mill and the paper mill are in close proximity at Windsor Mills and indications are that further building will be started in the spring, it being the intention to enlarge the capacity of the paper manufacturing plant. At a recent meeting of the stockholders the following officers and directors were selected: J. G. Kilgour, president; F. W. Molsen, Sir Montagu Allan, Sir Herbert Holt, C. R. Hosmer, members of the directorate; H. B. Donovan, sales manager; F. J. Campbell, general manager.

Extension of the pulp and paper mills located at St. Raymond is being considered by the St. Raymond Pulp and Paper Company. This company is controlled by Lord Atholstan. Much of the product is sold to the Montreal Star. About fifteen tons of groundwood pulp and twenty-five tons of newsprint are produced daily at this Pulp and Paper manufacturing plant.

The Hearst publishing interests are said to be contemplating the purchase of some additional pulpwood areas in eastern Canada, the gist of the reports being that the intention is to build a small paper mill that would produce about twenty-five tons of newsprint daily. Representatives of the Hearst interests are said to have looked over the lands and to have taken an option. The Hearst interests already own considerable pulpwood lands in eastern Canada.

Bay Sulphite a Bankrupt

A petition in bankruptcy was presented by attorneys in Quebec City a few days ago, acting as counsel against the Bay Sulphite Company, with head office in Montreal, but operating in the Lake St. John district and Gaspe. The petitioners are Messrs. Bouchard and Lepage, contractors, and the claim bringing the petition is for an amount of $22,000 said to be owed for the cutting of timber in Chandler, Gaspe. The registrar in bankruptcy granted the petition, which is returnable on the 31st inst. Following this first procedure another petition was presented by the same attorneys acting for the same interests to appoint Messrs. Larue, Trudel and Piche temporary guardians and authorizing them to continue operating in the meantime.

E. M. Mills Is Receiver

E. M. Mills, who has been appointed receiver and general manager of the Whalen Pulp and Paper Company, British Columbia, in succession to G. F. Gyles, is vice-president and general manager of the Washington Pulp and Paper Company, and is largely interested in the Zelerback Paper Company of California. Mr. Mills will reside in British Columbia. The new receiver and general manager was directed by the court to enter into a $40,000 bond. Mr. Douglas, representative of the bond holders, wished a practical pulp man to take charge in the place of Mr. Gyles, who is a chartered accountant. Knox Walkem, for the second debenture holders, consented to the appointment, as did also Joseph Singer, counsel for the Whalem Company at a recent meeting of creditors in Toronto a few days ago. "The situation with regard to the company is very serious," said Mr. Walkem, "and it is only by capable management that the industry will be saved for the province. Mr. Mills is a man of great ability and has organized similar companies. We hope he will get the company on its feet again." There was no opposition to the change on the part of the creditors.

Takes A Different View

Professor Clifton D. Howe, of the faculty of forestry at the University of Toronto, is not altogether in favor of the agitation that is being carried on in Canada against the slaughter of young trees at the Christmas season and characterizes the statement that nearly three million evergreen trees had been taken out of Ontario as nonsensical. "I'd like to see that statement substantiated," he said. "One must not forget that nature puts 2,000 young trees on an acre. When they get ready for pulpwood only about 200 trees are left. The rest have been killed in the struggle for existence. It would, therefore, be a legitimate business to sell the young trees, rather than wait till they have grown to pulpwood size. I am not in favor, though, of artificial Christmas trees. I noticed that some of these trees had been cut out of living trees. If they were logs of pulpwood it would be quite permissible, but if cut from living trees it is a poor business which ought to be stopped. The reason for the statement that Ontario trees were destroyed to supply the American market was not that the Washington Government prohibited the cutting and shipment of trees from the New England States to conserve them, but for an entirely different reason. The embargo was put on owing to the gypsy moth. This pest is all over New England and evergreen trees act as carriers of eggs or cocoons."

Denuding Shock to Swede

Gerhardt Jensen, owner of three pulp mills in Sweden, is deploring the lack of reforesting he observed here during a two months' trip throughout the country studying the pulp and paper situation.

Reforesting of the spruce forests, he said, was woefully neglected, and tracts cut fifty years ago are still bare.

LOCATION OF MILL HELD UP

Hawley Pulp and Paper Company Trying Hard to Reach Decision With Municipality

THE new location of the rebuilt Hawley Pulp and Paper Company, which was recently destroyed by a fire in Oregon City, Oregon, is altogether dependent upon action taken in an ensuing controversy between the City of Oregon City, the Hawley Pulp and Paper Co., and the Oregon City Woolen Mills.

Fire on the night of the eighth of October destroyed the plant of the Hawley Pulp and Paper to such extent as to halt all operation. As the plant was covered by insurance the owners immediately announced that they would erect a new mill with an investment of $1,200,000 in plant and equipment. However, in order to properly erect this new mill so that utmost development would be possible it would be necessary for the city to vacate a small stub end of Third street, which the Hawley people claim is of no particular use to the community.

Armed with a petition signed by 900 out of 1300 property owners in Oregon City the Hawley Pulp and Paper Co. presented its petition to the city council who would have issued the vacating decree desired but for the objection of the Oregon City Woolen Mills, who claim that the street should remain open to permit light and air to enter their plant, as well as their employees to park their cars and go to and from their work in a convenient manner. The controversy has taken proportions of civic magnitude as the woolen mill people are circulating counter petitions. Both the Hawley people and the woolen mill people have proposed to build an electric elevator on the street stub in question, either side proposing that the other party shall bear one-half the expense. The matter, at this writing, is at a complete deadlock. The Hawley Pulp and Paper Company has promised the city council of Oregon City to rebuild within eighteen months if their request is granted.

Expect to Build New Mills

Rumor has it that the Crown-Willamette Paper Co., in Oregon, is to build two small new mills, one a cut up mill and the other a pulp mill, at their holdings at Youngs River Falls, where, it was recently announced by the mills, a power house with turbines and generators will be erected to furnish loading power as well as lighting power for the company's logging holdings in this vicinity.

Under the present system of operation the Crown-Willamette Paper Co. has been throwing all spruce and hemlock logs of less than 12 inches in diameter away as waste, along with slashings, owing to the fact that their donkey engines are too heavy to handle them, that they are difficult to handle when mixed with bigger timber, and that they are troublesome in rafting. Two small mills, such as it is reported in Astoria are to be erected, will, when smaller donkey engines are installed, efficiently handle this smaller stuff now going to waste. The ground up pulp would then be conveyed by barges to the paper mills at West Linn.

The basin above the falls has been cleared away so that a 35 acre lake may be formed by the dam for water and log storing. Immediately below the falls is the stop declared to be selected for the power house.

Astorians attribute the many recent small sales of Clatsop county timber to agents of the Crown-Willamette, and look forward with considerable expectation to further development of their holdings, which furnish a big percentage of payroll income into both the territories of Astoria, where the logging camp is situated and West Linn and Camas where the big paper mills are located.

Continental Paper May Purchase Rumford Mill

Negotiations are under way for the purchase of the mills at Rumford, Me., of the International Paper Company by the Continental Paper & Bag Mills, according to information among the trade in Maine.

According to information obtainable, directors of the Continental Paper & Bag Company, have issued a circular letter to stockholders relative to the proposed purchase and to the method of financing the deal. The company has purchased approximately 60 per cent of the output of the Rumford mill of the International Company during the past few years.

Superintendents P. E. McCarthy of the International and Theodore Hawley of the Continental Mills at Rumford both declined to make any statement for publication at this time.

The International Mills at Rumford have been making bag and wrapping manilas.

NEW USE FOR PAPER

M. Dalery Claims It Can Be Made on a Commercial Scale

A NEW use of paper on a commercial scale is propsed by a French inventor, M. Dalery. This is the manufacture of paper piping.

The paper of light pasteboard is wound directly upon the shaft of a machine, using a tank containing an adhesive substance. The last layers are impregnated with tar, then the pipe is given a covering of bitumen as for gas and water pipes.

More minute details contained in an article published recently in the *Scientific American* are in part: "Suitable measures are taken to produce a large diameter portion at the end of each pipe section, into which is fitted the smaller end of the succeeding section, then the joint is made tight by a tar treatment and by winding the joint with a strip of 3 inch tarred fabric.

"Tests were made with the new piping in order to set forth the three principal characteristics which are required, tightness, strength and interior pressure and good preservation. As concerns the tightness of the piping, several sections were mounted in a vertical position and the bottom was well stopped up, a water pipe being placed in the pipe and allowed to stand for 21 days. At the end of this time there was no trace of leakage, so that this test appears conclusive.

"On the whole, it appears very probable that piping made of paper can be manufactured as a practical article, at least for numerous purposes."

NEW INDIA MILL TO MAKE PAPER FROM GRASS

New Material Has Already Been Successful in United Provinces and Bengal

IT is rumored that the Punjab Paper Mills Company has been promoted with a capital of Rs. 50 lakhs for the manufacture of paper from Bhabbar grass. This raw material has already been successfully used in the United Provinces and Bengal. The new mill will be situated near the headworks of the Western Jumna Canal, where the raw material is accessible, and according to the *Paper-Maker and British Trade Journal* the surrounding districts have sufficient raw material to produce five to six thousand pounds of paper. The monopoly of the produce has been secured for a long period and the cost of the grass at the mills will be Rs. 14 per ton. The labor supply in the district is plentiful, the mill will be worked by electric power generated from a waterfall of 40 feet and it is proposed to manufacture fine quality paper.

The enterprise is viewed as having every chance of success because Lahore is only two hundred miles from the mill, and Delhi, eighty miles, both of which are centers of the paper trade. The consumption in the Punjab is about twelve thousand tons. The transport facilities are good as the Western Jumna Canal is navigable as far as Delhi, and the nearest railway station, twenty-three miles distant, can also be reached by canal. Prices of paper in the Punjab district are always high, owing to the great distance from the United Provinces and Bengal. The present price of imported paper is 5½ annas per pound. The directors consider that a 40 per cent dividend can be earned by selling paper at 3½ annas per pound.

New Booklet on Francke Couplings

Smith & Serrell, the general agents, have issued Bulletin No. 37 of Francke couplings. Particular attention is called to the new high speed type Francke flexible coupling for geared turbine and for high speed motor drives, also the new pressed steel type for little auxiliary drives. The booklet also contains valuable advice about lubrication and the installation and operation of direct-connected machines.

Advocates Tariff Raise

In an address at the annual meeting of the Ontario members of the Canadian Manufacturers' Association, Howard Smith, the president, advocated a raise in the Canadian protective tariff, claiming the manufacturers are unable to compete because of the large imports from Great Britain and the low cost of oversea labor.

The Editorial Page

OPTIMISM FOR THE YEAR

"THE paper industry, with a high record of production during 1923, and with every prospect of good general business in the early months of 1924, is justified in looking forward with optimism to the coming year."

With this statement the keynote of a prediction which augers well for the paper industry as a whole. Dr. Hugh P. Baker, in his article to the readers of PAPER this week, calls on the industry as a whole to buck up, smile, look with confidence on the coming months and go to work.

The statement comes after mature reflection on the successes and the failures of 1923 and is not a wild guess, or an ephemeral dream.

Each department of the industry should lay the groundwork now for a steadily increasing business. Business everywhere is picking up. The facts of the last year say the coming year will show a steady improvement. The failures of the dark days are being liquidated. The demand for all varieties of paper and paper products is increasing. And this inevitably means better prices. No boom year like that mad year after the war can be looked for, but a safe and sane optimism is fully justified.

It is PAPER'S belief as it is that of Dr. Baker, that the tide will turn this year. It is wise to be on the crest.

THE CONVENTION

WITH the opening of the new year, thoughts of the annual convention always recur. April is only a few months away and time seldom changes its habit of flying.

Every appearance at this time is that the Paper Industries Exposition at the Grand Central Palace will surpass the initial effort last year by several leagues. More advance preparations are being made. The lessons of experience are being profited by. A success last year, the event should this year prove the epitome of the paper industry. It should be a real reflection of the entire trade.

The convention of the American Pulp and Paper Association, as well as all its supplementary associations, should have every member and every person connected in any executive or official capacity with a paper or pulp mill present at every session. The benefits are so large and the cost of being present so small that the props are obviously knocked out from under any faint objection to coming before they appear.

And so we say, now is the time to set aside the second week in April, so no important engagements will interfere to keep you away.

From now on: DON'T FORGET THE CONVENTION.

RALLYING TO THE CALL

THERE is cause for immense gratification at the manner in which the many friends of Judge Charles F. Moore responded to the call for aid, shortly after the call went forth. Stricken by paralysis, this inimitable philosopher and friend to man, lies in his bed on Long Island. The response to the call for the sale of his book which will be ready shortly has been generous. Nevertheless, the call is still sounding. The price of the book is $10. Orders for books and remittances should be mailed to N. R. Hopkins, treas- "Judge Moore's Book" Committee, 200 Fifth Avenue, New York.

LET'S LIVEN UP THINGS

TO inject a little life and spirit in its pages, PAPER will give $5.00 each week for the best joke on a man in the paper industry.

This will be a contest with no conditions whatever. The only requirement is that there must be no unkind cut that will injure personally or in a business way.

Tell the paper industry about that good one you have in mind and get $5.00 in good hard cash for it. Help PAPER put a little ray of sunshine into the industry.

Construction News

Wells River, Vt.—The Adams Paper Co., has work under way on a one-story addition, totaling about 10,000 sq. ft. of floor space, estimated to cost $75,000, including improvements in the present mill. The contract is being carried out on a day basis by James Lowe, Woodsville, N. H. Herbert Crabtree is general manager.

Los Angeles, Cal.—The National Paper Products Co., 1789 Montgomery Street, San Francisco, Cal., affiliated with the Zellerbach Paper Co., 534 Battery Street, same city, is perfecting plans for the construction of its proposed plant on 25-acre tract of land purchased at Cudahy, near Los Angeles, to consist of a number of units, with power house, machine shop and auxiliary structures, estimated to cost in excess of $1,500,000, with equipment.

Vancouver, Wash.—The Columbia Paper Mills, Inc., has broken ground for the erection of its proposed local plant, for which a contract was recently awarded to the Austin Co., Cleveland, Ohio. Initial work will be concentrated on the main mill unit. The plant will cost in excess of $200,000.

New Orleans, La.—The proposed local paper mill to be erected by the Great Southern Lumber Co., Bogalusa, La., will be carried out and operated by the Bogalusa Paper Co., an affiliated organization. The initial plant will be equipped for the manufacture of chip board and other paperboard products, used in box production. Later, an additional unit will be established for the manufacture of corrugated containers and cases. The plant will cost approximately $1,000,000, with machinery, and is expected to be ready for operation early in the summer.

Chicago, Ill.—The National Paper Mills, 124 West Twenty-fourth Street, have leased space in the building at 1416-18 North Sangamon Street, totaling about 10,500 sq. ft., for a new works for the manufacture of paper boxes and containers. Harry Armstrong is head.

Stamford, Conn.—The Pine Waste Products Co., is reported to have leased a tract of land in Georgia, exact location temporarily withheld, as a site for the construction of a new pulp and paper mill, estimated to cost in excess of $100,000.

Chicago, Ill.—Bradner, Smith & Co., Van Buren and Desplaines Streets, have work nearing completion on a new seven-story addition, 100 x 150 ft., and will occupy the structure for general expansion at once.

Los Angeles, Cal.—The Pioneer Paper Co., 247 South Los Angeles Street, has acquired a tract of 2½ acres of land adjoining its present plant at Alameda and Fifty-fifth Street, and plans to use a portion of the site for the early erection of an addition, estimated to cost $50,000.

Terre Haute, Ind.—The Terre Haute Paper Co., has purchased the former local plant of the Commercial Distillery Co., including about 35 acres of land, for a consideration stated at $35,000. The company is now operating two mills in this section, and will use the property purchased for early extension of these plants. W. G. Clark is general manager.

Muncie, Ind.—Fire, Dec. 17, destroyed a portion of the local plant of the Hinde-Dauch Paper Co., with headquarters at Sandusky, Ohio, with loss estimated at approximately $55,000, including buildings, equipment, etc.

Mechanic Falls, Me.—Fire, Dec. 17, destroyed a portion of the local mill of the Poland Paper Co. The amount of estimated loss has not been announced. It is purposed to rebuild at an early date.

Kalamazoo, Mich.—The Sutherland Paper Co., has construction in progress on its proposed new mill addition, for carton service, and will push to completion. It is expected to have ready for the machinery installation at an early date.

Marion, Ind.—The Lindley Box & Paper Co., is planning for the rebuilding of the portion of its local plant, destroyed by fire, Dec. 17, with loss estimated at $125,000, including equipment. The re-construction is estimated to cost a like amount; additional machinery will be installed. L. R. Lindley is president.

New York, N. Y.—The International Paper Co., 100 East Forty-second Street, has work under way on two new hydro-electric generating plants, totaling about 20,000 hp., to be used for service at its mills, as well as for industrial power distribution in these districts.

Montreal, Que.—Frank Clarke, representing English interests, has acquired from the Provincial Government a tract of Crown lands in the province, consisting of 2500 sq. miles of timber lands in the valley of the Manicouagan River, not far from Bangor, Me. The sale includes an agreement with the Government to construct and operate a large pulp and paper mill on suitable site, with deposit of $50,000 to guarantee the fulfillment of this and other conditions. It is said that plans will be drawn for the mill at an early date.

Dallas, Tex.—Fire, Dec. 15, destroyed a portion of the works of the E. C. Palmer Paper Co., 407-9 Lacy Street, near Wood Street, with loss estimated at $150-000. It is proposed either to rebuild the structure, or establish the business in another location. Temporary headquarters have been established at the office of the Dorsey Co., 1000-02 Commerce Street. W. M. Corley is manager.

ALVAH MILLER TOM T. WALLER ARTHUR C. HASTINGS EDWARD A. WESTFALL NATHANIEL L. MILLER

H. G. CRAIG & COMPANY

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GREEN-BAY WIRE WORKS

Green Bay Fourdrinier Wires

Can't Be Beat

MADE OF

BRASS AND PHOSPHOR BRONZE

You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

Write us for prices and samples

GREEN BAY WIRE WORKS
GREEN BAY
WISCONSIN

New Companies

Long Beach, Cal.—The Western Paper & Envelope Co., has been incorporated with a capital of $150,000, to manufacture paper specialties. The incorporators are Bert P. Boles, Walter P. Warmbold and Leigh A. Hume. The company is represented by Frank H. Jacques, 516 First National Bank Building, Long Beach.

Greenville, Tex.—The Greenville Paper Co., has been organized to manufacture and deal in paper products. The company is headed by W. H. Camp and T. D. Starnes, both of Greenville.

New York, N. Y.—The Glide Feinberg Fiber & Box Corporation has been incorporated with a capital of $50,000, to manufacture fiber boxes and containers. The incorporators are P. Feinberg and S. D. Glide. The company is represented by Kleiner & Britwitz, 299 Broadway, New York.

Chicago, Ill.—The Lenox Paper Box Co., 426 South Clinton Street, has been incorporated with a capital of $15-000, to manufacture paper boxes and containers. The incorporators are George Stein and Alexander Felman.

New York, N. Y.—F. D. Croce & Co., Inc., has been incorporated with a capital of $100,000, to manufacture and deal in paper products. The incorporators are F. D. and R. D. Croce, and M. Molinelli. The company is represented by Barbieri & Zerilli, 233 West Forty-second Street, New York.

Financial

Newark, N. J.—The Newark Paraffine & Parchment Paper Co., 42 Jelliff Avenue, has arranged for an increase in capital from $500,000 to $600,000 for general expansion.

Muskegon, Mich.—The Central Paper Co., is disposing of a bond issue of $600,000, the proceeds to be used for general financing, expansion, etc.

Pawtucket, R. I.—The American Coated Paper Co., has filed notice of increase in capital from $50,000 to $160-000, for general expansion.

Holyoke, Mass.—George Webster has been appointed receiver for the Whitmore Mfg. Co., manufacturer of papeterie, on petition of the Fitchburg Paper Co., Fitchburg, Mass.

Mineola, L. I.—The Harper Co., has arranged for an increase in capital from $10,000 to $50,000, and 100 shares of stock, no par value, for general expansion.

Plant Operations

The Federal Container Co., Philadelphia, Pa., specializing in the manufacture of corrugated fiber boxes, etc., is running full at its plant, giving employment to a regular working force. The company is closing the largest year of business in the history of the organization.

The Agasote Millboard Co., Trenton, N. J., has distributed a Christmas bonus to employes, totaling $10,000. The amount received by each worker was graded according to length of employment with the company, 16 operatives enjoying the maximum amount, having been with the organization since its establishment about 13 years ago. Approximately 150 persons shared in the distribution.

Business Opportunities

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Cork, Ireland, in the market for kraft paper of good quality, Reference No. 8556. Also, of a concern at Nantes, France, desiring to purchase wood-fiber board of all kinds, Reference No. 8524.

The Domestic and Foreign Commerce Department, Chicago Association of Commerce, 10 South La Salle Street, Chicago, Ill., has received an inquiry from a company at Yokohoma, Japan, in the market for printing machinery, types, etc., No. 2572. Full information on request.

NEW BRAND NAMES

Applications for registration of the following brand names have been made in the Toilet Paper Label registration Bureau of the Tissue Paper Manufacturers Association:

From November 20, 1923, to and including December 20, 1923:

Evenglo, Farabuv, Lady Luck, No. 26, Mumark, Nu-Star, Our Seal, Pride of the Woods, Pull One, Selfelp, Sunglo, Vapordu, Wiplot, all for the Fort Howard Paper Co., Green Bay, Wis.

The following brand names have been registered in the Toilet Paper Label Registration Burean of the Tissue Paper Manufacturers Association, from November 20, 1923, to & inc. December 20, 1923: Humbolt—National Paper Products Co., San Francisco, Cal.; No Rivl—Fort Howard Paper Co., Green Bay, Wis.; Nunxl—Fort Howard Paper Co., Green Bay, Wis.; Rosedale—Oswego River Paper Mills, Phoenix, N. Y.

The following appeared in recent issues of the official gazette of the United States Patent Office:

Trade-Marks Published for Opposition, O. G. of November 13, 1923, Serial No. 184,359; Quality Crepe—(Oblong containing an oval picture frame with the words, "Quality Crepe" and "For the toilet," with a background of vertical black and white stripes with an ornamental flower pot at each lower corner.) Northern Paper Mills, Green Bay, Wis. Published for opposition November 13, 1923. Claims use since July 11, 1922.

O. G. of November 13, 1923, Serial No. 184,576; (A band of black and white checks with an ornamental oval in the center and a smaller oblong to the right.) Albany Perforated Wrapping Paper Company, Albany, N. Y. Published for opposition November 13, 1923. Claims use since July 23, 1923.

O. G. of November 20, 1923, Serial No. 184,356, Northern Bear (Polar scene with the sun on the horizon and a bear in the foreground, the words "Northern Bear" through the center.) Northern Paper Mills, Green Bay, Wis. Published for opposition November 20, 1923. Claims use since March 30, 1922.

Trade-Mark Registrations Granted, O. G. of November 6, 1923, Registrations No. 175,284, Serial No. 182,529, The Unique: (Oblong design containing an oval in which are the words, "The Unique," and along the lower part is a floral design). Albany Perforated Wrapping Paper Co., Albany, N. Y. Published for opposition August 21, 1923. Claims use since June 1894. Registration granted November 6, 1923.

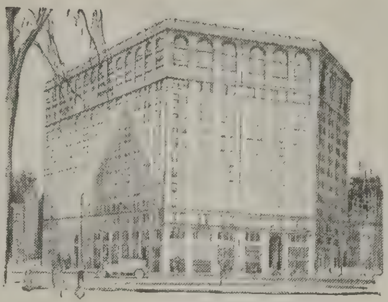
O. G. of November 6, 1923, Registrations No. 175,286, Serial No. 182,049, Gosling: Fort Howard Paper Company, Green Bay, Wis. Published for opposition August 21, 1923. Claims use since May 23, 1923. Registration granted November 6, 1923.

O. G. of November 6, 1923, Registrations No. 175,326, Serial No. 180,758, Water Flower Crepe: Fort Howard Paper Company, Green Bay, Wis. Published for opposition August 14, 1923. Claims use since July 12, 1921. Registration granted November 6, 1923.

O. G. of November 6, 1923, Registration No. 175,358, Serial No. 178,043, (Design consisting of an oval partly surrounded by small squares and divided into two sections. In the upper section are the words, "Interlake Tissue Mills Co., Limited, Merritton, Canada." In the lower section is a drawing of Lakes Ontario and Erie, showing Niagara Falls and Merritton with an arrow from the upper section pointing to Merritton.) Interlake Tissue Mills Co., Ltd., Merritton, Ontario, Canada. Published for opposition August 14, 1923. Claims use since 1914. Registration granted November 6, 1923.

O. G. of November 27, 1923, Registration No. 176, 730, Serial No. 173, 508, (Design consisting of an oblong with the upper line extended and pointed in the middle and at the ends, and with the lower line rounded at the corners and pointed in the middle.) Levey Printing Company, Indianapolis, Ind. Published for opposition September 11, 1923. Claims use since January 1915. Registration granted November 27, 1923.

While on a recent tour of the Northwest, George Hearst, of San Francisco, son of William Randolph Hearst, visited the plants of the Crown Willamette Paper Co. at Camas and West Linn, the Washington Pulp and Paper Company at Port Angeles, the Powel River Paper Co. at Powel River, B. C., and the Crown-Willamette Plant at Ocean Falls, B. C.



New York Headquarters for Paper

IF you are making a buying trip to New York, begin at The Fifth Avenue Building. Here you will find the New York offices and salesrooms of the leading manufacturers, paper merchants, mill supply manufacturers, and mill engineers. It is a buying center for book and coated stock.

THE FIFTH AVENUE BUILDING
Broadway and Fifth Avenue
at Madison Square, New York
"More than an office building"

TEMPORARY RECEIVER APPOINTED

Mountain Mill Paper Company Will Have S. T. Stevenson at Its Head

LOUIS T. STEVENSON, of Pittsfield, Mass., has been appointed temporary receiver of the Mountain Mill Paper Company, of East Lee, Mass., by Judge William A. Burns of the Superior Court, and the question of making the temporary receivership permanent will come before the court for a hearing on January 5.

The receivership is a friendly one, according to officials of the company, and is made on agreement between the company and some of the larger creditors in an effort to conserve the company's assets.

The company some time ago made enlargements of its plant and purchased additional machinery, which depleted its working capital and affected its financial condition. The receivership is concurred in by the Lee National Bank, the Lee Electric Company and the Clark-Aiken Company of Lee, Mass. In its petition, the company states it is indebted to the Lee National Bank on notes for $12,500, on which $5,000 in now overdue; that it is indebted by Louis T. Stevenson on serial negotiable notes about $200,000, of which $2,500 is overdue; that it is indebted to creditors on open accounts some $49,500, much of which is overdue and that trade acceptances amount to $41,051, of which some is overdue. It owes the town of Lee some $9,565.17 for back taxes. In all there are about 140 creditors.

Of the company's cash on hand, $1,500, all is due employees for wages. It has accounts receivable totalling $8,000. Its fixed assets of machinery and real estate total $300,000 subject to a $40,000 mortgage. It has finished stock on hand valued at $6,000, stock partially prepared valued at $8,000 and raw material valued at $6,000. The petition sets forth that if its creditors pressed and a forced sale was held, it would result in such a loss to the company that insolvency would follow. It is generally believed that if time is afforded the company through a receivership, will be able to meet its obligations and continue its business.

Questionnaire Results on Bonus and Taxes

As the result of the referendum taken by the paper industry on the questions of the bonus and the Mellon plan for the reduction of taxes, the following letter has been sent by Dr. Hugh P. Baker, Executive Secretary of the American Paper and Pulp Association, to Senators and Congressmen from the paper making states:

"During the past month a questionnaire was sent to over 400 pulp and paper mills in the United States, from Maine to California. This questionnaire asked the attitude of pulp and paper manufacturers as to the proposed soldiers' bonus and as to Secretary Mellon's tax reduction proposals.

"A large proportion of questionnaires have been returned to the Association and over 99% of the pulp and paper mills reporting are opposed absolutely to a bonus for able-bodied veterans, though they are strongly in favor of the government doing everything within reason for sick and wounded veterans.

"Over 95% of the pulp and paper mills reporting are strongly in favor of proposals for tax reduction as made by Secretary Mellon.

"As a national association, representing paper manufacturers from Maine to California, we urge your opposition to the bonus and your support of reasonable tax reductions. We speak in this matter for the entire pulp and paper industry of the United States."

Foreman's Safety Smoker

On Thursday evening at the Port Edwards Hotel at Port Edwards, Wisconsin, the Employes' Mutual Liability Company of Wausau, Wisconsin, held a safety smoker. There were present some fifty foremen of the Neboosa Edwards Paper Company, and they were full of song and pep for Safety. The meeting was under the personal supervision of Fred Braun and Al Kroes.

Mr. Kroes, well known to Neboosa-Edwards Mill employees, gave one of his inspiring talks to the men on the subject of "The Foreman and His Relation to Safety."

Mr. Braun told why the six cylinder Safety Campaign was organized and gave some interesting and vivid descriptions which left a deep impression on all those present.

The records of Accidents in the Nepco Mills for 1923, so far, is less than 100 and every effort will be made to cut this record 25% in 1924.

FINDS POOR COLOR MATCH IN WHITE PAPERS

PAPER that is supposed to be white is rarely altogether so. In order to be truly white the paper would have to reflect equal portions of all colors when viewed by daylight, but in nearly all cases there is some one or more colors which are not reflected as well as the others are. Measurements of such tints were made at the Bureau of Standards, Department of Commerce, the method used consisting in the determination of the relative amounts of blue, green, and red light reflected from 21 samples of commercial papers when viewed by daylight. These samples were collected from various sources and included newsprint, printing, book, writing, bond, and ledger papers.

Out of the twenty-one, only two were found to be nearly white, the others being quite deficient in blue and less so in green. In order to overcome this difficulty it is often customary in paper mills to add a blue dye to the finish in the beater.

The attempt was also made to match the samples for color with the unaided eye, observations being made by seventeen individuals experienced in color work. There was practically no agreement among the seventeen as to the whiteness of the papers, which would seem to be an effective argument for the employment of some method more accurate than the unaided eye in the color grading of white papers.

These tests are described and the results given in Technologic Paper No. 244 of the Bureau of Standards entitled "A Measure of the Color Characteristics of White Paper." Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is five cents.

Fresh or Dried Papyrus?

When Messrs. Vidal and Aribert made experiments on papyrus from the Gaboon at the Ecole Francaise de Papeterie, it was suggested that freshly cut papyrus would possibly be more easily converted into paper-pulp than the dried material.

The same investigators have now experimented with fresh papyrus grown at the Institut National d'Agronomie Coloniale at Nogent-sur-Marne and it was found that treatment was not facilitated by using fresh material. In the case of both the fresh and dried material it was necessary to use 13 per cent of caustic soda to obtain a pulp which could be bleached. The yield of unbleached pulp varied from 32 to 35 per cent and that of the bleached pulp from 25 to 27 per cent, these figures being about 6 to 7 per cent lower than those obtained with the dry papyrus from the Gaboon. Some are of the opinion that the low yield was due to the papyrus being somewhat immature from having been grown in too cold a climate.

Proud of Colorado's Forests

H. N. Wheeler, chief of the office of public relations in the Denver branch of the United States forest service, was a recent visitor to New York and Washington, and so proud he is of the fire prevention methods used in Colorado's forests—and, of course, the beauty of the timberlands—that he staged a demonstration of the ways and means for timber protection against fire. To the school children of the Capitol city he spoke of the beauty of the forests and the need for fire prevention and how to prevent fires.

Paper Men Bringing Suit Against Drug Co.

Carter, Rice and Carpenter Paper Company; Peerless Printing and Stationery Company, and the Inland Paper Box Company, of Denver, Colorado, have filed an involuntary petition in bankruptcy against the Scholtz-Mutual Drug Company, a local concern, in the Federal District Court here. The claims of the three petitioners will amount to about $600 and it is charged by the petitioners that the drug company committed an act of bankruptcy last September by making an assignment to a general committee of creditors, and it is alleged this assignment was not recorded or registered.

The company was incorporated under the laws of Delaware in 1920, taking over the Scholtz Drug Company. Its annual report filed last March showed assets of $2,609,826 and debts of only $686,508.

Waste in Pulp and Paper Industry

By B. T. McBain, *Assistant General Manager, Nekoosa-Edwards Paper Co.*

The Matter of Weight

MOST paper is sold by the pound, 100 pounds or by the ton. In any event, by weight, some paper is sold by ordered weight in some districts, such as sheet news, and in others Groundwood Tag comes under this plan. In some places wrapping paper is guaranteed as to yardage and strength and if on measuring a roll the production is not there, that should be, credit is often rendered, after considerable squabble. Other grades are sold by the ream, and so it goes.

Then the converter who buys his paper by one method sells it by another. For instance, paper for typewriter use, originally sold by the pound, is sold by the ream to the final consumer.

Paper for adding machines, purchased by the pound in jumbo rolls, after being rewound and refinished, is sold at so much per roll and each roll is guaranteed to contain a certain length of paper. So it is with tire tape and gummed tape, as well as for other like grades.

These inequalities or abuses have crept in on account of competition and the desire of one manufacturer to cut in or undersell another, with the result now that these abuses work right back onto the paper manufacturer either in orders for lighter paper which must be as strong as the paper originally ordered heavier, or in other ways the difference must be met.

Standards should be made and set for everything, in every line of endeavor and while Mr. Hoover's Department of the Government is endeavoring to put over something of this sort and will no doubt do a fine stroke of business for the industry and business generally, as well as the consumer, it is too bad that he cannot be allowed to go even farther and in the name of justice to producer and consumer alike, formulate and enforce standards wherein all abuses of the trade are wiped out.

All things of this kind are waste. Waste must be paid for by someone and if the consumer does not through increased price, the producer must through increased cost and smaller or no profit.

Waste everywhere.

Printing House Craftsmen Endorse Conservation

At a meeting of the Milwaukee Club of Printing House Craftsmen held in December this resolution was unanimously adopted:

Resolved, that we urge our membership internationally to use every means available to spread the gospel of forest protection, and urge each one of our clubs to take favorable action to effectually stamp out sporadic destructiveness.

E. George Myers, president of the Milwaukee Club of Craftsmen, expresses the hope that other organizations will see the wisdom of adopting measures such as the Wisconsin Forest Protective Association, because they are surely vitally important to continued economic paper production.

Donald F. McQuesten, formerly manager of the Philadelphia office of the Nashua Gummed and Coated Paper Company, has resigned to become associated with the A. L. Cole Co. of Lawrence, Mass., stationers.

"EASTCO"
BLEACHED SULPHITE

Using "Eastco" Bleached Sulphite ourselves, testing it day by day, in producing our line of "Eastco" Fine Writing Papers, we have complete control—because we have complete knowledge—of its quality, uniformity and adaptability to the requirements of the paper maker.

"Eastco" Bleached Sulphite is good pulp; it makes good paper. Furnished in Bales, Rolls or Laps as required. Write for Samples and Prices.

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EASTERN MANUFACTURING COMPANY
501 FIFTH AVENUE · NEW YORK CITY

CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE	
Bond	8.00 @ 40.00
NEWS	
Contract Basis	3.75 @
BOOK	
S. & S. C.	6.50 @ 7.25
M. F.	6.25 @ 7.00
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.80 @ .90
WRAPPING	
No. 1 Domestic	6.00 @ 6.50
No. 1 Jute	8.25 @ 8.75
No. 1 Wood	4.75 @ 5.25
Butchers	4.00 @ 4.25
BOARD	
News	52.50 @ 55.00
Chip	47.50 @ 50.00

Paper and Board

New York, December 31.—The final week of the year is proverbially a quiet period in the paper industry, and the past week has been truly characteristic of the holiday and inventory season. Manufacturers have been more engrossed with taking stock, effecting machinery repairs and in attending to other matters in connection with the closing up of their business for the year than in securing new business; jobbers have been in about the same position, and so have paper consumers, so that other than routine trade nothing of moment has developed in the markets.

It can be said, however, that the paper market is finishing the year in a very firm way; that is, prices of most kinds of paper display better than usual steadiness for just this period, and no further recession of consequence has occurred in quoted prices. The tendency in a majority of descriptions of paper is upward, and sentiment in the trade is unmistakably of optimistic character. Nearly every one making and selling paper is looking for good business in 1924, business of very healthy variety and of fairly heavy volume, and the opinion is common that prices of paper have about seen their bottom levels for sometime to come.

With newsprint in a very strong market position, and being consumed at a rate never before witnessed in the history of the industry, it is felt that the market as a whole will rule steady to firm during the next few months and that demand for other kinds of paper will develop in satisfactory tonnage and keep values on at least prevailing levels if not lead to advancement. Certainly business in other lines is in a healthy condition, is of fairly broad scope, and promising to expand after the new year gets under way, and it naturally follows that if general business is active demand for paper of all kinds will be good since the call for paper depends on practically all other industries.

At the moment the bulk of trade activity is against contracts and back orders. Paper mills in various parts of the country have greatly curtailed in the past few days to permit necessary repairs to mill equipment and to compile year-end inventories. There has not been much new buying. Jobbers have filled the orders coming in to them mostly from stock in an effort to keep their own stocks as low as possible, and consuming demand has subsided to a pronounced degree as it invariably does in the holiday period. The movement of supplies from mills into consuming channels on contracts has continued in steady volume, however, and a most encouraging feature is that publishers and other large users of paper who purchase on contract have lately arranged contracts involving appreciably increased supplies for the new year, indicating that they expect to consume larger amounts of paper in 1924 than in the year drawing to a close.

Consumption of newsprint has been heavy during the holiday season. Newspapers in New York and in all of the large cities of the country, and the small ones as well, have printed big issues, and circulation has been better than normal, according to the unofficial figures available. Recently compiled statistics show that Canadian production of newsprint during the first eleven months of 1923 totaled 1,166,225 tons, compared with 993,988 tons produced in the same period of 1922, showing an increase amounting to 17 per cent. The estimated production for the year is 1,270,000 tons, or 189,000 tons over that for 1922. United States output has been relatively as large in 1923, and this year is likely to go down in the annals of the industry as the greatest twelvemonth of newsprint consumption, and yet there is every prospect that the record will again be exceeded in 1924.

Shading of quoted prices is still the feature in wrapping papers though most manufacturers are maintaining the prices named to the trade. Coarse paper mills want orders and are not hesitating to grant prices concessions to land business. Fine papers are holding fairly in price, and rising prices of raw materials—rags in particular—seem likely to send quotations on bonds and ledgers higher. Book paper is quotably unchanged. Some manufacturers are shading prices when to do so means securing orders, yet machine finished book paper continues to bring around an average of 6.50 cents a pound f. o. b. New York.

Box boards are holding steady in price and probably are marked by a firmer undertone than are most kinds of paper.

SCANDINAVIAN PULP
AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP
of every description
FOREIGN and DOMESTIC

PLUGS
for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

Plain chip is quoted at $47.50 per ton f. o. b. New York, and news board at $52.50.

Quotations are as follows:

Bond	.08 @	.40
Ledger	.09 @	.35
Writing—		
Ex-superfine	.15 @	.35
Superior	.13 @	.30
Tub size	.10 @	.20
Engine size	.09 @	.14
News—f. o. b. Mills—		
Rolls, contract	3.75 @	
Rolls, transient	4.00 @	4.25
Sheets, contract	4.00 @	4.25
Sheets, transient	4.25 @	4.50
Side runs	3.25 @	3.50
Kraft—f. o. b. N. Y.—		
No. 1 Domestic	6.00 @	6.50
No. 2 Domestic	5.25 @	5.75
Manila—		
No. 1 Jute	8.25 @	8.75
No. 2 Jute	7.25 @	7.75
No. 1 Wood	4.75 @	5.25
No. 2 Wood	4.25 @	4.50
Book—f. o. b. N. Y.—		
S. & S. C.	6.50 @	7.25
M. F.	6.25 @	7.00
Lithograph	9.00 @	14.00
Coated & Enameled	8.00 @	12.00
Tissue—f. o. b. N. Y.—		
White No. 1	.90 @	1.00
Manila No. 1	.80 @	.90
White No. 2	.80 @	.90
Colored	.90 @	2.00
Kraft	1.00 @	1.25
Fiber Papers—		
No. 1 Fiber	6.25 @	6.75
No. 2 Fiber	5.25 @	5.75
Card Middles	4.00 @	4.50
Common Bogus	2.00 @	2.50
Boards, per ton, f. o. b. N. Y.—		
News	52.50 @	55.00
Straw, in sheets	50.00 @	55.00
Binder Board	75.00 @	80.00
Chip	47.50 @	50.00
Manila Lined Chip	60.00 @	65.00
Woodpulp	70.00 @	75.00

Mechanical Pulp

Mechanical wood pulp is in a more or less stationary market position, both as regards prices and demand. Quotations have settled at about a basis of $40 per ton f. o. b. grinding mills for domestic ground wood for prompt shipment, and consumers seem satisfied to meet this figure for such supplies as they require. Moreover, demand is developing in a consistent way; not in any great volume but in ample tonnage to sustain values, particularly since a majority of producers have no sizable stock on hand. Some offering of imported ground wood of Scandinavian origin at around $38 a ton ex dock New York and other American Atlantic ports is reported, and consumers in certain cases are filling the bulk of their current needs with pulp from this source. As the winter progresses prices of ground wood are likely to stiffen if the market follows its usual trend.

Foreign and Domestic Chemical Pulp

Not much activity of an important scope is reported in chemical wood pulp. Occasional sales are of course going through but paper manufacturers have let down in their buying momentarily, and the market rules rather quiet. At the same time prices exhibit a steadier undertone than has been noted in some months. The reason for this in the face of slow demand is apparently that market levels are down to a point where sellers do not expect any further decline and therefore are not pressing pulp onto the market. Prices at which some sales of foreign pulp on the spot in this country have recently been sold are below the cost of replacement by a good margin, it is said, and importers contend that this situation cannot long endure. Scandinavian kraft has sold down to 2.50 cents a pound ex dock New York, and No. 1 foreign unbleached sulphite at 2.60 cents, while foreign bleached sulphite of secondary quality has changed hands at 3.50 cents ex dock New York. Indications are that little or no additional pulp is available at these prices, importers generally asking higher rates. Quotations ex dock New York and f. o. b. pulp mills are:

Sulphite foreign—		
Bleached No. 1	3.80 @	4.25
Unbleached No. 1	2.60 @	2.85
Unbleached No. 2	2.50 @	2.65
Easy Bleaching	3.00 @	3.25
Sulphite, domestic—		
Bleached No. 1	4.00 @	4.50
Unbleached No. 1	2.70 @	2.90
Unbleached news grade	2.50 @	2.75
Easy Bleaching	3.00 @	3.25
Mitscherlich, unbleached	2.85 @	3.00
Soda, domestic bleached	3.50 @	3.75
Kraft, foreign	2.50 @	2.75
Kraft, domestic	2.65 @	2.85
Sulphite, screenings, refined	1.75 @	2.00

Domestic Rags

Papermaking rags are quotably firm and the price tendency in nearly all grades is in an upward direction notwithstanding that mills are at present buying in a careful manner and chiefly to cover direct requirements. Roofing rags have advanced to where sales of No. 1 packing have been made at $1.90 a pound f. o. b. New York, and of No. 2 grade at $1.60 New York. New cuttings are stiffening in price, partly because they are being consumed in larger than normal amounts as a cotton substitute, owing to the high price of raw cotton. Dealers quote $13.50 a pound f. o. b. New York for No. 1 white shirt cutting, $8.25 for light silesias, $11.75 for unbleached muslins, $8.75 for blue overall cuttings, and $5.50 for

Daily Capacity of 600 Air-Dry Tons

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of our production of
High Grade
BLEACHED
Sulphite Fibre
insures uniform quality, prompt
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A MARK OF HIGH QUALITY

Useful as well as ornamental—the KVP trade mark signifies consumer satisfaction in K-V-P products:

Genuine Vegetable Parchment
White Waxed papers
Bond and Ledgers
Household Specialties.

Kalamazoo Vegetable Parchment Co.
Kalamazoo, Mich.

washables. Old whites are steady, and thirds and blues show a rising tendency. Quotations f. o. b. New York follow:

New Shirt Cuttings, No. 1	13.25	@	13.75
No. 2	6.25	@	6.75
Fancy Shirt Cuttings	6.25	@	6.50
No. 1 Whites, repacked	6.75	@	7.50
No. 2 Whites, repacked	4.00	@	4.50
White Lawns	11.25	@	11.50
New Muslin unbleached	11.50	@	11.75
Light Silesias	8.00	@	8.25
Light Silesias	5.25	@	5.50
Overall Cuttings, Blue	8.50	@	8.75
Washables	5.25	@	5.50
New Black Mixed	5.00	@	5.25
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.65	@	2.90
Thirds and Blues, repacked	2.85	@	3.10
3rds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.25	@	3.50
Roofing Rags No. 1	1.85	@	1.95
Roofing Rags No. 2	1.55	@	1.65

Imported Rags

Strength in the lower grades features the foreign rag market. Sales of dark colored cottons to roofing paper mills at $1.65 a pound ex dock New York have been reported, and this is said to be the lowest price which importers will now entertain on these rags. Linens are quotably firm, and blue cottons are stiffening in price. Ex dock New York quotations are:

Lins., White No. 1	12.00	@	13.00
Ger. Blue Cottons	3.00	@	3.25
French Light Blue	3.25	@	3.50
New Light Prints	6.50	@	7.00
New Unbleached	10.50	@	11.00
German Linen, blue	4.00	@	4.25
German Linen, grey	5.75	@	6.00
German S. P. F.'s	6.00	@	9.00
German Light Prints	3.75	@	4.00
Dk. Colored Cottons	1.65	@	1.75

Bagging, Rope, Etc.

A firming tone in old bagging prices and steadiness in old rope is noted. Domestic manila rope has settled at around a quotable level of $6.50 per pound f. o. b. New York, and dealers are said to be averse to accepting orders at less, while foreign rope is reported fetching $6 to $6.25 ex dock New York for No. 1 manila. No. 1 scrap bagging of special quality has sold up to $1.50 a pound f. o. b. New York, according to reports, though $1.25 is a more representative market basis. Roofing bagging is firm at 90 cents to $1 a hundred pounds New York. F. o. b. New York prices follow:

Gunny, No. 1	1.25	@	1.40
Foreign	1.25	@	1.35
Wool Tares, heavy	1.50	@	1.75
Scrap Bagg. No. 1	1.25	@	1.50
Roofing Bagging	.90	@	1.00
Wool Tares, light	1.25	@	1.50
For. Manila Rope	6.00	@	6.25
Domestic Rope	6.25	@	6.50
Mixed Strings	1.00	@	1.25

Old Paper

The current movement of old paper into mill channels is of limited compass. Consumers are buying only when pressed by necessity, and in most cases they are managing to secure the supplies wanted at price concessions. At the same time there has been no concerted decline in values. Quoted prices are fairly well maintained, particularly on the higher qualities, and sellers seem imbued with expectations of better prices in the near future. Folded newspapers are selling at 80 cents a hundred pounds f. o. b. New York, and No. 1 mixed papers at 60 cents. Flat magazines bring about $1.50 per pound, or a little higher, at dealers' shipping points, while shavings are quoted at $3.75 to $4.00 a pound for No. 1 hard white and $3.00 to $3.25 for No. 1 soft white shavings f. o. b. New York. Old kraft paper is steady at $2.00 to $2.15 a pound, and white blank news is firmly quoted at $2.25 to $2.35. F. o. b. New York prices are as follows:

No. 1 Hard White Shavings	3.75	@	4.00
No. 2 Hard White Shavings	3.25	@	3.50
No. 1 Soft White Shavings	3.00	@	3.25
Box Board Chips	.65	@	.70
No. 1 Colored Shavings	1.50	@	1.75
Magazine flat stock	1.50	@	1.65
No. 1 Crumpled	1.30	@	1.40
Solid Ledger Books	2.00	@	2.25
Ledger Stock	1.90	@	2.15
White Blank News	2.25	@	2.35
Common Paper	.40	@	.45
Kraft No. 1	2.00	@	2.15
New Muslin Cuttings	2.25	@	2.50
New Manila Env. Cuttings	2.75	@	3.00
Bogus and Mill Wrappers	.85	@	.95
News, strictly overissue	1.10	@	1.15
Folded News	.80	@	.85
No. 1 Mixed Papers	.60	@	.65

Twines

Cotton twines of all varieties are quotably firm, and, for that matter, other descriptions are almost equally as firm. Raw materials are advancing, and this, of course,

BACO Aniline Colors for PAPER

BACO—Paper Yellow GN Conc
BACO—Paper Red
BACO—Paper Violet
BACO—Paper Blue
BACO—Paper Brown

VATAMINE BLUE RS TRIPLE POWDER

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Send for trial tins or Kegs of these splendid paper products

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run until worn out, with less trouble of "picking" on machine than any other make of top felts can show.

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In Two, Three, Four, Five and Six Ply, 60 inches to 176 inches in width.

BY ACTUAL TEST this felt will dry 33 per cent more paper, with ABSOLUTELY NO FELT MARKS IN THE PAPER

TRIUNE
THREE PLY FELT for other paper

FITCHBURG DUCK MILLS
FITCHBURG - MASSACHUSETTS

makes for strength in prices of the finished article. Demand is of routine scope only, buyers in general confining to supplies immediately required. Quotations are:

Sisal Hay, pure	13.25 @ 14.25	Jute Wrapping Twine,	
Manila Hay, pure	16.25 @ 17.25	A grade	20.50 @
Sisal Lath Yarn	12.25 @ 12.25	Papermakers Twine	12.00 @
Manila Rope, pure,		B. C. Hemp, 18	.39 @ .40
¾ inch diameter	15.25 @ 16.25	B. C. Hemp, 24	.38 @ .39
Hardware rope	12.25 @ 13.25	B. C. Hemp, 36	.36 @ .37
Jute rope, ¼ diam.		American Light India	
and over, coils	13.00 @ 15.00	No. 6	19.50 @
Sail twine, A grade	20.50 @	No. 7	18.50 @

Chemicals

Nothing of interest has developed in the papermaking chemical markets. Business is of seasonal routine character, and mainly against contracts, while prices are about at last reported levels.

IMPORTS AT NEW YORK

Week of December 24-29

Paper

Str. Bayern, Hamburg—Seaboard National Bank, 9cs.; Maurice O'Meara Company, 93 bls. printing; H. D. Catty & Co., 2 cs.; L. Schulmann Company, 7 cs.; Order, 48 bls. wrapping.

Str. Canopic, Hamburg—Publicity Paper Corporation, 269 rolls newsprint; American Shipping Company, 45 cs. printing; Fourth & First National Bank of Tennessee, 98 rolls newsprint; Quality Art Novelty Company, 28 cs.; Bernard, Judae & Co., 2 bls. wrapping; Hallgarten & Co., 993 rolls hanging; F. G. Prager & Co., 6 cs. pasteboard; Chemical National Bank, 98 cs. printing; J. P. Heffernan Paper Company, 313 rolls and 4 bls. wrapping; W. Hartman & Co., 167 bls. and 91 rolls wrapping and 313 rolls newsprint; Eastman Kodak Company, 59 rolls; Seaman Paper Company, 41 rolls printing; F. G. Prager & Co., 716 rolls hanging; Order, 83 rolls newsprint and 27 bls. wrapping.

Str. Dorelian, Antwerp—P. C. Zuhlke, 151 cs. printing; Borden & Riley Paper Company, 5 cs.; C. W. Williams & Co., 20 cs.; J. E. Safran & Co., 15 cs. printing; A. C. Dodman, Jr. & Co., 5 bls. hanging; Gevaert Company of America, 134 cs. photo; from Rotterdam—Birn & Wachenheim, 239 bls. wrapping; Republic Bag & Paper Company, 4,401 rolls and 233 bls. wrapping; Pulp and Paper Trading Company, 306 rolls strawboard; Election Products Company, 25 rolls corrugated board; Allan & Co., 115 bls. wrapping; Hafran & Co., 13 cs.; Globe Shipping Company, 5 cs.

Str. Kungsholm, Gothenburg—H. Reeve Angel & Co., 8 cs.; C. K. MacAlpine & Co., 15 bls. wrapping; International Acceptance Bank, 371 bls. wrapping; National City Bank, 111 rolls newsprint; J. P. Heffernan Paper Company, 506 bls. wrapping; Chatham & Phenix National Bank, 105 rolls wrapping; Bernard, Judae & Co., 5 cs.; R. F. Hammond, 1 cse.; Order, 101 rolls and 59 bls. wrapping.

Str. President Roosevelt, Bremen—Globe Shipping Company, 24 cs. photo.; A. Frankan & Co., 6 cs.; Parsons & Whittemore, 1,389 rolls newsprint.

Str. La Savoie, Havre—Japan Paper Company, 8 cs.; Coty, Inc., 76 cs. cardboard; American Express Company, 4 cs. hanging.

Str. Mercier, Antwerp—Wilkinson Bros. & Co., 35 bls. wrapping.

Str. Nieuw Amsterdam, Antwerp—Order, 19 bls. printing; from Rotterdam—Allan & Cory Paper Company, 84 bls. printing; C. K. MacAlpine & Co., 29 bls. printing; Birn & Wachenheim, 15 cs. wrapping; C. Steiner, 105 bls. wrapping; Monition Paper Company, 172 rolls paper board; Republic Bag & Paper Company, 76 bls. wrapping; W. Van Doorn, 14 cs. wrapping; Order, 898 bls. wrapping.

Str. Sahale, Rotterdam—Republic Bag & Paper Company, 2,104 rolls and 58 bls. wrapping; Irving Bank-Columbia Trust Company, 9 rolls wrapping; Alteck Photo Corporation, 37 cs. photo; E. Dietzgen & Co., 13 cs. drawing.

Str. Scythia, Liverpool—B. F. Drakenfeld & Co., 20 Cs. printing; F. C. Strype, 12 cs. tissue.

Str. Anaconda, Antwerp—Wilkinson Bros. & Co., 106 bls. wrapping.

Str. Aquitania, Southampton—Dupont Cellophane Company, 11 cs.

Str. Celtic, Liverpool—A. C. Dodman, Jr. & Co., 20 bls. hanging; F. J. Emmerich & Co., 17 bls. hanging.

Str. Martha Washington, Trieste—Melby, Kuttroff & Co.,

Kuttroff, Pickhardt & Co., Inc.

128 Duane Street, New York

For Paper Makers

DYESTUFFS
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Branch Offices:

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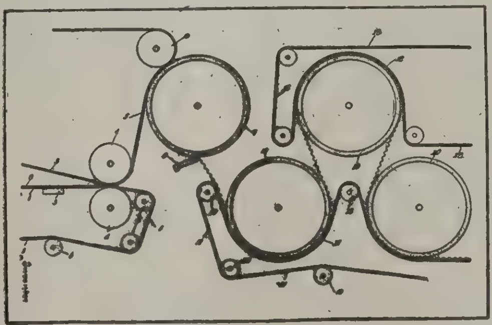

The crepe being formed while the fibres are steaming hot and pliable is dried without stretching; not only retaining form better, but shedding less lint than cold creped paper products.

For particulars address:

Tompkins-Hawley-Fuller Co.

VALATIE, N. Y., or OREGON CITY, ORE.

208 rolls newsprint; Publicity Paper Corporation, 74 rolls newsprint; Order, 12 cs. cigarette.

Str. Sarcoxie, Bordeaux—American Tobacco Company, 700 cs. cigarette; R. J. Reynolds Tobacco Company, 630 cs. cigarette; DeManduit Paper Corporation, 240 cs. cigarette.

Str. Verbania, London—W. H. S. Lloyd & Co., 38 bls. hanging; H. Reeve Angel & Co., 5 cs. filter.

Str. Bergensfjord, Chirtsiania—Great Eastern Paper Company, 266 bls. wrapping; M. Gottesman & Co., 172 rolls newsprint; Irving Bank-Columbia Trust Company, 121 rolls newsprint; American Exchange National Bank, 130 rolls newsprint; Order, 48 rolls newsprint.

Str. Oscar II, Copenhagen—Chemical National Bank, 1,816 rolls newsprint; Order, 268 rolls newsprint; from Christiania—American Exchange National Bank, 16 rolls newsprint.

Str. President Monroe, London—R. F. Downing & Co., 47 bls. hanging; T. Nevin 4 cs.

Str. West Cawthorn, Genoa—Order, 157 rolls newsprint.

Wood Pulp

Str. Kungsholm, Gothenburg—Scandanavian Pulp Agency, 127 bls. sulphite Nilsen, Lyon & Co., 600 bls, ground wood; Parsons & Whittemore, 600 bls. sulphite; E. M. Sergeant & Co., 356 bls. sulphite; R. F. Hammond, 5,800 bls. sulphite; Johaneson, Wales & Sparre, 800 bls. sulphite and 175 bls. soda; National City Bank, 1,250 bls. soda; Order, 669 bls.

Str. President Roosevelt, Bremen—American Woodpulp Corporation, 300 bls.; H. Hollesen, 2,216 bls.; Bulkley, Dunton & Co., 100 bls. sulphite; Lagerloef Trading Company, 1,016 bls. sulphite.

Str. Bergensfjord, Christiana—J. Anderson & Co., 900 bls. sulphite; Bulkley & Co., 4,000 bls.; National City Bank, 2,500 bls.; R. F. Hammond 500 bls.; Nilsen, Lyon & Co., 450 bls. sulphite; Perkins-Goodwin Company, 300 bls.; E. M. Sergeant & Co., 120 bls.

Str. Bornholm, Liverpool, N. S.—Tidewater Paper Mills Company, 12,308 bls. ground wood.

Str. Oscar II, Copenhagen—Johaneson, Wales & Sparre, 500 bls. sulphite; from Christiania—R. F. Hammond, 500 bls.

Str. Sierra Ventana, Bremen—Castle & Overton, 550 bls.; H. Hollesen, 2,099 bls.; American Woodpulp Corporation, 150 bls.

Old Rope

Str. Bayern, Hamburg—H. J. Reed, 105 bls.

Str. Dorelian, Antwerp—Order, 41 coils and 69 bls.; from Rotterdam—E. J. Keller Company, 83 coils; Brown Bros. & Co., 101 coils.

Str. Exeter City, Bristol—Brown Bros. & Co., 206 coils.

Str. Mar Caribe, Barcelona—Bank of New York & Trust Company, 115 bls.; W. Schall & Co., 205 bls.; Order, 35 bls.

Str. Nieuw Amsterdam, Rotterdam—E. J. Keller Company, 198 coils.

Str. Oscar II, Copenhagen—Bank of New York & Trust Company, 117 bls.

Str. Port Antonio, Port Antonio—M. Chapman, 40 bls.

Old Bagging

Str. Exeter City, Bristol—Irving Bank—Columbia Trust Company, 26 bls.

Str. Nieuw Amsterdam, Rotterdam—Maurice O'Meara Company, 48 bls.

Str. Sahale, Rotterdam—E. J. Keller Company, 60 bls.

Str. Anaconda, Antwerp—E. J. Keller Company, 127 bls.

Rags

Str. Dorelian, Rotterdam—American Woodpulp Corporation, 85 bls.; Goldman, Sachs & Co., 293 bls.

Str. President Roosevelt, Bremen—S. Birkenstein & Sons, 75 bls.

Str. Sangamon, Constantinople—Irving Bank-Columbia Trust Company, 208 bls.

Str. Mar Caribe, Barcelona—Katzenstein & Keene, 62 bls.; Bank of New York & Trust Company, 41 bls.

Str. Nieuw Amsterdam, Rotterdam—P. Berlowitz, 111 bls.; E. J. Keller Company, 153 bls.; Goldman, Sachs & Co., 21 bls.

Str. Sahale, Rotterdam—American Woodpulp Corporation, 49 bls.; Katzenstein & Keene, 118 bls.; Waste Material Trading Corporation, 24 bls.; E. W. Dutton, Inc., 10 bls.

Str. Anaconda, Antwerp—Order, 81 bls.

Str. Celtic, Liverpool—Order, 24 bls.

Str. Siboney, Havana—M. Wolfer & Co., 16 bls.

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Appleton Wires Are Good Wires
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Paper Stock

Str. Dorelian, Antwerp—Coal & Iron National Bank, 32 bls.; Equitable Trust Company, 123 bls.; Irving Bank-Columbia Trust Company, 505 bls.; from Rotterdam—W. Van Doorn, 34 bls.

Str. Brazielier, Antwerp—Irving Bank-Columbia Trust Company, 250 bls.; E. J. Keller Company, 163 bls.; W. Schall & Co., 63 bls.; American Exchange National Bank, 68 bls.

Str. Mercier, Antwerp—New York Trust Company, 192 bls.; Goldman, Sachs & Co., 136 bls.; Guaranty Trust Company, 15 bls.; Order, 138 bls.

Str. Anaconda, Antwerp—E. J. Keller Company, 293 bls.

Str. Verbania, London—Order, 40 bls.

Casein

Str. Pan America, Buenos Aires—Kalbfleisch Corporation, 4,999 bags.

Str. Vandyck, Buenos Aires—International Acceptance Corporation, 835 bags; Brown Bros. & Co., 766 bags.

China Clay

Str. Exeter City, Bristol—Bankers Trust Company, 325 bags; C. T. Wilson & Co., 80 bags; Lunham & Moore, 100 tons; Moore & Munger, 302 tons; Papermakers' Importing Company, 2 bags; Order, 300 bags.

Quebec Sells Largest Woodlot

Novel provisions surrounded the offer of 2,500 square miles of timber offered recently by the province of Quebec. The acreage was the most extensive ever offered for sale as a single lot in the province, and the buyers will be given five years to complete eight mills in certain specified cities of the province. Each mill must have an initial daily capacity of at least 100 tons of paper, and a capacity for producing pulp 100 tons in excess of that required for paper. At the end of seven years the paper production must be increased to 200 tons per day.

FACTORY ELECTRICALLY HEATED

By P. H. FALTER

Vice-President Electric Furnace Co., Philadelphia, Pa.

THE factory of the Ford Motor Company at Green Island, N. Y., is heated by hot water which is heated by electricity. It is an idea to make paper makers think. The building is 1140 ft. long, 120 ft. wide, and consists of three bays, the two side bays being about 20 ft. in height and the central bay about 35 ft. in height. The outer exposure of this building consists of about 60 per cent of glass. 65,000 square feet of radiation is installed. Water is circulated by motor-driven Centrifugal pumps at the rate of 1500 gallons per minute, and at a pressure of about 40 lbs. The water is circulated through one or two electric heaters, depending upon weather conditions and is raised in temperature from 135 deg. F. to about 153 deg. F. The heaters are of the electrode or water resistance type, having a capacity of 3200 KW each, and are operated at 4600 volts, 3 phase, 60 cycles. The electrical input is controlled by the level of the water in the boiler exactly as in the case of a steam generator and independent of the pump pressure. The change of water level is accomplished by an air column in the heaters, the length of which can be varied at will by admitting or releasing air. Air for this purpose is supplied by the compressed air system of the plant.

The control of power input is, therefore, extremely simple and could be accomplished by thermostatic attachment, if desired, but inasmuch as the boilers or heaters operate very steadily and it is only necessary to change the power input according to outdoor temperature, thermostatic control is hardly worth while.

The heaters are specially equipped with baffle plates to prevent the direct passage of cold water through the heaters. Inasmuch as the heaters are installed in the building to be heated they are not even covered and their efficiency is, of course, 100 per cent.

Each heater occupies a floor space only 4 feet square and a surge tank, occupying an equal amount of floor space, is required in order to avoid waste of water when the load on the

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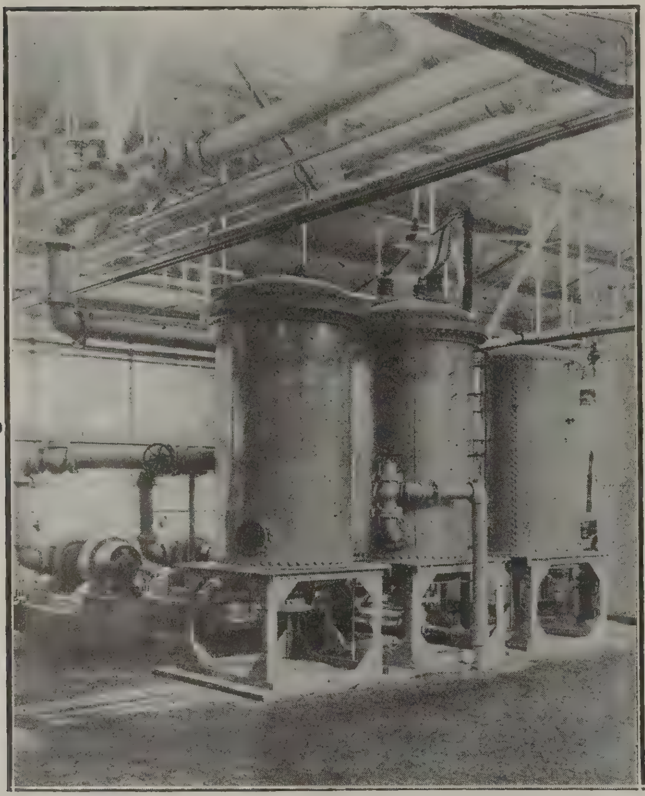
heaters is reduced; thus only a small amount of water need be added occasionally to make up for leakages from the system.

The advantages of electric heating are absolute cleanliness, minimum of space required and perfect efficiency. No separate heating plant is required, no fuel storage, ash handling or labor. The heaters only require occasional attention by a janitor or other attendant who also looks after the circulating pumps and other duties. While the opportunities for the application of electric heating to buildings on a large scale may be limited, yet heaters of this same type might well be used for feed water heating, in which case they could be thermostatically controlled to maintain the feed water at any desired temperature.



TYPE OF BOILER USED

View of heating room of Ford Motor Company at Green Island, N. Y. showing how water boilers are heated by electricity

Even if only the surplus power of an electrical system were employed to heat feed water or to produce steam for feed water heater a steam generator would pay very handsome returns on its cost in the value of the coal which it would displace. The load factor on a system could thus be maintained at practically 100 per cent and even the power factor would be favorably effected since the boiler or heater, being a non-inductive load, operates at unity power factor. The cost of the installation is very low as compared with the cost of fuel equipment of equal capacity and the cost of operation often is almost literally nothing when the electric heaters or boilers can be put in charge of a regular boiler-room crew.

Many Greeting Cards Received

PAPER has been the recipient of a host of holiday greeting cards during the past week, wishing the journal well and extending best wishes for the coming year. Among them were greetings from the Peninsular Paper Company, a neat inscription on a thin slice of pulpwood, from James Raymond Simmons; from James Louis Carey, Chicago; Charles F. Hubbs & Company, Butler Paper Corporation, Chicago; the New York State College of Forestry; the Textile Color Card Association of the United States, the Link-Belt Company and others.

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National Aniline & Chemical Co., New York.

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Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
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DANDY ROLLS

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DISC EVAPORATORS

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Hardy, Geo. F., New York.
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Wallace & Co., Joseph H., New York and Montreal.

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Orr Felt & Blanket Co., Piqua, O.
Shuler & Benninghofen, Hamilton, O.
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International Wire Works, Menasha, Wis.
Lindsay Wire Weaving Co., Cleveland, O.
Wisconsin Wire Works, Appleton, Wis.

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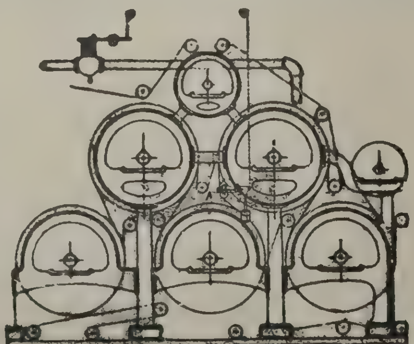

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Sherman Paper Co., Watertown, N. Y.
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PAPER
1478 Broadway
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Vol. XXXIII No. 12 PAPER January 10, 1924
The Magazine of the Paper Industry

Cleansing of Paper Makers' Felts

This Important Matter of Mill Operation Is Discussed by a Man Who Knows His Subject Thoroughly

Written for PAPER
By C. T. HAMILL

Trained in Chemical Engineering at Brown University and McGill University, Mr. Hamill secured experience in practical paper making with Crocker-McElwain Company. He assisted in organizing the School of Papermaking at Syracuse University and later was identified with the Hollingsworth & Vose Company as Chemical Engineer. After training in design and manufacturing processes at the Albany Felt Company's factory, he entered their sales organization and now represents them in the Central States and Canada.—EDITOR.

THE subject of this article is one which has caused much discussion in paper making circles for many years. It is far too presuming on the part of any individual to assume that his experience in this direction should be considered final and complete. It is hoped that such an article as this may be of service by suggesting various phases of this comprehensive problem in which someone may find an idea or suggestion which, with proper modification, may bring him a solution.

The term "Papermakers' Felts" is generally employed to cover all classes and grades of fabrics used in the manufacturing processes of papers, paper board, fiber board and pulp. Under this term is also included every type of woolen fabric used by affiliated industries whereby a wet leaf or sheet of stock is pressed or transferred in the machine.

Of Great Importance

IT is very evident that the cleansing of such fabrics is of great importance in the successful operation of the machines as well as in the quality of the manufactured product. There are today almost as many methods employed in cleansing felts as there are different kinds of felts manufactured. All of these numerous methods fall evidently under some fairly uniform method of classification. Several different classifications arise, it is true, depending upon the manner in which the subject is viewed. A general classification of felt cleansing methods may be suggested as follows:

I. Cleansing of felts on machines while in actual operation.
II. Cleansing of felts on machines, while not in actual operation.
III. Cleansing of felts after removal from machines, the object of the same to make the felt ready for use either upon another machine, or upon the same machine for the same or another grade of finish.

It is clear that each of the above methods has its advantages as well as its disadvantages. Process III usually gives a cleaner, softer felt, but takes more labor and time. Process I and II can naturally be applied only to certain machines and certain grades of paper product. The latter fact suggests a still further classification of felt cleansing methods, namely one based upon the grade of paper produced, since the latter determines in a large measure the character of the foreign material which adheres to the fabric and which must be removed. The object of cleaning a paper makers' felt, briefly stated, is to revive in a used and dirty felt, the desirable qualities of a new fabric

Making New of the Old

FELTS fill up and require cleansing when used in manufacturing practically all grades of stock. This cleansing, although generally considered so, is not always directly dependent upon the quality of the paper produced. Fine papers fill felts almost as quickly as coarse roofing paper. In each case the felt is filled by radically different but nevertheless objectionable materials. Felts used in straw paper and straw board production seem to present the greatest problem of all. The second classification as noted above, namely one based upon the grades of paper and board produced, might be outlined as follows:

Felts used in the manufacture of

I. Straw paper and straw board, together with other grades of paper in whose manufacture relatively large quantities of lime are used in the cooking process.
II. Bond, Writing and Ledger papers and other corresponding grades.
III. Book and coated papers.
IV. Manila, Jute, Sand paper, and tag stocks in general.
V. Chip and news board, binder's board, counter board and roofing papers.
VI. Newsprint and tissue and pulp in all grades.
VII. Leather board and heel board.

Class I:—Straw paper and straw board present serious problems, for even in the most exacting mills with the finest facilities for washing cooked stock certain quantities of residue are found. Almost without exception the length of felt services on straw paper is in direct proportion to the effectiveness of the washing process. The felts fill up with lime and quantities of the harsh incrusting substances found in straw itself. After a few days of operation the felts must be cleansed often in order to get any tonnage at all over the machine. It may be worth while to point out that some forms of lime are virtually insoluable in water. The lime, therefore, embedded in the felt, is removed largely by mechanical suspension in the wash water rather than by solution. Obviously the complete removal of the lime cannot be accomplished in the period of time usually allowed for felt washing.

When felts fill up with alkaline materials the process of removal must be accomplished either by acids or by a mechanical method such as whipping. Prolonged whipping does but little good, more often tending simply to embed the solid particles of lime still more deeply in the body of the woolen yarns. The latter action is highly undesirable, inasmuch as lime possesses certain caustic qualities and will injure wool in a manner much the same as caustic soda, but to a lesser degree.

The process of treatment with acids is called "souring" and is absolutely necessary to remove alkaline materials from the felt. In order not to lose too much time in production most mills have acid dips so arranged that the entire width of the felt passes under a felt roll and is depressed into a trough of dilute acid, the fabric being washed almost immediately by a water shower located only a few feet away. In some mills this souring process is carried on while the felt is actually on the machine, but in other mills the felt is removed and slacked up to allow this souring treatment.

*Professor Haven in a recent investigation has definitely shown that felt fabric is radically injured by comparatively mild acid solutions, as well as by those of greater strength. This is true of the common vitriol found in every paper mill as well as of the more expensive hydrochloric acid of commerce. When the concentration of the acid solution is over and above a certain critical amount the extent of the injury has been shown to be dependent upon the further concentration of the acid used, the temperature of the acid solution and the length of time the felt is immersed in the acid bath.

Straw board felts, because of their length and the difficulties involved, are not usually removed from the paper machine, but are soured while in place by means of a shower pipe. A dilute solution of vitriol is made up in a barrel, pumped into the shower pipe and sprayed directly on the moving felt. The soured felt is then immediately washed and rinsed, usually by means of another shower pipe located close by. There is no question but that these methods are effective. The problem then becomes merely a question of time and lost production as compared with the injury done to the felt. Every individual mill must decide the question from its own standpoint. Extended periods of felt service, made possible only by often repeated sourings and washings, with their consequent losses in production, may approach the "penny wise and pound foolish" stage.

Class II. Next in order of classification comes Bond, Writing and Ledger papers. Naturally Index and Bristols may be included here. Felts used on Fourdrinier machines making these grades are usually classified as wet press, second press, and in many cases third and fourth press felts. The very nature of the construction of felts for these several uses means a difference in the cleansing methods necessary. In many instances, methods I and III of the first classification are employed on the same machine and even with the same felt. A wet felt is of a lighter and more open construction. The following press felts are more closely fulled in order to provide an improved finish. Regardless of its construction the first felt, because of its position on the paper machine, fills up first, thereby frequently necessitating its removal from the machine for a more careful and complete washing. At the same stage in the operation, however, roping the second, third and fourth press felts is sufficient. To a man in a board or dry felt mill, the term "roping" may not mean very much. This is simply a term applied to the washing and wringing process which is carried out as follows. All pressure on the felt is relieved and the tension slacked back so that the fabric hangs baggy on the felt rolls. The press section is then set in motion and a solution of soap and sometimes soda ash is shot all over the slowing moving felt through a hose. When the felt is thoroughly soaked with the soapy solution the edges of the felt are carried to the middle of the machine and gentle pressure applied by lowering the press roll. This wringing, squeezing, washing operation is continued for five or ten minutes, then a fresh stream of cold water is directed against the roped felt and the washing out of soap and dirty water is begun. When a satisfactory degree of cleansing has been reached, the felt is turned over, provided it is of a construction which makes this possible, and straightened on the machine. The press roll is then lowered and the felt drawn snug ready for use. One, two, three or more felts may be treated in this manner at the same time and operation again resumed. This is, of course, only a temporary solution of the problem for almost always the felts are finally removed and more completely washed in a machine constructed for that particular purpose. Generally the accumulation of foreign material causing trouble here is rosin residue, starch, alum, fiber and lime. A good grade of soap, sometimes small quantities of soda ash, and high grade general washing powders are found to be the most effective agents for the removal of residues of this kind.

Book and Coated Papers

Class III. The felt equipment for book and coated papers which fall under Class III requires most careful attention and continual cleansing. Again the question of the type of foreign substances comes upper most. The very nature of these papers necessitates the use of relatively large quantities of some filler like agalite, clays, asbestine, pearl filler, starch and rosin. For this reason the felts fill up with quantities of resinous materials and soda fiber as well as materials used as filler in the furnish.

Rosin usually in the partially cooked Sodium Resinate form is precipitated by the use of alum, forming sodium alumin resinate, which is insoluble in water. Hence the properties of the soapy sodium resinate compound are lost and an ever troublesome rosin compound is deposited on the fibers in the yarns. All of these materials tend strongly to fill up the felt clothing on the machine. It is, of course, absolutely necessary that these or corresponding materials be used in the actual manufacture of a satisfactory

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*NOTE: Professor George B. Haven of the Mechanical and Textile Departments of the Massachusetts Institute of Technology recently carried out for the Albany Felt Company a careful investigation of the effects on felt fabrics of various commercial soaps, powders, and acids used in the paper industry for felt cleansing. His report covering this investigation has been published in monograph form and may be secured from the Albany Felt Company on request.—Ed.

sheet of paper for the several uses to which such papers are put, especially printing. To cleanse a felt either wet or press when filled with such material, a large percentage of which is totally insoluble in water at any temperature, presents a serious problem to the paper manufacturer. In a general way, "roping" felts is effective but by far the most efficient method is a thorough cleansing in soap solution. This will do more to revive the qualities of the felt clothing than anything else. This method, to be sure, necessitates removal from the paper machine. It is at this point that the felt washer so common today in all book mills does its most effective work. Caution must, however, be employed in its use, for it must be remembered that wet press and press felt equipment employed in the manufacture of these grades of paper are of very fine construction. Fine grades of wool are used which may be injured much more easily than the coarser grades employed in the manufacture of cylinder wet and cylinder press felts. Too extended a treatment in the soap solution in the felt washer may result in a felt so badly shrunk that it cannot be used again on the same machine, not to mention the undesirable effect on the actual texture of

COMPARATIVE TABLE—FELT CLEANSING METHODS

Class of Product	Grade of Paper	Type of Machine	Class of Felts	Felt Impregnations		Felt Washing Method	Materials used in washing
				Materials from raw stock	Materials from processing		
I	Straw Paper	Cyl. & Four.	Cyl. Wet & C. F. Wet	Straw Fiber & Silicates	Lime	No. I & II	Acid
	Strawboard	Cylinder	Cyl. Wet	Fiber-Silicates	Lime & Size	No. II	Acid
II	Bond, Writings, Ledger	Fourdrinier	Wet & Press	Rag Fiber & Wood Fiber	Rosin, Starch, Alum, Slime	No. II & III	High grade soap or powder
III	Book-Coated	Fourdrinier	Wet & Press	Wood Fiber, Clay or Filler, Rosin	Filler, Agalite, Clay	No. II & III	High grade soap or powder
	Bristol Board	Cyl. & Four.	Fine Cyl. Wet & Press	Fiber	China Clay, Rosin, Starch	No. II & III	High grade soap or powder
IV	Manila, Jute	Cyl. & Four.	Cyl. Wet & Press	Shieves, Fiber	Agalite, Rosin Clay, Alum, Starch	No. II & III	High grade soap
	Sand Paper	Cyl. & Four.	Cyl. Wet & Press	Shieves, Dirt, Tarry Material, Fiber	Asbestine and Fillers, Rosin, Alum	No. II & III	Soap or powder
V	Chip & Newsboard	Cylinder	Cyl. Wet & Press	Dirt & Fiber	Rosin & Alum	No. I & II	Acid & soap or powder
	Binders Board	Cylinder	Cyl. Wet	Dirt & Fiber	Size	No. I & II	Acid & soap or powder
	Counterboard	Cylinder	Cyl. Wet	Dirt & Fiber	Iron Oxide, Clay, Rosin, Alum	No. II	Acid & soap or powder
	Roofing	Cylinder	Cyl. Wet & Press	Rag Fiber, Dirt Tarry Material	Iron Oxide, Fillers	No. I & II	Acid, soap or powder
	Hard Fiber	Cyl. & Four.	Cyl. & CF Wets & Press	Dirt & Fiber	Rosin, Clay	No. II	Acid & soap or powder
VI	Newsprint	Four. & Cyl.	CF Wet & Press	Fiber, Rosin	Alum, Rosin, Color	No. I & II	Soap or powder
	Cyl. Tissue		Cyl. Wet & Press (Pick-up)				
	Other Tissue Grades	Fourdrinier Harper Yankee	CF, FF, or SF Wet & Press. Harp. Wet	Fiber	Size	No. III	High grade soap or powder
	Pulp	Wet Machine	Pulp Felts	Fiber	Rosin Residue, Bleach and cooking liquors	No. I	Water
VII	Leather Board	Cylinder	Cyl. Wet	Dirt, leather		No. I—Singe	
	Heel Board	Cylinder	Cyl. Wet	Dirt, Fiber	Size	No. I	Water—soap

The comparative table as drawn up visualizes in a general way the varying conditions and divisional characteristics affecting the problem of felt cleansing, and is largely self-explanatory.

It should be noted, however, in this connection that the acid referred to therein is a dilute acid, the degree of dilution dependent upon its method of application and also upon the commercial acid used, the latter point simply serving as a reminder of the wide difference between the two or three commercial acids used for this purpose as regards their pure acid content.

The point of distinction made as between "soap" and "high grade soap", is that the latter term indicates the freedom of the soap or powder from uncombined alkali. A comparatively small degree of "causticity" resultant from the release of the uncombined alkali contained in the soap or powder when thrown into solution ot uncontrolled temperatures and with very soft water will while producing a very active solution for cleansing, involve serious felt fabric injury.

As regars temperatures which are not mentioned in the table, it is found that "hand hot" is the general rule for the best maximum temperature for felt washing solutions, particularly when using commercial soaps and powders. This conclusion is especially true from the standpoint of felt injury.

the felt itself and the complete destruction of its water shedding qualities.

There is serious danger of injury resulting directly from too exhaustive a treatment in the washing machine. All woolen fabrics in warm soap solution shrink. This shrinkage should be checked carefully by washing in cold water, and the felt should be dried under slight tension prior to replacement on the machine. A felt after washing should not be drawn up to the same place on the stretch roll at which it stood when removed from the machine. This statement also holds true in roping felts. No one can definitely tell to what extent this slight over stretching may injure a perfectly good felt. The worst of it is that the injury is done and cannot be repaired.

The Heavier Stocks

Class IV. Under this class, including Manila, Jute, Sand paper, etc., we find cleansing problems of both cylinder machines and Fourdriniers, since these grades of paper are about equally divided in their manufacture between the two types mentioned. Manila and Jute grades are usually included under Classification II, since the felts used in their production fill up in much the same manner as in other grades of paper where relatively large quantities of rosin, alum, starch and filler are used. Felts are roped and removed from the machine for more complete washing in the felt washer, using good grades of mild soap. This last method is to be recommended for this class almost entirely. Felts used on Sand paper are subjected to still more serious trouble, because of the class of furnish used and its consequent impurities. The latter result from the very use to which the rope has been put, as well as from foreign particles in the rope itself. Any grade of stock which carries pellets of dirt and tarry material will naturally make more constant felt cleansing necessary. This is particularly true in the case of sand paper felts.

Class V. This group comprises the products generally made on multi-cylinder machines. The character of the raw materials used causes deposits in the felt of fibers, dirt, and tarry substances. The method of washing felts in this group should be under Classification I. The felts are generally soured with acid application by means of a shower. Not only is the felt cleansed, but the mould covering also. Some mills throw a diluted acid solution on the felt just ahead of the first couch but even distribution cannot be assured, and in the event of the use of too strong an acid solution a weak spot in the fabric is very apt to result. On roofing much stress is put upon the use of the whipper. This fact is directly responsible for the short life of this kind of felt.

The method of washing the press felts on the multi-cylinder machines is that of Classification III, and the higher the grade of the machine product the better the grade of soap or powder that should be used.

Newsprint and Tissues

Class VI. The cleansing of paper makers' felts used in the manufacture of newsprint and tissue papers presents new and varied problems. Here the main trouble is caused by substances which form a part of the raw material used in the actual paper manufacture. Such resinous residues are usually the source of continued difficulty. Day in and day out the felts come in contact with a paper furnish which, so far as is humanly possible, is exactly the same, namely free from foreign dirt, but containing practically all of the gummy substances found in spruce, balsam, and other coniferous woods so commonly used in the manufacture of these papers. On the whole such impurities, while they gum up, do not cause the destructive results usually noted from the abrasive action of particles of dirt found in the manufacture of the coarser grades of paper. The rapid motion of felts on these machines makes a continued washing very desirable. These felts then fall naturally under division I of our first Classification. Such continuous washing is now being carried on at some of the mills in this and foreign countries with varying degrees of success. Such felts should be cleansed by the application of mild alkaline solutions. Solutions for use in this manner should be of a concentration and temperature sufficient only to allow partial saponification of the resin residues and consequent solubility in the subsequent water washings, but not of a strength so great as to cause serious injury to the felt fabric. This necessitates a study of individual conditions at each and every mill in the country. No definite concentration or temperature can be recommended. Each mill must solve its own problem aided by the felt manufacturers.

Leather Board and Heel Board

Class VII. The whipper and water shower find a greater use in cleansing felts used in the manufacture of leather board and heel board than in any other to which a paper makers' felt is put. These felts fill up with dirt, pure and usually unadulterated. A good soap and water washing seems to be the most effective way to cleanse this class of felt. The present-day whipper is not entirely satisfactory as a cleansing medium. The pressure and friction of each bar on the whipper as it strikes the felt tends to rub the dirt into the texture of the fabric, hence a time is reached when further whipping is useless, and the felt must come off. The pressure on the shower pipes used in cleansing such felts is at present being studied at several mills throughout this country, and at this time no definite statement can be made. Each mill must determine its own best operating conditions.

A factor not previously mentioned, but which is of considerable importance, not only as regards felt impregnations but also felt cleansing under all the Classifications which have been considered, is that of the water used for the furnish and also for washing purposes. Consideration of this factor both from the physical and chemical standpoint is important. First the physical conditions, i. e. the organic matter in suspension, general turbidity, etc., and the chemical characteristics such as iron compounds in suspension and hardness caused by magnesium and calcium compounds, are a very important contributing cause of felts "filling up". Second, the effect of the foregoing water characteristics should be studied in relation to its efficiency in felt cleansing.

A careful consideration and balancing of the factors in this problem of felt washing is fully justified in the results to be secured, namely a minimum of injury to the machine clothing which will be practical as compared with the maximum production of paper and the least possible interruption of the operation of the paper machines.

As previously stated this article is not written as a panacea for the cure of all felt cleansing troubles. It is not entirely a recitation of conditions as they actually exist, not perhaps as they should be. It is handed to those who are interested with the hope that herein a suggestion or an idea may have been dropped, which when properly investigated and controlled will serve as some slight aid to the man in the paper industry and to felt maker alike.

Fuel Waste in the Paper Mill

An intensely Practical Article on How Efficiency of Power Plant May be Increased and Money Saved

Written for PAPER

By JAMES T. BEARD 2nd.

RELIABLE operation of his mechanical equipment and continuous, uninterrupted plant production are the goal of every paper mill manager. During the war, when the quality and quantity of fuel for the power plant was a very uncertain factor and when the quality of labor was equally uncertain, the factors made their presence felt in no uncertain way.

Desirable as economy and efficiency were to the man at the mahogany desk and his subordinates in the operating end, they were necessarily relegated to the background to take care of the more important problem of keeping the mill running at all costs.

Today the fuel situation is somewhat different. Coal of the quantity and quality suited to the plant requirements are available. In many cases, however, the fuel cost is an item that merits serious consideration. Many plants have, therefore, taken steps to study their power requirements and their power plants in particular, with a view to reducing preventable losses and to making each ton of coal produce its adequate share of paper tonnage.

HERE'S SOMETHING ALL CAN LEARN

The importance of the power plant in the paper mill cannot be over-estimated. Here is something every official, every superintendent, every man interested in mill efficiency should know. Mr. Beard is peculiarly well equipped to write authoritatively on this subject. He knows the game from the ground up and he can write interestingly. Don't pass over this page until you have read this article.

Labor Below Normal

ALTHOUGH the labor situation today is nowhere near so acute as it was five years ago, it is still far below normal as to quality and intelligence of the men seeking employment. The prospects for considerable immediate improvement along these lines, moreover, are not overly bright. Managers, superintendents and operating men in responsible charge of mill operation and production have, therefore, taken a keener and more active interest in the supervision of their power departments, hoping in this way to instruct their men in the proper handling of their equipment.

There are many practical, common-sense methods, for example, which can be put into effect in the boiler room in the handling of the fires, and which if followed consistently will yield substantial savings in fuel, with practically no financial outlay for additional equipment. That these methods are not used to any extent in nine out of ten plants is probably due to one or more of three principal reasons.

First, means for determining and maintaining the the best operating conditions for maximum economy are not usually provided. Too much dependence is placed upon the human element and upon the judgment of an unintelligent fireman.

Second, even where proper means is provided, it is human nature to backslide. Unless these best operating conditions are maintained by constant and intelligent supervision, the greatest possible economy is never realized.

Third, the boiler house is too often considered as little more than a necessary evil. The less said about it the better, so long as the mill continues to turn out paper. In the normal operation of the boiler room of a paper mill, the biggest fuel loss is that represented by the amount of heat carried up the stack with the hot flue gases. In some cases this amounts to as much as 30 per cent of the total amount of coal burned. A fifteen to twenty per cent loss is common.

In other words, if the plant is burning 30 tons of coal a day, from five to ten tons of that coal is carried up the stack as a dead loss. This is a big loss and the question naturally arises how can we know how much is being lost in this way; how much of this can be saved; how can we save it?

One of the chief sources of heat loss, or fuel loss, in the flue gases is the presence of more air than is actually required to burn the coal on the grates. The highest furnace temperatures are obtained when there is no excess air in the gases of combustion. Such a condition is purely theoretical and is never realized in actual practise. In order to burn coal with sufficient rapidity to satisfy the steam demands in the average boiler plant, it is necessary to force or draw air for combustion through the bed of fuel with a velocity depending upon the rate that the coal is being burned. If the coal were in a finely divided powder, it could be thoroughly mixed with the incoming air and each minute particle would be completely surrounded by just sufficient air to burn it. Very little excess aid would be required under these conditions.

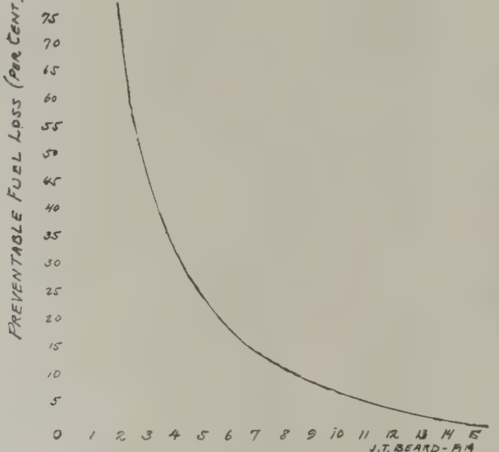
The Hand Fired Plant

IN the hand fired and stokered plants, however, these conditions do not exist. Coal is fed to the grates in fairly sizeable lumps. The process of burning a lump of coal is much slower than burning the same weight of coal in powdered form. Considerable free air escapes, therefore, without doing any useful work in the process of combustion.

Under these conditions all we can hope for is to keep this amount of excess air down to a minimum. It is possible to get continuous and efficient furnace combustion with about 30 to 35 per cent of excess air in the furnace gases. It is not practical to do better than this. We may therefore say that the preventable fuel loss is zero, when the excess air does not exceed 30 per cent.

How then are we to determine how much of this excess air is present and how are we to learn when this "best condition" is reached? This can best be illustrated by taking the case of a pitcher of cream. If we pour in a cup of water we have diluted it in proportion to the amount of water poured in. Let us say the mixture of cream and water contains 30 per cent water and 70 per cent cream. It matters not, then, how we look at it. The measure of dilution is the same, whether we say we have 70 per cent of cream or 30 per cent of water.

So with the furnace gases. The cream of the furnace gases is the carbon dioxide resulting from the complete combustion of the coal with the oxygen in the air. If there were no dilution with excess air we would have approximately 20 per cent of Carbon Dioxide (CO_2) plus some unimportant inert gases, such as nitrogen, etc. If this furnace gas is diluted now with 30 per cent of excess air, the percentage of CO_2 drops to 15. In other words, 15 per cent of CO_2 is just as much a measure of air dilution as if it read the actual percentage of air itself. And we choose to read our excess air in terms of CO_2 because it is much simpler and quicker to test the gases for CO_2 than it is to test them for air. Excess air is, therefore, measured in terms of the percentage of carbon dioxide in the furnace gases.



The detrimental effect of excess air is the reduction of the flue gas temperatures. The result is the same as if the furnace doors were opened. The air drawn into the fire box from the boiler room would immediately cool the temperature of the furnace and would kill the steaming capacity of the boiler, in spite of the fact that you might be burning the same amount of coal on the grates as before the door was opened.

Get the Furnace Hot

TO get the greatest amount of heat out of the hot gases and into the water in the boiler it is necessary that the furnace be as hot as the brickwork will stand. This is nothing but common sense, which even the humble housewife appreciates. What is the use, therefore, of burning up good coal to get this heat, if the temperature is going to be cooled down by the admission also of a lot of unnecessary cold air. The answer is that excess air represents a dead loss.

Thirty per cent of excess air, which we have said is necessary, represents a furnace temperature of approximately 3000 degrees Fahrenheit, and we have assumed that it also represents maximum economy and zero loss. It is not unusual, however, to see this amount of excess air as high as 100 per cent and even higher. Such a condition would be represented by a CO_2 reading of 10 per cent, instead of 15, and would correspond to a furnace temperature of about 20 deg. F. and a preventable loss 6 per cent of the to fuel burned.

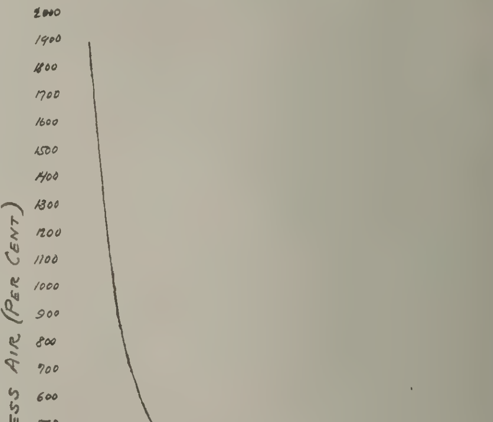
Most industrial power plants are poorly operate especially the boiler rooms, and particularly in pap mills. Flue gas averages of five and six per ce while very low, are found in some mills. Such reading would not be tolerated in any plant, if t true condition of things were known, but unfortu ately accurate knowledge of the operating conditio does not always exist. Such conditions would corre pond to nearly 300 per cent excess air in the furna gases, a furnace temperature of 1200 deg. F. of abo 24 per cent of the fuel burned.

The sources of this excess air are usually poo conditioned fires. Where proper attention is not giv to the methods of firing, the fuel burns through mo rapidly in some spots of the bed than in others. these spots are not immediately covered with fre fuel, they afford a free passage for unnecessary exc air. A number of these spots in the fuel bed m cause the efficiency to drop in a very few minutes un contions similar to those just described are reache

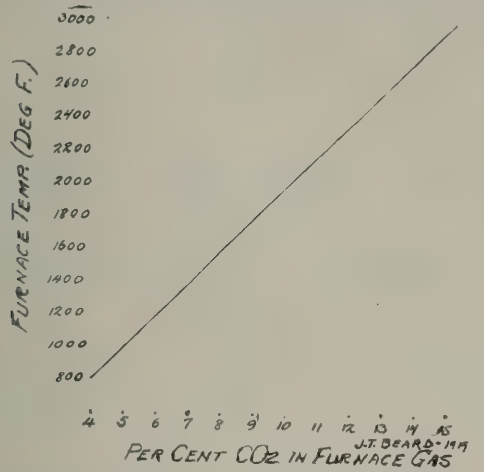
How to Fight Excess Air

DARK spots in the fuel do not necessarily me that these spots are actually black. True, they a darker than the live parts of the bed, but, if the la ter, is very bright, the dazzling effect on the eyes m prevent the detection of the dark spots, except throu the use of dark glasses. They are there neverthel and are an ever-present source of waste which is bo unnecessary and preventable.

Another source of excess air is the cracks and cre ices in the boiler setting itself. The draft within t furnace will suck or draw air from the boiler roo through every crack available. If this air does n pass through a live fuel bed, it merely dilutes a cools the furnace gases without doing any useful wo and causes a corresponding drop in the boiler econom Cracks in the boiler setting may be detected by hol ing a lighted candle to the setting wall. Wherever t flame is drawn into the brickwork, you may r assured that there is an air leak into the furnace.



We have spoken of the value of CO_2 readings an indication of the excess air present and as a me ure of the preventable loss in terms of the per c of the total coal burned. We have also called attention to the comparative ease with which these readings are taken. Perhaps the simplest of these devices is the Hand Orsat, which is a compact instrument, easily operated and read by the chief or his assistant.



This instrument is used for taking occasional readings during the day, for checking other instruments of the recording variety, and for running tests simple or elaborate with a view to determining the best draft conditions, thickness of fuel bed, etc., for maximum combustion efficiency.

It is hardly to be expected that any man can by guesswork determine when the boilers and stokers are performing their best work. Not without suitable instruments can accurate knowledge of the operating losses just described be gained. Of course, much can be done by insisting upon the porper conditioning of the fires and the stopping of the leaks in the boiler settings. To realize the fullest measure of economy, however, more reliable information is essential.

Tests of the Flue Gas

SAMPLES of the flue gas for the purpose of testing are usually taken from the flue connection to the boiler, taking care to insert the sampling tube in the center of flow of the gases. The resultant reading is an indication of the total dilution of the gases of combustion with excess air. This includes excess air which filters through a poorly conditioned fuel bed, as well as that air which leaks into the setting through cracks in the brickwork.

If the sampling tube is inserted directly into the furnace, the reading will indicate how much excess air is due to the poorly conditioned fuel bed alone. The discrepancy between the two readings will be charged to excess air due to setting cracks.

The Hand Orsat, useful as it is, can serve only to give isolated readings and requires the constant attendance of an operator. Where continuous and automatic records are desirable, so that an accurate check can be had of the firing conditions over the entire period of twenty-four hours, suitable instruments are available. These CO_2 recorders make a record on a daily chart. If each boiler is equipped with its individual recorder complete, continuous and automatic records are possible. Possible coal savings, however, do not always warrant the expense involved in such an installation. Where the expense of individual recorders is not advisable, a single recorder may be installed to serve two or more boilers. The piping of the sampling tubes may be so arranged that the recorder may be switched from one boiler to the other from day to day. While such an arrangement does not furnish such complete information as the previous method, it does materially assist in maintaining a high average of boiler efficiency in small power plants.

Sampling cans for the purpose of collecting continuously and automatically an average flue gas sample from a single boiler unit, are frequently used in conjunction with a single CO_2 recorder. In this way a continuous chart record is available showing the daily performance of any one boiler. In addition, the sampling cans are tested by means of a hand orsat at the end of each 24-hour run and an average reading is obtained for each of the other boiler units.

Charts Show Effect of Air Excess

THE charts accompanying this article show the effect of excess air upon furnace temperatures and upon the percentage of carbon dioxide in the flue gases. They also indicate approximately the amount of fuel loss corresponding to different percentages of CO_2, or excess air, as the case may be. They should prove valuable to the operating man who wishes to check boiler operation with a view to reducing the preventable loss resulting from excess air to a minimum.

In any boiler room the largest preventable loss of fuel is due nine times out of ten to the presence of excess air. Fortunately this loss is also the most easily eliminated and merely involves taking those common sense steps in the handling of the fires that that will prevent air leaks and in stopping of cracks in the setting itself. It is unusual to find any plant where the preventable fuel loss due to excess air is zero. If suitable means are not available, however, for getting accurate knowledge of the magnitude of this loss and for determining when the best operating conditions are attained, proper steps cannot be taken for preventing this fuel waste. Accurate knowledge, however, is not the only essential. The knowledge must also be correctly interpreted in terms of practical operating conditions. It must then be applied to each individual case and intelligently supervised, with a view to maintaining the best results 24 hours a day.

Old Company Buys New Property

John Carter & Company, Inc., 595 Atlantic Avenue, Boston, one of the oldest and largest paper houses in Boston, has purchased the mercantile property at 230-232 Purchase Street from Fred Holdsworth and Robert D. Farrington.

The company purchases for its own occupancy and after making extensive alterations and improvements to care for its business, will occupy the same. It is expected that it will move into the building about March 1. For many years the company was located in the Federal-Pearl street district but requiring additional room, moved to Atlantic Avenue a few years ago. Their new purchase will bring them further uptown in the wholesale district.

The building just purchased is a four story brick and stone structure and each floor contains 1328 square feet of floor space. The total tax value of the property is $40,000 of which $26,600 is on the land. It is understood that the purchase price was considerably in excess of this figure.

Western Union Humor

It has been reported that a certain well known young married man of this community burst into the office in the wildest excitement recently and wired his wife's relations as follows: "Twins today; more tomorrow!"

Get To Work

"An' what's your job around here, young feller?" asked the farmer of an official in a big city railroad station.

"I'm the train caller," answered that dignitary.

"Well, call me one, then. I'm in a hurry."

The plant of the Gulf Paper Co., at Crichton, Ala., has been damaged by fire to the extent of $200,000.

PAPER MANUFACTURERS TO REDUCE VARIETIES

Chamber of Commerce Frank in Making Request of Paper Men to Reduce Varieties to 56

AN appeal to manufacturers throughout the country to give more attention to the elimination of excess varieties during 1924 is contained in a pamphlet just issued by the Fabricated Production Department of the Chamber of Commerce of the United States.

The department suggests that manufacturers who have not already done so undertake to simplify and standardize their products at the next inventory period.

"Wouldn't it be very much worthwhile," the pamphlet asks, "if the amount of physical, clerical and other effort of inventory could be cut in half, or probably even more; the period of plant shut-down greatly reduced; and all the figures available quickly without undue burden on the force? Have you thought of the possibilities along these lines afforded by the elimination of excess varieties and duplications which you may be producing and carrying in stock? But increased facility of inventory taking is only one of the manifold benefits and savings that are certain to accrue from a simplification and standardization project, all of which point to that all important goal—the elimination of avoidable industrial waste.

"Certain applications and possibilities become evident on first thought. For instance, such items as raw materials, purchased parts, component parts, finished product, cartons, packing cases, terminology, performance, brands and finishes are all amendable to the simplified practice treatment. Consider also the extent to which centralized effort is reflected in the functioning and operation of not alone the fabricating, but of the purchasing, the accounting, the engineering, the stock-keeping and all the other departments."

Reductions made by some manufacturers of fine papers have limited the lines to 56 instead of 377.

TWO GREAT PAPER MILLS IN NORTHWEST

One Is Just Starting Construction and the Other Is Close to Actual Operations

TWO great paper mills, one nearing completion, and one in the first stages of construction, are now added to the great string of mills in the Northwest, where a wide scattered area of rare wealth of timber, and energy creating facilities invite the establishing of still greater number of mills.

The Columbia River Paper Mills at Vancouver, Washington, will be a whirl of productive industry early in the spring. Steel work is now being done, for the superstructure, which will be built entirely of steel and glass with a three foot tile base. All cement work is completed, and acid towers, vats and foundations for both building and machinery are in place. When complete this plant will have 22,000 square feet of glass.

A sawmill cutting 125,000 feet daily is now in operation, employing 125 men. The waste from this mill will furnish material for pulp and papermaking, as well as sawdust, bark and edgings for feeding boilers and generating electric power for both sawmill and paper mill. The sawmill is electrically driven as will be the paper mill, when completed.

A huge recent shipment of machinery weighing 260 tons contained chiefly the great paper making machine, made especially for this concern by Bagley & Sewell of New York. Vegetable parchment, wrapping paper and newsprint in sheets 136 inches in width will be made at the rate of fifty tons per day in sheets 136 inches wide. Deep water frontage and railway freight terminal advantages endower the Columbia River Paper Mills with unexcellable shipping power both as to exporting and importing, in United States and with foreign countries.

The common stock of this mill is now issued for $1,250,000, considerable of which is being held in reserve.

The newer project—the Portland Pulp and Paper Company commences construction work the first week of January. The president and vice-president, R. H. Mills, and Joseph Kaster, are now in the east placing orders for the vast amount of equipment which the project will require. Located in direct conjunction with the Monarch sawmill, this mill will consume what has hitherto been total wastage.

Other mills of the Northwest, long established and now in operation at The Crown-Willamette Paper Company, operating five mills in Oregon, and rated as the second largest paper manufacturing firm in the world, the Hawley Pulp and Paper Company, which was recently destroyed by fire, but which will be rebuilt immediately, The Oregon Pulp and Paper Company of Salem, the Everett Pulp and Paper Company of Everett, Washington, the Parafine Paper Company of Sumner and Port Angeles, Washington, the Washington Pulp and Paper Company of Port Angeles, Washington, the Cascade Paper Company of Steilacoom, Washington, the Inland Empire Paper Company of Spokane, Washington, and in British Columbia the Powell River Paper Company, the Howe Sound Pulp and Paper Company and Beaver Coal, Pulp and Paper Company. With the exception of the last two named concerns, which have not been successful in the past, this entire great industrial group is operating on a thriving basis.

UNNECESSARY DESTRUCTION OF TREES

J. B. Dillon Writes in Protest of Wanton Use of Christmas Trees, While Authorities Ask Conservation

FROM many sections of the United States, the press has narrated what wonderful big trees were used by municipal authorities for Christmas celebrations.

To give you an idea of how some of the City Fathers act toward the timberland we quote from the Rocky Mountain News of Denver, Colorado:

"The large Christmas tree to be used in decorating civic center for the yuletide is sixty feet high and said to be the finest obtainable in the foothills near Denver. This tree will be the center of a group of 275 or 300 smaller trees to be used in the display, the City Engineer says."

In addition to the big fellow there are two trees forty feet high and several hundred ranging from five feet to twenty-five feet.

But it was Christmas and surely no one would take any exceptions to such actions?

What became of the two trees sixty feet high and the myriad of smaller trees the same people cut down last year for the same purpose?

Chopped up and used for fire wood.

Now there is no reason why these trees cut down for Christmas decorations,—it would be better if they had not been cut down—could not have been made into "perpetual trees" so as to use the same trees for years to come. Yes it is practical and any good mechanic could arrange it so that the trees might be cut into sections and mechanically arranged for reassembling, and this is the way and means every Christmas tree should be made regardless of size and stop the abusing of forests.

What was the idea of using several hundred small trees?

To stand them against the iron posts holding the boulevard lights, and as soon as the holidays are over, dump them into a pile and burn them. This is wanton waste of our timber and that's all there is to it. In the day light the display loses much of its beauty, but in the night time it is a veritable fairyland, not because of the trees, but because of the many varied colored incandescent lamps, a fact that adds a further condemnation to the utter disregard for the conservation of our timber.

While all of this tree cutting was going on, Governor Sweet of Colorado issued a proclamation urging all citizens of the state the importance of conserving our great natural resources, the proclamation coming after complaints had been made that the forests were being ravaged by people cutting down trees to be used during Christmas.

No wonder people smile at such proclamations when the foregoing is considered, but it is a serious matter and the city must set an example that shows conservation and not destructiveness.

While the Governor's proclamation was being read, the Denver Post comes out with the headline: "National Forests Unhurt By Cutting of Christmas Trees." The item recites that "only trees that would die if permitted to remain on the forests are being cut." Maybe?

It is just these kind of trees that should be used in the making of Christmas trees of the "automatic-fold-up-kind," and the promiscuous and every yuletide cutting must stop, for the days are gone when we can refer to an object as cheap, by saying: "Do you think it grows on trees?"

Denver is used as an example because this article was written in Denver, where the correspondent saw with his own eyes, but what refers to Denver applies to many, many cities and if this article carries out its purpose millions of young trees wil be saved yearly and when that is done we are on the road to rich and lovely forests.

J. B. Dillon, Denver, Colorado.

New Ideas on Paper Fillers

A Leading European Paper Maker Presents Some Unusual Information for American Paper Makers

By H. POSTL BIEDERMANNSDORF, *Vienna, Austria*

N the early days of the paper industry, when the chlorine bleaching process had not yet been discovered and paper was sold by the sheet and not by weight, it s the practice not to use any loading or filling materials a mineral nature or at most only a very small proporn of the same. When it was done it was for the purse of making a white sheet of paper and rendering the rface of the same printable. Starch was principally used a filler for this purpose. Starch is detected in the lest known papers, those that come from Asia, both der the microscope and by the iodine test. It was only wards the middle of the last century that a few large elgian paper mills commenced to use mineral fillers in der to save using so much of the most expensive paper ock in making a paper of a given weight. This practice on spread to other countries and simultaneously thereth paper began to be bought and sold on the basis of eight. At the present time starch is still used in the per industry but not for the same purpose, but to make e mineral filling materials stick to the paper fibers more osely.

Use of Starches

The starch that is used for this purpose is most freently made from potatoes and less frequently from wheat d rice flour. Potatoes contain approximately twenty rcent of starch, while wheat contains 60 percent starch d rice contains as much as 75 percent. The chemical mposition of starch is represented by the formula, $H_{10}O_5$. Hence according to its formula it bears a close lation to cellulose. In the raw condition starch does ot stick to the paper cellulose very well. Hence it is lvisable to make a paste out of the starch by boiling the me after from one to two percent of caustic soda has een added.

Before the war the large paper concerns in both Austria d Germany imported most of the mineral fillers used in eighing paper. After the war due to the broken conections between the outside world and these countries d the decrease in the value of the mark and the high st of transporting these materials from the outside counies into Germany and Austria, more attention was paid the domestic supplies of mineral fillers. Explorations ere undertaken and deposits of various minerals were loted in both countries, so that at the present time there e indications that there is a plentiful supply of these aterials for the paper industry and there is no need for nporting these materials from foreign countries. Mineral llers are accordingly available not only for loading coarser rades of paper such as packing paper but also for weightg the finest kinds of high grade papers. A short decription of the various fillers used, their properties and e effects produced by their use follows:

Asbestos

The word, asbestos, derived from the Greek, means literlly uncombustible. This mineral, which is found in thick nd fine fibers, an elastic aggregation of white, green, or rown colored masses, has a silky or waxy lustre or possesses no lustre at all. At times it has a fatty feel, and at ther times a dry feel. It occurs mostly in combination ith hornblend, augite, mica and serpentin, with which inerals it forms a very firm combination. It appears in ct to grow out of the same. It is widely distributed, owever it is found in just small masses imbedded between e rock.

Russian asbestos possesses the longest, finest, softest bers of all the known kinds of asbestos. Asbestos is used r making fire-resistant fabrics, paper, insulating pads, for ning hot air and steam pipes, boilers, etc. It has a great any different uses besides as a filler for paper. The short fiber asbestos, which is unsuited for manufacture of expensive articles, is ground up and used as a filler for different kinds of paper.

Blance Fixe

Blance fixe is made in a chemical way by the precipitation of barium salts with sulphuric acid. The sulphate of barium, which is made in this manner, is composed of extremely fine particles. The most careful grinding and levigation of heavy spar, barium sulphate, will not give a material possessing such fineness as the precipitated substance. Blance fixe is dazzling white, absolutely clean and is found on the market in a paste form, mixed with approximately 38 percent moisture. It must always be kept in the moist condition before being used and it is necessary to see that the material that is received by the plant is moist and not dried out. The reason for this is that the dried material, when mixed with water, does not give a mixture in which the particles are so finely distributed as when the moist material is diluted with water. This means that good results cannot be obtained with this material in filling paper.

Because of its properties, which have been described above, it gives the paper a high gloss a pure white appearance and renders its surface perfectly suitable for printing. It is for this reason that blance fixe is used so largely in making art printing papers and other high grade papers.

Gypsum

Large quantities of gypsum are found in Austria and Germany. It is found in various stages of purity and mineral condition.

It is important to note that a good paper filler cannot be made from any and every variety of gypsum. Only gypsum of older formation can be used for this purpose. The earlier varieties of gypsum are used in the building industry and in making fertilizer compositions. The separation of the stone from the other extraneous rocks is accomplished by blasting and the broken stone is sorted. The stone that is to be used for making brilliant white, the paper filling material, in slabs about 15 to 30 centimeters thick, is freed of a thin black crust which sticks to both sides of the same. The blacker this crust, the whiter the color of the gypsum. Hence an indication of the quality of the stone is afforded by its external appearance.

Pure gypsum has the formula $CaSO_4\text{-}2H_2O$. It contains 32.56 percent of CaO, 46.51 percent of H_2SO_4 and 20.93 percent H_2O. The product that is made from the raw material by grinding, screening through a silk screen has the afore mentioned composition. It is absolutely neutral, and in spite of its high specific weight of 2.2 to 2.4, it is rather bulky.

By burning the gypsum almost all of the 15 to 20 percent of the water of crystallization contained therein is removed. The product then has the following composition:

97.7 percent of sulphate of lime
0.75 percent of caustic lime
0.71 percent of magnesia
0.84 percent of water.

The calcined gypsum is then ground to the state of a fine powder. This product, which is known as brilliant white, is very bulky and moreover strongly alkaline. The alkaline can be eliminated by mixing the product with lenzin, a sort of kaolin or by allowing the material to remain for a considerable length of time in storage. There are also several little technical tricks which can be employed to remove the alkalinity of this product. These are kept secret by the various manufacturers who use them.

Lenzin is used in admixture with the burnt gypsum to give a composition product which is very cheap and which is employed in filling the cheaper grades of paper and pasteboard. It may also be used alone and is simply added to the beater without any preliminary treatment, being shaken over the surface of the pulp as it is being beaten.

Use of Brilliant White as a Filler

Neutral brilliant white is a very advantageous filler for very fine and moderately fine grades of papers and cardboards. In most cases the filler is stirred up with water without heating. It is then screened through a number 70 to 80 screen and fed directly into the paper beater. In certain individual cases brilliant white is digested in combination with potato or rice starch. The jellylike mass is filtered, before it is added to the paper stock, by passing through a fine sieve.

The special form of kaolin, lenzin, as well as brilliant white exceeds in whiteness the brightest kinds of kaolin and from this standpoint it is even no less white than blance fixe.

In former times the use of both these fillers was always bound up with a certain loss, as one part of gypsum is soluble in approximately four hundred parts of water. But when the practice was introduced of recovering the back waters and using these over again in diluting the stock on the paper making machine the loss of filler in the waste waters did not amount to very much.

Kaolin

The first use for kaolin was in the manufacture of chinaware and porcelain. Kaolin is used to a very large extent in the paper industry both as a weighting material and as an ingredient of compositions used in making coated papers. It is formed by the decomposition of alumina-containing silicates and for the most part from heavy spar. There are various grades of this filler according to the color, fineness, purity and feel of the product.

Kaolin is found in nature mixed with other substances, which are impurities and which have to be removed in order to obtain a clean, pure product. This is accomplished by levigation. This is generally done by mixing the kaolin, as it comes out of the ground, with water and passing the milky mass through screens and sand catch boxes. It must be remembered that the water that is used for this purpose must be free from impurities, especially iron salts, lime, etc., in order to obtain a pure product. The pure kaolin is composed of approximately 46 percent of silica, 40 percent of alumina and 14 percent of water. This corresponds to the formula, H_2 Al_2 Sl_2 O8. The specific weight of the mineral is 2.2.

Chalk

There are various grades of chalk mined in European and other countries. Each locality produces a chalk of different properties than the next. Finely levigated chalk is used as a constituent of compositions used in making coated papers, while the lower grades of this mineral are employed in loading cheaper grades of paper, such as packing paper, wherein the color of the filler is no object.

The finest grade of pure white carbonate of lime is made artificially by dissolving burnt marble or limestone in water and introducing a stream of carbon dioxide gas. A precipitate is formed which settles to the bottom of the reaction vessel. This is known as precipitated chalk. When it is mixed with fine white talc in the correct proportions and added to the beater, it will give a paper with a very high degree of opacity. This type of paper can be employed in very thin sheets for printing on both sides, without the print being visible on the other side of the paper.

Magnesium Carbonate

Magnesium carbonate is obtained as a by-product in making table salt from ordinary rock salt. The mineral magnesite, which is used largely in the manufacture of refractory crucibles, consists almost entirely of magnesium carbonate. Dolomite, which is a mineral very widely distributed throughout the earth, is a combination of magnesium carbonate and calcium carbonate.

Artificially made magnesium carbonate is a dazzling white, fluffy powder and forms an important constituent of cigarette paper. This filler does not prevent the ready combustibility of the paper.

Serpentin

This mineral is a filler which has not been used ex sively except in the few years that have elapsed since war. The most suitable form of this mineral for us paper making is the so-called serpentin asbestos, w contains talc as well as asbestos. When the serpenti ground into a fine powder, its color is white with a ce greenish cast. It has a feel like a lean kaolin and er the market under the name of asbestine. The degre hardness of this substance is 4 to 4.5, the specific we is 2.5 to 2.7. In the purest condition its chemical stitution is repreesnted by the following formula: H SI_2 O8 plusH_2O. In other words it is a silicate of n nesium with water of crystallization.

Heavy Spar

This mineral, which belongs to the sulphate clas used mainly in the manufacture of packing papers. H spar is $BaSO_4$ and possesses a hardness of 3 to 3.5 a specific weight of approximately 4.5. A certain propor of the finely ground powder, and it is important to g the mineral as thoroughly as possible, is added to diffe papers to increase the weight of the same. In wrap sugar and various foods such as cheese and sausage, author tells of personal experience with the use of a w ping paper, which was so heavily weighted with h spar that the paper looked just like lead foil in stea paper. In fact the percentage of ash in the paper wa percent.

Talc

Talc is a very popular filler for paper but it is not wi distributed in nature. The chemical composition of substance is $3MgO. 4SiO_2. H_2O$. The value of the p uct in paper making is determined principally by the c of the product. It is found colored a dazzling w green, gray, red or yellow. The talc that contains c is not suitable for use as a filler for paper. The pres of limestone or chalk, calcium carbonate, in the tal easily ascertained by allowing a drop of dilute sulph acid fall on the product. The evolution of gas indic the presence of the carbonate in the mineral.

Clay

The clays that are found in nature are divided up two classes, those that can be melted and those that are sistant to fire. Each class of clay possesses proper which render it particularly useful for various purpo Loam and clay which are seldom found in the pure w state in nature, and are mostly colored gray, blue, yel or reddish brown, are not very suitable as paper fi on account of this fact. However the cheapest of the terial makes its use advisable when manufacturing cheaper grades of paper in which the color is not an portant consideration. Hence these materials are emplo in weighting packing papers, grayish colored paper other kinds of paper and cheap cardboard.

Turbine for Uncas Paper Board Compa

The Uncas Paper Board Company, of Norwich, Conn., awarded contracts for a 750 horsepower k. w. steam tur which will be installed early in the new year. The en plant, employing about 150 persons, will then be oper entirely by motors.

During the short time in which the present management been in charge of the plant, the company has expended a $160,000 in improvements and the company is now ship about 200 tons of paper board daily. The product is principally for lithograph work and for high grade bo car signs, etc.

The company is particularly well located with facilities shipping its product from its own wharves as well as rail. The company is cooperating with the Chamber Commerce of Norwich in an effort to have the governm widen and deepen the channel of the harbor so that ships larger tonnage may be used.

Accept New Building

A new building to be known as the Alfred H. Hend son Hall of the College of Forestry has been accepted the regents of the University of Washington. Mrs. Hend son, making the gift in memory of her husband, has gi the University $250,000 for this purpose.

New Developments in Paper Making

Water Resistant Paper

A new British Patent, which is described in the World's aper Trade Review, tells of a process for making a water esistant paper by the use of neutral salts, such as calcium hloride and magnesium chloride, which in certain conditions xercise an acid action. Relatively large quantities of colloidal ubstances such as casein, animal glue, etc., may also be added, nd also coloring matter, and glycerine, sugar, etc., which later render the paper flexible.

The casein or animal glue may be added in the rag engine, r paper may be impregnated with a solution of acid-acting ubstances, formaldehyde and glue. The solutions may be pplied cold or heated, and either by impregnating or by oating. The coating process may be carried out in stages, he different reacting ingredients being applied on opposite sides f the paper. The product may be coated with varnish, asphalt, itch, tar or the like, and threads, fabrics, and the like may e imbedded in the covering layers thus put on. A cardboard r millboard may be produced by uniting several water resisant webs, or these webs may be combined with other untreated aper webs.

Chemistry of Wood

In softwoods the water, ether and alkali extracts are higher n the heart wood than in the sap wood, and as result of this ondition the cellulose and lignin are correspondingly lower n the heart wood, with the exception of the lignin in white edar. On the basis of the extractions hard woods are divided nto two groups. The first contains those woods which have igh extractives in the heart wood, and the second contains hose woods which have high extractives in the sap wood. The former have a high cellulose content in the sapwood, he latter in the heart wood. Acetic acid by hydrolysis is igher in the sap wood than in the heart wood of both soft nd hard woods. In the article, which reports this series of nvestigations on the composition of some American woods, here are given a number of detailed analyses of American woods together with the ratio of methoxyl to lignin in the ven dried wood both for sap woods and heart woods. See Ind. Eng. Chem., 1923, 1055-1056.

Paper Sizing With Bark Oil Soap

An interesting paper has been published in the Papierfabrikant on the use of tree bark oil soap as a sizing material for paper. Tree bark oil is a dark green mass consisting of fats and resins which is extracted for the bark in the course of its preparation as a fodder material. The substance melts at a temperature of 35 degrees C and in the crude state it requires for saponification 5.70 per cent of carbonate of soda. The soap is prepared by heating with the necessary quantity of soda ash for several hours, or more rapidly with caustic soda, the product from one hundred grams of the oil being made up to 150 grams. The soap in the proportion of six per cent and four per cent of sulphate of alumina has been employed successfully in the sizing of paper pulp.

Larger quantities give a harsher paper and the pulp tends to be sticky from excess of resinous matter. A peculiarity of the papers sized with bark oil soap is the fact that the ink resistance of the sized paper increases with age, so that an improvement is noted two months after the paper has been sized and a very marked difference is noted after a few years. This is attributed to the progressive oxidation of the unsaponifiable matters that are contained in the emulsion of the soap. Bark oil soap is not such a powerful sizing agent as cottonseed oil soap, but whereas the latter produces a very marked diminution in the tensile strength of the sized paper, as is the case with the aluminum soaps of all the fatty acids, the decerase is far less in the case of the bark oil size, due presumably to the fact that this material contains resinous constituents as well.

Digesting Wood

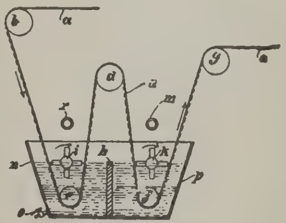
United States Patent No. 1,478,614 is concerned with a process of digesting wood pulp. This patent is assigned to the A-S, Cellulosapatenter of Christiania, Norway.

It is mainly concerned with a method of preventing the separation of the calcium compounds from the digesting liquor due to the liberation of gas from the same. This takes place during the indirect digestion of the sulphite cellulose. The process consists in maintaining the liquid under a pressure in the digester during heating greater than the pressure permitting the liberation of gas from the liquor. In this way substantial quantities of gas are prevented from escaping from the liquor and the liberation of calcium salts is prevented. There is accordingly no thick scum of such salts formed on the surface of the liquor.

Cleaning Paper Felt While in Operation

The device which is seen in the accompanying illustration is patented in United States Patent No. 1,478,712 and is employed for cleaning the paper felt on paper making and cardboard machines while the latter are in operation.

The apparatus consists of a container for the cleaning liquid, a paddle wheel which is mounted in this container and which is adapted to rotate in the cleaning liquid, a number of guide rollers for guiding the felt to be cleaned through the cleaning liquid. These rollers are mounted partly above the liquid container and partly within the same at a lower level than the paddle wheel. They are arranged with respect to the paddle wheel in such a manner that the felt is guided at some distance from the paddle wheel around the latter which is facing the paddle wheel with its rear side.



Paper Insulated Electric Cables

The invention, which is described in British Patent No. 203,566, is concerned with a process for making paper for insulating electric cables, in which the paper before its application to the cable in the form of the usual spiral covering is impregnated with a sizing material, such as animal size, casein, albumen, or dextrine, by passing it first through a bath of impregnating solution to cause a partial impregnation. Then the paper is passed between press rollers either in the sizing material or after the treatment with this material to cause it to be pressed into the paper and bring about complete impregnation. The sizing material is then hardened by means of alum, chromium salts or formalin, mixed with the sizing material, or by subsequent treatment with it.

The manufacture of insulating paper for electric cables may also be carried out by the addition of an alkali to the sizing bath. Caustic soda may be used for this purpose. It is also possible to use acids, as for example lactic acid, for the purpose of improving the absorption of the sizing material by the paper and of increasing the fluidity of the sizing bath.

The paper, after it has been treated with the sizing material, may then be cooled by means of cold air currents. Then again after the paper has been thoroughly impregnated with the sizing material it may be given a coating of varnish. It is also possible to mix an easily emulsifiable substance, such as soap or castor oil, with the sizing material.

In the insulation of electric cables with paper, winding the paper on to the conductor in the wet state and drying it by passage through a hot impregnating bath is one way in which the process may be applied.

Doings in Canadian Paper Field

HAMMERMILL BUYING IN CANADIAN FIELD

Company Paid Out Million Dollars Last Year for Purchase and Handling of Wood

THE Hammermill Paper Company, of Erie, Pa., is an extensive buyer of pulpwood in the district around Port Arthur and Fort William, Ont. For the past twenty years the company has bought wood at the head of the lakes, all through contractors and jobbers. M. Cochrane was appointed general manager four years ago and established an office in Port Arthur.

They now handle exportable wood practically whenever offered and drive, raft and load it on vessels themselves. Last year the company, through their offices in Port Arthur paid out practically one million dollars for the purchase and handling of wood. Eighty-five per cent of this wood was bought from the settlers who were paid in full for their product when delivered on the banks of the various streams. The firm gave employment to about 600 men all winter and approximately 100 all summer. This coming season they are purchasing about the same quantity of wood, a portion of which will come down the Kaministiquia River with the wood of the Fort William Paper Company, some down the Current River and quite a portion from points on Lake Superior as far as Rossport.

1000 Lumberjacks and No Job

One thousand lumberjacks are without employment and have not received their wages for several weeks as a result of the financial difficulties of the Bay Sulphite Company, which culminated a few days ago in a petition in bankruptcy being filed and a temporary guardian being appointed by the Quebec registrar. Hon. Honore Mercier, minister of lands and forests has dispatched two inspectors to learn the facts and deal with the situation. Reports are to the effect that the lumberjacks are in a serious predicament and are pouring into the little town of Chandler from the forests of Gaspe and Bonaventure counties, where they had gone for the company for the winter season.

Hooke Succeeds Dickinson

Harry Hooke, who for some years has been connected with the paper department of Brown Brothers, Limited, paper converters and manufacturing stationers, Toronto, has been promoted to the management of the paper and binders' supplies department of the firm, in succession to Harry Dickinson who, with B. G. Whitelaw has purchased the paper agency business of the late Aubrey Hurst, Toronto.

American Capital in Canada

It looks very much as though American capital were about to go in earnest into pulp and paper manufacturing in the Maritime Provinces. At present there is that of the Bathurst Co., at Bathurst, N. B. All other mills being producers merely of pulp. The Bathurst mill began producing paper during this last year. It is reported that the Hearst interests are negotiating for a paper mill down by the Atlantic, and that they also want some large tracts of timber land. If Hearst is in earnest he probably will have no difficulty in getting what he wants.

The American Perforated Wrapping Co., at Sheet Harbor, N. S., is a concern that looks like undertaking rather large operations. It controls over 60,000 acres of land at Sheet Harbor, and in the spring will begin the construction of a ground wood mill with a capacity of 25,000 tons of pulp per annum. It is also thought that on the Canadian side of the St. Croix River at St. Stephen, N. B., the Hollingsworth and Whitney interests of Maine will build a paper mill. It was originally planned for the American side, but the Canadian side has now been selected.

Increases Its Profits

The Wayagamack Pulp and Paper Co., increased its profits by more than $500,000 during the year ending November 30th, and after meeting all charges had something left for dividends. There was a net profit of $206,356, equivalent to more than 4 per cent on the capital stock. The report indicates the greatly improved conditions in the kraft pulp and paper industry that ruled during the greater part of 1923.

Extend Water Storage

The Pacific Mills at Ocean Falls, B. C., have extended their water storage facilities by raising their dam an additional 15 feet and thus have added a new 6,500 h. p. unit to their hydro plant.

Complete New Development

The Spruce Falls Company has completed a 2,500 h. p. hydro-power development at Kapuskasing on the river of the same name in Ontario, the power to be used in connection with a pulp and paper plant. The Dryden Paper Co., has also completed an installation of 1,400 h. p. on the Wabigoon River.

Installs New Units

In the Kenora, Ont., district the Brooks-Backus Co. has installed two additional 1,200 h. p. units in its plant at Kenora, and with four more units of the same capacity that will be installed early in 1924, the station will have a capacity of 12,000 h. p. for use in connection with the company's pulp and paper mill.

Sends Out 1924 Greetings

A. Storrs & Bement Company have sent out New Year's greetings as successors of Amariah Storrs. W. F. McQuillen, treasurer says, "To have succeeded to the friendships handed down through the seventy-seven years is a heritage which we of the present generation greatly value. It is with sincere pleasure that we send you this greeting as an expression of our great appreciation."

PROTEST ON REMOVING CHRISTMAS TREES

Canadian Pulp and Paper Men Opposed to Wholesale Use of Taking Christmas Trees From Canada

A NUMBER of prominent pulp and paper executives have been investigating the inroads made on young trees that would eventually serve as pulpwood, and have found that more of these young trees were removed for the Christmas of 1923, than ever before, this being applicable to the woods of eastern Canada. In most instances the farmers who chopped the trees mostly fir, cedar and spruce, received not more than five cents per tree for their labor. And the same trees were retailed in the United States for from seventy cents to one dollar, and very frequently the price went higher.

The attention of the Canadian government is being drawn to the wholesale cutting of these young trees, which extends from the first of October until the middle of December. In some sections, two-thirds of the young fir, sedar and spruce have been removed. It is not until recently, after the damage inflicted by the general removal of the young trees, had been pointed out, that those who had been active for the embargo on exportation of pulpwood to the United States betrayed interest in this subject.

As yet individuals who have manifested a remarkable interest in the embargo have not yet memorialized either the Canadian government or the various provincial governments, to enact laws that would reduce to the minimum, the cutting of the young trees, for export to the United States, for the Christmas season.

From the provinces of New Brunswick, Nova Scotia and Prince Edward Island alone, more than 1,500,000 young trees were exported to the United States for the 1923 Christmas. Instead of being so vehement for an embargo, proponents for such a measure should interest themselves actively in the suppression of the traffic in Christmas trees, and thus confer a real benefit on the Canadian pulp and paper industry, as well as contributing something tangible toward forest conservation.

For some years, the advocates of the embargo have been inactive while hundreds of thousands of the valuable young trees, suitable for pulp in a few years, were cut down and exported annually. Apparently, they objected to pulpwood crossing the line to United States mills, but did not object to young trees that would serve as pulpwod, being shipped across the boundary. Even today there is nothing like a vigorous effort to ban the exportation of the Christmas trees. only one paper mill in these provinces,

Adds to Timber Limits

It is learned that the Belgo-Canadian Paper Company, Quebec, has been adding to its timber limits by the purchase of several blocks of Woodlands in Northern Quebec. The company has already owned 15,000 acres of freehold timber limits, and controlled about 1,800 square miles of leasehold limits, containing about 6,000,000 cords of pulpwood. The additional purchases have added from six to ten years to the life of the company's limits and has been further increased by the purchase of about 30,000 cords of pulpwood during the present year, which has relieved the company of the necessity of cutting that much wood from its own limits.

U. S. Financiers Still Acquiring

The change in the receivership of the Whalen Pulp and Paper Company in British Columbia, whereby E. M. Mills, of the Zellerback Paper Company of San Francisco, has been appointed, is interpreted in Vancouver as meaning that the last pulp concern in British Columbia under Canadian financing may pass to the conrol of United States interests. The Pacific Mills, one of the best pulp manufacturing plants on the coast, was acquired by American financiers for a comparatively small figure and creditors of the Whalen company are said to be fearful that the Whalen plant may be sold under similar circumstances. The Whalen company had reached a point where three pulp plants were ready to feed a paper mill, but difficulties in financing the paper mill were experienced.

May Tax Pulpwood Lands

Indications are that the Nova Scotia government intends to increase the taxes on pulpwood lands in the near future. This will affect the United States companies which own pulpwood areas in that province. It has been proposed that a nominal tax of about one or two dollars per acre be placed on the land and an additional tax, pro rata with the pulpwood that is removed, each year. That the provincial government intends to raise the taxes on the timber seems to be assured. The rule in the past has been to tax the land each year at full value, which means that the more quickly the pulpwood is removed from the lands, the less taxation for the owners of the pulpwood areas.

Optimistic on Business

Price Brothers & Co., Limited, of Quebec, are optimistic concerning future business conditions in Canada in the paper field. In a circular just issued and sent to their customers they say: "During the past year a return of confidence brought with it a general settling down in trade. Both demand for goods and enquiries steadied up, permitting the trade, without undue risk, to purchase for its requirements. This return to the new normalcy reflected advantageously upon industries in general in this country and brought about a more regular meeting of obligations. Were it not for the unsettled political situation in Europe we could look forward to the coming year with greater confidence; but we believe, nevertheless, that the year 1924 will be as good as 1923, if not somewhat better."

Only Woman Head of Paper Mill

Miss A. M. Thorpe, who has been managing the pulp and paper company at Fort Miller on the Hudson for the last fourteen years, is the only woman managing a paper mill.

When her father, John Craig, died fourteen years ago, Miss Thorpe became president, treasurer, and general manager of the company, and also held a controlling interest.

The veteran wood products men of the upper Hudson had their doubts about the success of the girl, who had just graduated from a musical course at Wellesley, and were dubious about her ability to run the plant in a thoroughgoing manner.

However, Miss Thorpe soon convinced even the most skeptical that she had come to stay, and her management is now taken as a matter of fact.

The Fort Miller Pulp and Paper Mill is a ground wood mill with two seventy-two inch paper machines and a force of fifty men; constituting the largest mill in Fort Miller. It was destroyed by fire last May, and is now being rebuilt with additional grinders.

Miss Thorpe is an unusual and interesting figure in the industrial community of Fort Miller. At her desk from 8 in the morning to 6 at night she lives up to her doctrine of, "Give it your best efforts," and her success is an affirmation of that creed.

Herb Making Good

J. Herb, a well-known Ontario paper manufacturer who went west a few years ago and established the Westminster Paper Mills in British Columbia appears to be making good. Word from that province is to the effect that the company's tissue products are in demand in various parts of the globe. At the present time, it is stated, the mill is filling an order for thirty tons of tissue and fruit wrap for China. It has an order from New Zealand for one hundred tons of tissue and fruit wraps, while 11,000 cases of paper are on order from the Prairies. The C. P. R. liner Empress of Canada, recently in Vancouver on a trip around the world, also sent in a special order for immediate delivery of 3,000 2-lb. rolls of tissue.

Muir Takes New Job

Harry L. Muir, a well known Toronto paper salesman, who was formerly with the Don Valley Paper Mills, Toronto, and latterly with the Brantford Stationery Company, Limited, in Brantford, Ont., is now on the road for the Toronto Canadian Pad and Paper Company, Limited, Toronto. Mr. Muir started in on his new job on Jan. 1 and will cover Ontario, Quebec and the Maritime Provinces for the Toronto concern.

Gave Turkey to Employes

L. R. Wilson, the newly appointed general manager of the Abitibi Power and Paper Co., Iroquois, Ont., arranged for the delivering of a turkey at Christmas to every employee of the company, whether in the mill, woods, merchandising, townsite, forestry or transportation departments, and who is a householder in Iroquois, the Wye or Little Canada.

Buys Timber Limits

Reflecting the effect of Quebec's embargo on the export of pulpwood from Crown lands, the St. Maurice Paper Company has purchased from its parent company, the Union Bag & Paper Company of New York, a block of 500 square miles of timber on the St. Maurice River. Because of the embargo, this pulpwood could not be shipped to the American mills of the Union Bag & Paper Company, and it was better that the timber should be transferred to the St. Maurice Company. This puts St. Maurice in the position of owning one of the largest blocks of timber lands of any of the companies. The land is being paid for by the St. Maurice Paper Company by the issuance of 2,500 shares of its stock to Union Bag as an initial payment and it is stated that a further block of stock may be issued to pay for contemplated new paper machines. The company has a paper production of only 115 tons of newsprint per day, and it markets a considerable quantity of ground wood, sulphite and sulphate pulp to its parent company and other parties.

Making Sixty Tons a Day

The Thunder Bay Paper Company, Port Arthur, has made considerable progress during the year. The industry, under its present management, started up in February of last year, turning out at first thirty tons of pulp a day. Now the plant is doubled, and 60 tons of air dry pulp are sent out from the mill, being all shipped to the company's mills at Wisconsin Rapids, Biron, Appleton, and Stevenson, Wis. Since last year several improvements have been made. The wood room has been completed, and two barking drums have been installed, replacing the old knife cutters. The installation of three 800 h. p. Westinghouse motors for the grinder is finished, and there is also a new transformer room and switchboard equipment. The next activity in which the company will embark will be the construction of a dock and light railway 500 feet long. Manager R. N. Youngman states that the company will erect a paper mill just as soon as the limits can be obtained.

Issue Handsome Book

The Buntin Gillies Company, Limited, manufacturing stationers and paper dealers of Hamilton, Ont., and one of the best known paper firms in Ontario, has just issued a very neatly gotten up book under the title of "Prospects," the chief feature of which is a short history of the firm from its foundation by the late Alexander Buntin, in 1848, up until the present. The book sketches the marvellous growth the concern has made and is a valuable contribution to the historical data concerning the growth of the paper industry in Canada. Besides the chief warehouse at Hamilton the firm has a branch warehouse at Ottawa under the management of John F. Neville.

Sulphite Mills Closed

Practically all sulphite mills in the Watertown section are closed down. Manufacturers here say that the price at which deliveries of sulphite pulp can be obtained from Europe make it cheaper to close down the local plants.

Construction News

CONSTRUCTION NEWS

Rumford, Me.—The Oxford Paper Co., is installing additional equipment at its plant and plans to complete the work in about 60 days. It is purposed to increase the output to about 340 tons, gross, per day, in the line of fine book and coated stocks.

Chicago, Ill.—The Pharmacy Paper Box Co., 2334 West Polk Street, is taking bids on a general contract for the erection of a two-story and basement addition, 50x100 ft., estimated to cost approximately $30,000. It will be equipped for general production. A. L. Himelblau, 30 North Dearborn Street, is architect.

Miami, Fla.—In connection with its new local sugar mill in the Everglades, now practically completed, the Pennsylvania Sugar Co., Delaware Avenue, Philadelphia, Pa., plans for the establishment of a mill for the production of paper, operating as a subsidiary works, utilizing the cane waste and pulp for raw material.

Canton, Ohio.—The plant and business of the Old King Cole Papier-Mache Co., has been acquired by R. E. MacKenzie and associates. The new owners plan to reorganize and expand the works, to be operated under the name of Old King Cole, Inc. The capital of the company will be increased.

Port Edwards, Wis.—The Nekoosa-Edwards Paper Co., has plans nearing completion for the installation of additional equipment at its mill for considerable increase in output. This will make the ninth machine to be installed by the company, and will be provided with an electric drying system. It is expected to be ready for service in the spring.

St. Maurice, Que.—The St. Maurice Paper Co., Ltd., a subsidiary of the Union Bag & Paper Co., New York, has taken over timber properties of the parent organization and plans to develop the land as a source of raw material. The tract totals about 500 acres, located in the so-termed Crown lands, and is estimated to contain more than 1,000,000 cords of pulp wood.

Port Huron, Mich.—The Dunn Sulphite & Paper Co., Detroit, Mich., has plans in progress and plans to take bids in the near future for the construction of its proposed new mill on property recently acquired on the St. Clair River, estimated to cost close to $500,000, with machinery. A list of equipment will also be arranged.

New Companies

New York, N. Y.—Siegel & Gabrelow, Inc., has been incorporated with a capital of $50,000, to manufacture paper boxes and containers. The incorporators are H. and L. Siegel, and J. Gabrelow. The company is represented by Leight & Neckritz, 36 West Forty-fourth Street, New York.

Philadelphia, Pa.—The Colonial Mfg. Co., care of the Corporation Guarantee & Trust Co., Land Title Building, representative, has been incorporated under Delaware laws with capital of $100,000, to manufacture paper and cardboard products.

Newark, N. Y.—The Klefeker Mfg. Corporation has been incorporated with a capital of $1,000,000, to manufacture paper boxes and containers. The incorporators are C. B. Klefeker, R. A. and C. T. Bloomer. The company is represented by Hubbell, Taylor, Goodwin & Moses, attorneys, Rochester, N. Y.

New York, N. Y.—The Bloch Brothers Paper Co., has been incorporated with a capital of $30,000, to manufacture and deal in paper products. The incorporators are C. H. and B. Bloch. The company is represented by G. B. Garfield, 42 Broadway, New York.

New York, N. Y.—The Columbia Bag & Paper Corpo tion has been incorporated with a capital of $50,000, manufacture paper bags and containers. The incor rators are W. E. Quayle, S. H. Brown and C. B. S ders. The company is represented by T. M. Day, Broadway, N. Y.

Financial

New York, N. Y.—The Nyando Pulp & Paper Corpo tion, Room 1006, 5 Nassau Street, has called a meeti of stockholders on Jan. 14, to arrange plans for a d solution of the company. The corporation is form under Delaware laws; Lloyd Church is secretary.

New York, N. Y.—Gerald Jackson has been appointed ceiver for the Bauer Paper Box Co., Inc., 440 Lafaye Street. The company is said to have assets of $10,0 and liabilities of $18,000.

Quebec, Que.—Following recent financial difficulties, re ganization plans are being perfected by the Bay Sulph Co., proposing to place the company on a good financ basis and developing operations to a point of full cap ity. The company has bonds outstanding to a to amount of $4,056,000, preferred stock, $2,642,615, a common stock of $5,000,000.

Plant Operations

Practically every fabricating plant in the Chicago, I district is running at full capacity, with sizeable orders hand for a number of weeks to come. There is also good demand for paper bags in this section, and mills this character are also on a full operating schedule, givi employment to regular working forces.

The Glatfelter Paper Co., York, Pa., distributed ca presents to employes at its mill at Spring Grove, near Yo on Christmas.

Business Opportunities

The Joint Committee on Printing, Capitol Buildi D. C., will take bids until Jan. 28, for furnishing paper f Government public printing and binding for a period six months, dating from Mar. 1, 1924, or for one ye from this time, deliveries to be f. o. b., Washington. T approximate estimated quantities include:

3,040,000 pounds standard newsprint; 9,250,000 poun machine-finish book paper, 1,000,000 pounds plant-fib machine-finish book paper; 1,050,000 pounds antique bo paper; 200,000 opaque machine-finish book paper; 150,0 rag opaque machine-finish book paper; 1,550,000 poun rag machine-finish book paper; 2,990,000 pounds supe calendered book paper; 10,000 pounds rag supercalender book paper; 125,000 pounds halftone book paper; 480,0 pounds coated book paper; and quantities of white a blue writing papers, bond papers, tissue paper, cardboa red and white molding paper, manila paper, blotting pap pressboard, etc., all as per specifications and schedules file at the office of George H. Carter, public printer, Was ington, D. C.

The Bureau of Foreign and Domestic Commerce, Was ington, D. C., has information regarding a company Geneva, Switzerland, in the market for a quantity of ca bon paper, Reference 8592. Full information on request.

Mississippi Wood Unsatisfactory for Pulp

The Kennebec Pulp Mills, Skowhegan, Me., have co cluded a series of experiments to determine the practic value of certain Mississippi wood for pulp use. The m terial was White Bay, Magnolia, Black Gum and Tulep totaling about 9 cords in all, and was found not adapted to ground-pulp purposes. The pulp produced is now being tested for sulphite, to ascertain if the material will be useful in other lines.

Personal

Eugene C. Betz, vice-president of the Consolidated Paper Co., Monroe, Mich., has been elected president of the Monroe Exchange Club, formed of local business executives.

Obituary

Brayton R. Clark, treasurer of the Malone Paper Co., Malone, N. Y., died Dec. 27, of heart disease. In addition to his duties as treasurer, he has been acting head of the company for a number of years. He was an official of several other local industrial companies and prominent in Malone civic life, having been president of the village from 1908-1912.

Esthonian Paper Industry

Trade Commissioner C. J. Mayer, Riga, November 20

There were operated in Esthonia in 1922 five large and four medium-sized mills, according to data of the statistical bureau of the Republic of Esthonia, producing mechanical ground wood, chemical pulp, and paper. During the year these mills utilized 16,369 cords of birch wood, 16,271 short tons of mechanical ground wood, 12,442 tons of chemical wood pulp, 343 tons of waste paper, and 636 tons of rags. The production of the mills during the year was 7,135 tons of mechanical ground wood, 1,499 tons of roofing cardboard, 8,020 tons of mechanical pulp, and 28,450 tons of paper, including 541,875 pounds of cigarette paper. Imports during the year for the requirements of the paper industry were 1,098 tons of wet and 8,896 tons of dry mechanical pulp, 5,348 tons of dry and 50 tons of wet chemical wood pulp, and 11 tons of rags. Exports during the year of raw materials amounted to 261 tons of chemical pulp and 501 tons of cotton, linen, and other rags.

To Standardize Boxes

Paper board and box manufacturers making glove boxes, particularly those in the middle west, will undoubtedly notice a marked change in demand for their products during the coming year subsequent to the action taken by the National Association of Leather Glove Manufacturers at their recent convention in Chicago. In line with the general tendency of various industries to curtail waste in production, as has been urged by Secretary Hoover, the association, through definite committee approval of the manufacturers selling to the jobbing trade and manufacturers selling to the retail trade, voted their approval and suggestion to the trade that six colors be considered henceforth as standard for glove boxes: Dark water green, black, gray, yellow, red and white. It was also voted to allow that jobbers who declined goods shipped in any one of the mentioned box colors could be shipped goods in bulk or in chipped boxes.

The question of a box factory to serve the industry was also discussed along detailed plans for the formation of a corporation composed of the members of the association for the purpose of effecting such a move, but no definite action in this regard was taken.

Wants Information on Casein

The United States Tariff Commission announces that upon consideration of certain matters developed during the public hearings held in the investigation of foreign and domestic costs of production of casein, it has concluded that additional data are desirable for a determination of the question of the difference between cost of production in the United States and abroad.

The Commission has accordingly directed certain supplementary inquiries to be conducted in the United States and in the principal competing country. Those inquiries are now being carried on simultaneously and as soon as they are sufficiently advanced to permit a date to be fixed, the Commission will give formal notice of a supplementary public hearing at which the interested parties will be given an opportunity to be heard upon the particular points involved in the supplemental inquiries now being made.

A COMPANY LOAN ASSOCIATIONS

The Nekoosa Port Edwards Building and Loan Association Has Declared Its First Dividend

THE Nekoosa Port Edwards Building and Loan Association being in business only four months, or since September first, declared a dividend at its meeting of December 24th held in the office of the Association at the Nekoosa State Bank, at Nekoosa, Wisconsin.

This dividend is on the basis of six per cent per annum, and for the four months in business will net those who have stock two per cent for the short time their money has been invested.

This dividend will be paid in cash to the fully paid up stock and will be paid in the way of a payment on account to those who are buying installment stock.

There are a large number of employees of the Company who have subscribed for both the installment and paid up stock, and arrangements have been made so that wherever a man wishes a certain amount deducted from his pay check and credited to his account in the Building & Loan Association this can be done.

To date the Association has made loans amounting to over $11,000.00 and there is in the Treasury at this time a goodly balance.

Ten houses have already been constructed in the Village of Port Edwards and loans have been made on four places in Nekoosa.

The forming of this Building & Loan Association serves a two fold purpose:

First, so that every man in the employ of the Company can own his own home, buying it on practically the same basis as he now pays rent and in a short time he will be the owner, and second to encourage the saving of money and making it possible to get double the interest of the ordinary Bank.

BUSINESS TO GO ON

Whitmore Company Will Be Pushed Ahead in a Business Way By Receiver

GEORGE WEBSTER, assistant treasurer of the Whitmore Manufacturing Company, manufacturers of surface coated, enameled and plated paper, has been appointed temporary receiver for the company by Judge Nelson P. Brown of the Superior court. This action followed the filing, by the Fitchburg Paper Company of a petition containing a claim of $23,242.34 for merchandise and notes given in payment for merchandise against the company.

John S. Begley, counsel for the Whitmore company, says that the company is solvent with assets of $450,000 and indebtedness of about $283,000. He further stated that there are no quick assets for the company and the appointment of a receiver will permit the issuance of receiver's certificates of indebtedness for the purpose of carrying on the business, the certificates being subject to the approval of the court. The action will also relieve the company from the pressure of creditor's claims. It is understood that the action is a friendly one.

John J. White, a former mayor of Holyoke, is treasurer and general manager of the company. The company was organized about 40 years ago and business at the plant is declared to be fairly good.

Paper Man Gets Divorce

Mrs. Jeanette A. Elliott, wife of Charles E. Elliott, 729 Westgate Avenue, University City, Mo., vice president of the Mack-Elliott Paper Company, of St. Louis, was granted a divorce at Clayton, Mo., St. Louis County, December 20. Alimony was fixed at $150 a month and a reasonable amount for the education of Jeanette, Mrs. Elliott's young daughter by a former marriage. The couple were married January 15, 1915.

Incorporated For $600,000

The Shawmut Paper Box Corporation of Cambridge, Mass., formerly the Shawmut Paper Box Co. of Cambridge, has been incorporated with a capital of $600,000. The incorporators are R. O. Pearson of Boston, Clinton W. Bennett of Medford, Mass., and Gardiner W. Chase of Belmont, Mass.

The Editorial Page

Away With the Bugaboo

CHEER up, folks, the paper business is not so bad. Don't let the doldrums get you, and keep the goblins tied up with the dog. You might be in Germany, or Austria, or Russia trying to do business in the paper trade. Here at least the money you handle is worth something. Have you ever stopped to realize that the total volume of production for the year 1923 will excel that of any year with the exception of that wild sky-rocketing year of 1920, when everybody went mad?

That is something to put in your pipe and smoke, for almost all of that paper manufactured was sold and shipped.

Sure, there were failures during 1923. There were more failures than in some years past. But this is not 1923. This is 1924. It is time to ring out the old and ring in the new.

Imports were too high and exports too low. And a lot of other things in the world outside of the paper industry were wrong too. Everyone speaks favorably of the year 1924, even those hard-boiled business judges who can only see the dollar sign connected with everything.

This magazine does not say that the millennium is here, nor that the paper industry will luxuriate in a Utopia. It does not say that every manufacturer and dealer in paper must dance about like a bubbling Pollyanna seeing nothing but gold and sunshine and everlasting contentment. But this magazine has a deep and abiding faith in the fundamental soundness of the paper industry for the entire year.

It is time to crawl out of the bomb-proof cellars. It is time to do things. It is time to push ahead to new fields.

The world is not saturated with paper. The world is finding a myriad new uses for paper. And the world will continue to absorb the production of the mills in a surprising fashion.

There will be no recurrence of the hectic days of 1920 when paper drove manufacturers and dealers crazy. But there will be a steady, wholesome demand, with prices holding firm and generally advancing.

We will bet a ginger cooky on this guess.

So get out of the dumps, Mr. Paper Man, and get busy.

And PAPER wishes you success, once more.

What Do You Want?

PAPER wants to publish a magazine that will interest you. What do YOU want in this publication?

What special feature, what department do you want us to run

What are you particularly interested in? What parts of the news of the trade do you want us to play up?

The paper industry is so full of so many things that it is hard to pick.

We want to please. Let us know what you want.

There Is Meat Here

EVERY man connected with a paper mill cannot help but feel the significance of those two articles in this issue on "Fuel Waste in the Paper Mill," by James T. Beard, 2nd, and "Cleansing of Papermakers' Felts" by C. T. Hamill. Both are by authorities on those particular matters and both mean money for every paper mill the officials of which read and act.

Both of these men have taken vast and painstaking pains to make these articles worth cash to the paper mill. Both are important matters in a mill. And they have succeeded in presenting worth-while articles.

Read them.

Wroe's Writings

A REAL mission has "Wroe's Writings," the pepful monthly organ of W. E. Wroe & Company, of Chicago. It is one of the livest and most sprightly house organs published by a firm in the paper trade. It has life, philosophy, facts. What more could a house publication want?

The little publication appears in 16 pages, has as much spirit as a comedy magazine, has an almost inimitable personality and also imparts knowledge of the company in a friendly, cooperative way. It is a tonic to the trade.

Where Is That Joke?

DON'T forget to turn in that little episode in the life of a man known in the paper industry which will put the trade in good humor. PAPER will pay $5 as a prize for each one. Not only is it worth while from a financial standpoint, but good humor and good feeling is what the paper industry needs right now—as it will always need it.

So turn in that "good one" you heard—who knows, it may be a "winner." However, don't let it injure in a personal or business way.

Forestry in the Paper Industry

Conducted by J. R. Simmons, Secretary Forester,
The New York State Forestry Association

SIDELIGHTS ON McNARY BILL

Chief Forester Makes a Statement Regarding Pending Bill—New Facts Are Brought Out

CHAIRMAN R. S. Kellogg has recently given to the members of the National Forestry Program Committee some important viewpoints expressed by the Chief Forester and by Senator McNary, on the matter of appropriations for purchase of national forests, for planting on the same, and for establishment of experiment stations of the Madison, Wis., type. In response to his inquiry as to how these items are to be taken care of, Chief Forester Greeley replied:

> "First as to forest purchases. Under the present legislative situation and parliamentary precedents, there is no limit upon the annual appropriation which Congress may make for acquisitions under the Weeks Law. It can appropriate any amount in any year that it sees fit. If an authorization for such purchases were enacted as an item of the present forestry bill, that would automatically establish a maximum beyond which no current appropriation could be made. Unless such an authorization is very liberal, it might readily prove within the course of a few years to be a handicap rather than a benefit. The present budget provides one million dollars for such purchases during the fiscal year 1925 and, with public sentiment so generally in favor of this policy, I anticipate material increases in the Weeks Law appropriation in the future. If we could now obtain an authorization, in the McNary bill, of five million a year, that would doubtless be of value as emphasizing and promoting the national policy of forest acquisition. An authorization for a smaller amount, particularly the two million authorization provided in the Clarke bill, would in my judgment be more apt to become a handicap rather than a benefit.
>
> "The same situation exists as to authorization for federal research and for planting on the National Forests. No additional legislation on these subjects is needed. Congress now has authority to appropriate each year as much as it pleases for any of these purposes. An authorization that is not liberal in consideration of the needed future expansion of these activities would be apt to become an obstacle in no great length of time. From the legislative standpoint we now occupy a favorable situation in the absence of a limit upon what Congress may appropriate for these purposes. Unless we could secure in a general forestry bill authorizations based upon future expansion of this work up to ten years hence, I think our situation would be less favorable than it is now.
>
> "Senator McNary does not wish to load up his bill with a large total of authorizations; and I think that he is wise in this point of view in consideration of the trend of Congressional opinion. Both Congress and the Administration are, in general, opposed to large authorizations. I fear that if authorizations dealing with these subjects were included in the bill, a considerable unfavorable reaction toward it would result; and furthermore fear that in the outcome such authorizations would be cut down to limits that would prove handicaps rather than benefits.
>
> "For the above reasons it has seemed to me desirable to limit the authorizations carried by the bill to cooperative work in fire and to the new activities proposed in forest education and cooperative planting with the States."

In response to a similar inquiry Senator McNary says:

> "The items with respect to the Madison Laboratory and the forest experiment stations will be carried in another bill that comes before the standing Committees of the Congress.
>
> "It is my judgment that we should keep the proposed Reforestation legislation as free from such items as possible however important they are."

Yields in Southern White Cedar

The popular commercial principle of quick turnovers is exemplified in forest management through the study of maximum annual yields of different species. From yield tables thus determined the turnover, or rotation period of the forest crop can be estimated.

Yield tables for southern white cedar are under preparation at the Forest Experiment Station at Asheville, N. C., by C. F. Korstian, silviculturist, assisted by W. B. McMillan. These tables will show the volume production that may be secured in this region at different ages and will thus indicate the earliest profitable age for cutting the trees, or rotation period for this crop. Future management of southern white cedar among private growers who are following efficient methods on their woodlands will be based on these tables.

ANOTHER USE FOR MOSS

Can Determine the Danger Point of the Fire Hazard—Recently Described in Paper

PAPER has described in this department an instrument recently developed by the Forest Service and known as a hygrometer, for determining the danger point in fire hazard on the national forests. Strands of hair are ordinarily used in this instrument to record delicate humidity fluctuations. These strands are being replaced by a grey moss selected from forest trees in the Douglas fir region, and the experiment station at Stabler, Wash., has discovered that when this humble plant is placed on a balance with a pen arm attachment, it records relative humidities as satisfactorily as a humidity curve pen.

The studies now going forward illustrate the very immediate response of inflammable material in the forest to moisture changes in the air, and at the same time show the great need for close observation of moisture conditions as an aid in determining the approach of such exceptional dryness as is responsible for our present tremendous fire losses.

On Preparation of Booms

The need for great care in preparing booms for the towing of logs is shown by replies to a questionnaire sent out by the Woodlands Section of the American Paper and Pulp Association. One man of long experience in the rafting of pulp wood points out particularly that great care is needed in making up rafts, to prevent spills. "Our best insurance on a raft being delivered promptly," says that authority, "is a reliable boom man on the job, who will not take any chance in making up a raft to save himself extra work." A description of tugs and other towing equipment, some of which is built for high power operation, is included in a report made to the membership of the section.

ALVAH MILLER TOM T. WALLER ARTHUR C. HASTINGS EDWARD A. WESTFALL NATHANIEL L. MILLER

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Sweden Takes New Step

Sweden has recently promulgated a new forestry law which brings into force better measures of preservation and sets up restriction against extreme exploitation, say Consular advices.

In some parts of Sweden the propriety rights of the owners of private forest have been limited by special laws and the forests in these districts have been well preserved, but on the whole the forests have been threatened by excessive felling. It is therefore hoped that the new law will fill the long-felt need. The farmers alone have criticized the measure basing their objection upon the regulations pertaining to the protection of young forests on the ground that these regulations will involve economic difficulties for the owners of small farms.

The new law may be characterized as a conservation and regrowth law. It makes ample provisions for adequate maintenance and scientific cultivation of the Swedish forests. Strict regulations are imposed with regard to felling of young timber and the care of old forests. Much attention is also given to the measures insuring regrowth, and special regulations have been made with regard to forests difficult to reproduce. The Swedish authorities are now keenly alive to the necessity of better care of the forests and with this in view the new law places considerable obligations upon private timber owners to exercise great care in their felling operations.

National Purchases on Ohio

The National Forest Reservation Commission, assigned the duty of purchase of land for National Forests, during December approved the purchase of 130,000 acres of land in Virginia, West Virginia and Pennsylvania, largely for the protection of the watersheds of the Ohio River tributaries. Under the proposed change in forestry practice suggested by the McNary forestry bill, such future purchases would not be limited to the watersheds of navigable streams, but the effect of such a bill if passed would not prevent the continued work of acquisition of lands in the White and Appalachian mountain regions.

Forestry and Engineering

That forestry involves engineering, and as such is truly a profession, was the statement of Dr. E. B. Claridge, of the University of New Brunswick before the St. John's branch of the Engineering Institute of Canada. He pointed out that forestry involves the art of growing timber as a crop, but that the forest engineer has a closely related field in the design and construction of works in the forest to bring its products to the mill. Mapping, forest fire fighting and other forest duties were explained as part of the work needed to make the forest a continuous producer of timber, and for an exhaustive process such as mining. The University, he said, trains its students on an 8,600 acre woodlot.

Paper Company Moves

The Hollingsworth & Vose Co., have announced their removal to the Province Building, 333 Washington Street, Boston, Mass., Rooms 804 to 815.

Readjustment Rates on Paper

The proposed substantial increase in classification of paper and paper bags on freight shipments in this section to Southern points has been withdrawn, it is announced by the traffic bureau of the Chamber of Commerce, H. P. Hanson, manager. The schedule was to have been made operative, Nov. 30 but was suspended by the Interstate Commerce Commission.

The cancellation of the plan was at the request of the railroads whose officials expressed a desire to make favorable adjustments informally. If the railroads and shippers are unable to arrive at an agreement the Interstate Commerce Commission will resume the proceedings and continue the case on formal complaint.

PRODUCTION DROPS 8 PER CENT

November Pulp and Paper Production Statistics Shows Lessening Among Those Reported

PRODUCTION of paper by identical mills reporting to the American Paper and Pulp Association and cooperating organizations showed a drop of about 8 per cent in November from the October production, according to the monthly statistical summary of the paper and pulp industry.

Estimates for the year, however, based on the eleven months figures which are available show that the total volume of production in 1923 will be above any previous year except the boom year of 1920.

The tonnage summary is prepared by the American Paper and Pulp Association with the cooperation of the Binders Board Manufacturers Association, Newsprint Service Bureau, Tissue Paper Manufacturers Association, Wrapping Paper Manufacturers Service Bureau and Writing Paper Manufacturers Association. The figures for November follow:

Grade	Number of Mills	Production Net Tons	Shipments Net Tons	Stocks on Hand, End of Month
Newsprint	66	119,720	117,176	24,040
Book	69	62,904	62,158	27,221
Paperboard	113	99,351	97,185	33,941
Wrapping	89	50,917	46,960	51,066
Bag	31	8,073	7,595	6,736
Fine	86	22,940	23,077	38,676
Tissue	45	9,703	9,622	7,999
Hanging	10	4,876	5,919	3,241
Felts	15	8,463	8,498	1,650
Other Grades	62	15,845	14,847	18,736
Total		302,792	293,037	213,306

The statistical table below gives the number of mills reporting to the American Paper and Pulp Association and the U. S. Pulp Producers Association, and the data as to production of the various grades of pulp.

Grade	Number of Mills	Production Net Tons	Shipments Net Tons	Stocks on Hand, End of Month
Ground Wood Pulp ..	101	77,773	6,089	41,506
Sulphite, News Grade .	40	41,802	4,029	15,529
Sulphite, Bleached	17	13,908	2,902	2,451
Sulphite, Easy Bleaching	5	4,742	444	983
Sulphite, Mitscherlich .	6	4,891	457	1,860
Sulphate Pulp	14	14,071	1,691	15,887
Soda Pulp	12	11,894	4,795	2,946
Other than Wood Pulp	2	84	78	134
Total All Grades		169,165	20,485	81,296

Good Year Expected by National City

The power of the United States to enjoy prosperity despite the unsettled conditions in Europe is considered as the outstanding achievement of 1923, according to the annual business review of the National City Bank.

"The record of 1923 can be repeated if the American people but have the courage to proceed with the development of their resources and the equipment of their industries," the report continued, "as they have done in the past year.

"There is no lack of work to be done. The chief occupation of the American people is that of supplying their own wants, but that their foreign trade is of a stable character the sustained exports of the last two years have shown. The balance between agriculture and the other industries is in the way of being restored, and if we will be satisfied with steady business, without a boom, there is good reason to expect that our hopes will be gratified in 1924."

In discussing the outlook of business the review said:

"No business crisis ever has occurred unless preceded by a marked expansion of credit, and none need be looked for until such an expansion has occurred. We are not free from danger of it; the continuing importations of gold should keep us on our guard. In 1923 they have been greater than in 1922, reaching approximately $300,000,000.

These additions to our gold stock are abnormal and undesirable, for if used in our reserves as the basis of credit they would produce inflation and if not so used they are unprofitable acquisitions. The bankers of Europe are confident that the expansion of credit is only a question of time, and that when the rise of prices comes the trade balance will turn heavily against us and that Europe will recover a good share of this gold. They thought these predictions were about to be realized last Spring, but the country was conservative and prices turned downward. So long as the tendencies to inflation can be held in check we may look for steady business."

CONVINCED PAPER CAN BE MADE OF STRAW

Pulp and Paper Men of Eastern Canada Assert That Newsprint Can Be Made From Straw

THAT paper can be produced from straw seems to be the view of several pulp and paper men in eastern Canada. Another to hold this view is Sir Frederick Becker, head of the recently defunct firms of Charles Marsden and Sons and Becker and Company, pulp and paper manufacturers and dealers in England. For the past few months investigations have been pursued by one of the leading Canadian pulp and paper manufacturing concerns, to ascertain if newsprint could be manufactured from straw. While he was in eastern Canada, Becker studied this question very minutely. The cost of pulpwood, added to which is the dearth of the pulpwood, in some sections and the high cost of cutting and shipping the wood, have been contributing factors in causing the investigations.

The scientific investigations have not been completed, but thus far a fair measure of success has been attained. Some of the pulp and paper men display little interest in the investigations as they believe that satisfactory results cannot be obtained. It is also likely that before long, one of the Canadian pulp and paper manufacturing plants will be producing paper from hardwood, following the lead of a company operating a mill in Massachusetts. There is plenty of hardwood available in eastern Canada. The feeling seems to prevail among the pulp and paper men in the eastern Canada territory that while producing paper from straw and from hardwood may be feasible, they are leaving the start of such manufacture to "the other fellow." Experiments may be made at the mills of the Clyde and Sissiboo Company.

Additional Factory Branches

Direct factory branches and warehouses have been established in San Francisco and in Los Angeles by the Chain Belt Company of Milwaukee, Wisconsin, manufacturers of Rex Chains, Transmission Machinery and Conveying equipment.

The San Francisco office is located at 82 Natoma Street with G. E. Taylor in charge as District Manager.

The Los Angeles branch is located at 210 South San Pedro Street, with J. V. McDonald as District Manager.

With these two direct factory branches, and the establishing just recently of similar branches and warehouse stocks in Spokane, Seattle and Portland, the Chain Belt Company are in a position to assure complete service on products of our manufacture to the Pacific Coast trade.

A Christmas Gift to Timberland

Dr. R. W. Corwin is chief surgeon at the Minnequa Hospital, Pueblo, Colorado. For the past five years on Christmas Day, Dr. Corwin has invited all the nurses, doctors and many citizens to the beautiful grounds surrounding the hospital and then he plants trees in various sections of his "lovely forest." There are 1,700 trees there now.

Speaking of the object, he says: "Why cut trees for Christmas, wasting and destroying timber. It would be better if every family in the United States would plant a tree on December 25 each year and then a young forest of 20,000,000 trees would be born. Add to this 20,000,000 or more uncut trees and reflect upon the continued annual economic benefit to the country and then these trees every day remind someone of Christmas."

Elected a Director

Wilbur F. Denious, receiver for the Meyer Pulp and Paper Mill of Denver, Colorado, was elected a director of the Civitan Club of the Mile-High city.

ASBESTINE PULP
(Registered U. S. Patent Office)
90 Per Cent Retention
INTERNATIONAL PULP COMPANY
New York City

GREEN-BAY WIRE WORKS

Green Bay Fourdrinier Wires

Can't Be Beat

MADE OF

BRASS AND PHOSPHOR BRONZE

You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

Write us for prices and samples

GREEN BAY WIRE WORKS
GREEN BAY
WISCONSIN

DEFENDS U. S. PAPER MEN ASSOCIATION

Ralph P. Bell Makes Strong Defense of Keeping Embargo From Wood Pulp

IN the press controversy over the proposed embargo on shipments of pulpwood to the United States, F. D. J. Barnjum is not having it all his own way. In a recent reply to him Ralph P. Bell of Halifax, N. S., says:

"As Canadians we are primarily concerned with the question of how such a measure will effect us, ourselves, but in a national sense we should be even more concerned as to how it will affect our neighbors from across the line, to whom we have in the past sold several million dollars' worth of timberlands with the full knowledge that it was their intention to ship to their mills in the United States and who have to date been permitted to do so without interference."

"I am sure that every fair-minded Canadian will agree that all such lands owned by Americans, or by companies the capital stock of which is controlled by Americans, title to which was acquired prior to the passing of the legislation of 1923, should be exempted from any action (if any) that the Government may decide to take, and that the Government should at once make a statement to this effect.

"If this point, about which there surely can be no honest difference of opinion, is cleared up, we can proceed to fight out the question as Canadians vs. Canadians, without the perpetual claptrap on the part of this particular correspondent about the gigantic campaign fund, the awful agitation, and the tremendous legal fees of the American interests.

"What is there, by the way, that is unusual in the American manufacturers having organized to protect their interests and hired three or four Canadian lawyers in the different provinces to represent them?"

Chance For a Paper Man

A thousand dollar award will be made to the scientist who presents the most notable contribution to the advancement of science at the seventy-fifth anniversary meeting of the American Association for the Advancement of Science to be held at Cincinnati, Dec. 27 to Jan. 2.

This prize has been offered by an anonymous member of the Association, who is understood to be a layman living in New York, and the recipient will be selected by a special committee to be appointed.

All of the 1200 to 1400 speakers at the meetings of the 42 sections and societies to meet with the American Association will be eligible for the prize.

New Paper Mill for Oregon

Announcement has been made at Portland, Ore., of the early erection of a paper manufactory in the North Portland industrial district. Backers of the project have incorporated as the Portland Pulp & Paper Company with a capitalization of $1,500,000. The incorporators are: Roy H. Mills of Portland, president; D. J. Fry and F. D. Thielsen, both of Salem. The plant will require an investment of $1,250,000 and will turn out 50 tons of paper a day.

It Pays To Advertise—But!

A lion met a tiger
  As they drank beside a pool.
Said the tiger, "Tell me why
  You're roaring like a fool."
"That's not foolish," said the lion,
  With a twinkle in his eyes.
"They call me king of all the beasts . . .
  Because I advertise!"
A rabbit heard them talking
  And ran home like a streak;
He thought he'd try the lion's plan,
  Bnt his roar was a squeak.
A fox came to investigate—
  Had luncheon in the woods,
So when you advertise, my friend,
  Be sure you've got the goods.

—*Baltimore Ad Club Bulletin.*

Samuel J. Lewis Dies

Samuel J. Lewis, state printer for Colorado, died in his Denver home on December 26. Mr. Lewis was born at Cleveland, Ohio, 49 years ago. He was a writer for many magazines and universally liked. He had been in ill health for a long time, general complications.

SHORT ENDS

In the recent controversy between the Hawley Pulp and Paper Company and the Oregon City Woolen Mills over the vacation of the stub of Third Street as per the request of the paper company, the city council of Oregon City, Oregon, passed an ordinance favorable to the Hawley Pulp and Paper Company. The new $1,200,000 plant, which is to replace the one recently destroyed by fire, will at once be put into construction.

After a shut-down since summer, due to recession of the waters of the Willamette the grinder mills at Oregon City, Oregon, resumed operations as the high water of the Willamette once more appeared. All machines are now in operation.

E. K. Stanton, head of the research department of the Crown-Willamette Paper Co., assisted by O. W. Mielke, of the Blake, McFall Co. recently demonstrated with lecture accompanied by motion pictures how paper is made to the Portland Advertising Club. Every phase of paper manufacture from the felling of the timber to the delivery of the completed newsprint to the daily papers was shown. Mr. Mielke announced that 180 tons of news print are used in Portland, Oregon, each month.

The next meeting of the Michigan Division of the Superintendents Association will be held at the Park-American Hotel Kalamazoo, Michigan, on December 20th. At this meeting, Mr. R. H. Whitney, manager of the Detroit Branch of the B. F. Goodrich Rubber Co., will give a talk on soft rubber press rolls.

The Mead Pulp & Paper Company wishes to correct a misstatement in Mead Cooperation for December to the effect that A. L. Rieger died several years ago. Mr. Rieger, though seriously ill at one time, is now in the best of health and is actively engaged in the management of the Peerless Paper Company.

The office and main warehouse of the Letellier-Phillips Paper Co., 623 S. Front St., New Orleans, La., has been damaged by fire to the extent of $50,000.

The Economy Match Box Co., has been incorporated in Dallas, Tex., with a capital stock of $10,000 by W. W. Sands, O. I. Cox and others.

The Natchez Printing & Stationery Co., Natchez, Miss., plans erection of an addition to its building.

Getting Mixed

"What noise is that you're making down there?"

"Ish either night falling or day breaking! Donno which, m'dear."

Slight Exception

The Automobile always beats the train to the crossing, barring accidents.—*Detroit News.*

No Fun

A woman came into a car with five children. She busied herself seating them. A benevolent old gentleman arose and gave her his seat.

"Are those all your children, madam," he asked, "or is it a picnic?"

"They're all mine," snapped the woman, "and it's no picnic." —*Parakeet.*

The Logic of the Case

Free State Patrol—"Have ye yer permit on ye for dhriven. the cyar?"

Motorist—"I have that. Are ye wantin' to see ut?"

Free State Patrol—"What for would I be wantin to see ut if ye have ut? It's if we had ut not that I'd want to look at ut."—*Punch* (London).

Why the Joneses Bought the Car They Did

Because the salesman:
Laughed at Mr. Jones' jokes.
Told Mrs. Jones she couldn't have a daughter that old.
Told Susie she looked like Mary Pickford.
Told Willie Jones he had a build like Dempsey.
Said the Jones baby took after both parents.
And only smiled when the Jones' pup nipped him.

Gardner & Harvey Company Formed

On December 20 a new company was incorporated, to be known as "The Gardner & Harvey Co." This new company took over on January 1 all of the assets and liabilities and property of The Colin Gardner Paper Co., The Gardner-Harvey Paper Co., The Gardner Paper Board Co., The Universal Paper Products Co., and the (old) Gardner & Harvey Co.

These companies above named dissolved and the new company started operations on January 1. In other words, this is a consolidation of these old companies into one new company known as The Gardner & Harvey Co., which will have 20,000 shares non par Common stock and $300,000.00 Preferred stock par value $100.00.

The Universal Paper Products Co. was formerly a Folding Box Dept. and these other mills were run as separate corporations. They will now be under one head, and one company known as The Gardner & Harvey Co., and the officers and directors are as follows: E. T. Gardner, President; Colin Gardner, Vice-President; M. S. Johnston, Secretary; R. B. Gardner, Treasurer, together with the following Directors: George H. Harvey, Tom Harvey, Arthur R. Harvey, J. J. Hain, J. C. Leach, W. H. Swan, Earl H. Turner.

This business will be conducted along the same lines as these separate companies have done in the past, and will continue the manufacture of box board and folding boxes.

Firm In New Incorporation

Z. & W. M. Crane, Inc., Dalton, Mass., has just been incorporated with a capital of $2,000,000. The incorporators are William G. O'Connell, Dalton, Mass., Theodore Pomeroy, Dalton, Mass., and James F. Bacon of Boston. The new corporation takes over the mills which for so long have been in the family of the late W. Murray Crane, former governor of Massachusetts and United States senator. The mills manufacture high grade writing papers.

Prominent Pulp Man Dies

George E. Henry, prominent pulp and paper manufacturer of New Hampshire, died January 2 at his home, 407 Highland Avenue, Winchester, Mass. He was born in West Littleton, N. H., March 24, 1862, the son of James E. and Eliza Ide Henry and after his schooling in Woodsville, N. H., he entered the firm of Henry, Joy & Baldwin, of which his father was the head. Eventually he succeeded to the business and operated pulp and paper mills in several sections of New Hampshire. He had made his residence in Winchester, Mass., for the past few years. He is survived by a wife and a son, James E. Henry. After services in Winchester, the remains were taken to Littleton, N. H., where additional services were held and interment took place.

Heavy Losses By Fire

The John Martin Paper Company, Limited, were heavy losers by fire which destroyed the five-story building of Tees and Pearse, Limited, in Winnipeg a few days ago. The company, which is one of the largest jobbing concerns in Canada, suffered complete loss of their paper stock amounting in value to something like $400,000, although the loss was completely covered by insurance. A number of the paper mills in Canada came to the rescue of the concern and almost before the fire was extinguished stocks of paper were on the way to Winnipeg with the result that the company was able to carry on business in other premises at once.. Tees and Pearse, Limited, who were manufacturers agents, represented the E. B. Eddy Company, Limited, paper and matches.

Foundations for Warehouse

Foundations are being laid for a warehouse for the Judd Paper Company, 166 Race Street, Holyoke, Mass., and George P. B. Alderman & Co., of Holyoke, have the contract. The building will be of brick, mill construction, three stories and basement and will be 90 x 100 feet. It will cost approximately $100,000.

It's the
Paper That Counts
When Planning
That Particular Job

White Unglazed Onion Skin

Runs well on the press and turns
out work above the average. Samples
will convince you. Ask for them.

Manufacturers of
"Quality Papers at Quantity Prices"

WOLVERINE
PAPER COMPANY
OTSEGO, MICHIGAN

CURRENT MARKET REPORTS

BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.75 @ .85
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	52.50 @ 55.00
Chip	47.50 @ 50.00

Paper and Board

New York, January 8.—With the inventory period past and with members of the trade over their holiday celebrations, the paper market is beginning to show more normal characteristics. Demand for most kinds of paper continues limited. There is a good movement on contracts and also against orders placed some time ago for forward shipments but transient demand for book, writing, wrapping, tissue and other descriptions of paper is none too lively; as a matter of fact, it is quiet, as consumers have not yet resumed buying on anything approaching usual volume in busier periods of the year.

Newsprint demand and consumption are holding up to a high level. Publishers of newspapers are enjoying probably the most prosperous era in the history of journalism, and are literally deluged with advertisments, so that big issues are being printed to carry all of the advertising that large and small advertisers are placing today. Not in a long time has a year started promising so much in the way of voluminous business for the newsprint manufacturing industry as the year which has just been ushered in. Publishers in various parts of the country have been arranging contracts during the past few days which, it is said, will absorb almost the entire production of print paper mills for the next several months. There has been no hesitancy about contracting for newsprint. The price prevailing is satisfactory to publishers, who have had one thought uppermost in their minds and that is to cover their major requirements for the first few months of the year.

Print paper prices are firm and there is a strong tone noted, but there is not likely to be any change in quotations for the first half of the year. At least, the more important manufacturers have announced they will maintain present prices during the first six months of 1924; what will happen after that is merely a subject for conjecture at the moment. Statistics concerning last year's production of newsprint in the United States and Canada will soon be available and it is a foregone conclusion they will show a new high record of output was reached in 1923. What is more, present indications are that this year will witness the breaking of last year's record of production unless some drastic developments occure which would severely affect the consumption of print paper.

The market for book paper is unmistakably easy. Manufacturers are vying for business and they are granting prices concessions in their competition to secure as many orders as they can. Demand is merely of routine nature though it is stated that some book paper mills are well fixed with contract business. Reports have it that machine finished book paper of at least a certain quality has sold in New York at less than six cents per pound f. o. b. this city. It is said that manufacturers as a rule are quoting around 6.50 cents per pound New York for the average grade of machine finished book, but quotations mean little when the market is weak and producers are seeking business. Super book paper is quoted at around 6.50 cents, or at a range of 6.25 to 6.75 cents f. o. b. New York, while coated book paper is quoted at 8 cents a pound upward New York.

SCANDINAVIAN PULP
AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

Wrapping paper also is in a quiet and easy market position, and prices are tending downward. About 6 cents f. o. b. New York is the minimum price most mills will entertain but there are some who are apparently shading this figure for No. 1 domestic kraft wrapping. Tissues are in routine demand only but unchange in price, While fine papers are moving along showing little market development of note and no worthwhile fluctuation in price. Bag paper continues to move freely, and there is a steady demand for building papers and for glassine paper.

Box boards are quiet. Consumers are passing through their in-between season at present and are purchasing board merely in a small way to cover immediate needs. Nevertheless board quotations evince considerable steadiness, and mills in the East continue to quote $47.50 a ton f.o.b. New York for plain chip and $52.50 per ton for news board. Some of the specialty grades of box board are being absorbed in fair amounts.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News— f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5 00
No. 2 Wood	4.25	@	4.50

Book f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8..00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.00	@	6.50
No. 2 Fiber	5.00	@	5.50
Card Middles	4.00	@	4.50
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	52.50	@	55.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	47.50	@	50.00
Manila Lined Chip	70.00	@	75.00
Woodpulp	75.00	@	80.00

Mechanical Pulp

Demand for mechanical pulp is somewhat slow in developing but there is a sufficient movement into consuming channels to fully sustain market prices, particularly since a majority of producers have no large tonnage to direct to the open market. Members of the trade aver that prices of ground wood are likely to strengthen as the winter proceeds and colder weather is encountered by grinders, and there is consequently little or no pressure to make sales and producers are holding to their former quotations. Domestic mechanical pulp is bringing around $40 a ton f. o. b. pulp mills, while imported ground wood is selling at $38 a ton thereabouts ex dock New York.

Foreign and Domestic Chemical Pulp

The market for chemical pulp continues in a more or less waiting condition. Those on the selling side express the belief that prices will stiffen in the near future or when paper manufacturers come into the market to resume purchasing on a nearer normal scale, and since primary markets abroad and in this country tend to exhibit increased steadiness, there is less resorting to pressure to effect sales. Reports state that the Baltic has frozen over for the winter, and this means that shipments from Sweden will automaically drop off, while late advices add that producers elsewhere in Europe haven't normal stocks of pulp to offer to Ameircan buyers. Moreover, demand from consuming quarters is due to expand in the near future; that is if the market runs true to form, as paper manufacturers usually are in more evidence as buyers along about February or March. All of these factors tend to steady the market and to stiffen values although

The
St. Regis Paper Company
and the
Hanna Paper Corporation

Daily Capacity
425 Tons

Newsprint
Catalog
Butchers Manila
Packers Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite

Manufacturers of
TARZAN
Fibre Shipping Cases

General Sales Office
30 East 42nd St.
New York

Western Sales Office
620-621 McCormick Bldg.
Chicago, Ill.

BLEACHED
Sulphite Fibre

The extent of our production *(daily capacity of 600 air-dry tons)* insures uniform quality, prompt shipments and market prices ∽ ∽ ∽

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

EMPIRE SIZE AND CHEMICAL CORP.
Rosin Size — Foam Killer
Felt Soap
ALBANY, N. Y.

Appleton Wires Are Good Wires
Fourdrinier Wires
Cylinder Wires
Save-all Wires
Washer Wires
of brass and bronze
Manufactured at Appleton, Wisconsin
Since 1896
By
APPLETON WIRE WORKS

Durability and Elegance

To compel attention and stand out from the masses your direct-mail matter should carry an air of distinction. The selection of the proper paper is a mighty important factor in obtaining this result.

FRANKFOLD Enamel

helps give your message the first call and preference over others because FRANKFOLD ENAMEL is made purposely to withstand vigorous use without showing the unsightly cracks so common among most Enamel papers.

The uniform, smoothly coated surface of FRANKFOLD ENAMEL helps your printer to obtain unusual results, either in black or multi-color.

We will gladly forward some printed specimens or blank sheets for dummy purposes.

THE FRANKLIN COATED PAPER COMPANY
Franklin, Ohio
Eastern Sales Office:
110 E. 42nd Street New York City

no actual changes in quoted prices are yet noted. Quotations ex dock New York and f. o. b. pulp mills are:

Sulphite foreign—		Easy Bleaching	3.00 @ 3.25
Bleached No. 1..	4.00 @ 4.50	Mitscherilch, unbleached	3.00 @ 3.25
Unbleached No. 1..	2.65 @ 2.80	Soda, domestic, bleached	3.50 @ 3.75
Unbleached No. 2	2.50 @ 2.75	Kraft, foreign	2.50 @ 2.75
Easy Bleaching	3.00 @ 3.25	Kraft, domestic	2.65 @ 2.90
Sulphite, domestic—		Sulphite screenings, refined	1.75 @ 2.00
Bleached No. 1 ..	4.00 @ 4.50		
Unbleached No. 1	2.70 @ 2.90		
Unbleached news grade	2.50 @ 2.70		

Domestic Rags

Rag stock is very firm in tone and prices of most grades are decidedly on the move upward. It would appear as if strength in the low grades is so pronounced that the effect is being felt in the higher qualities, and all kinds of papermaking rags are tending to advance. Roofing stock has again strengthened in price. Sales of No. 1 packing at 1.90 cents f. o. b. New York have been reported, while No. 2 roofing has brought 1.60 cents a pound New York; in fact, unconfirmed reports allege that even higher prices than these have been granted by paper mills. New cuttings are firm and under fairly active inquiry though it is apparent a good deal of the demand is emanating from sources other than paper mills. No. 1 white shirt cuttings are quoted at 13.50 cents a pound f. o. b. New York, blue overall cuttings at 8.75 cents, and washables at 5.50 cents. Old white rags are steady, as are thirds and blues. Black cotton stockings have advanced to where dealers ask 4 cents a pound f. o. b. New York. Quotations on a f. o. b. New York basis follow:

New Shirt Cuttings,		Overall Cuttings, Blue	8.75 @ 9.00
No. 1	13.50 @ 14.00	Washables	5.25 @ 5.50
No. 2	6.00 @ 6.25	New Black Mixed .	5.00 @ 5.25
Fancy Shirt Cuttings	6.25 @ 6.50	Soiled Whites, house	2.90 @ 3.15
No. 1 Whites, repacked	7.00 @ 8.00	Soiled Whites, street	2.75 @ 2.90
No. 2 Whites, repacked	4.25 @ 4.50	Thirds & Blues, repacked	2.85 @ 3.00
White Lawns	11.25 @ 11.50	Thirds & Blues, misc.	2.40 @ 2.60
New Muslins, unbleached	11.50 @ 11.75	Black Cotton Stockings	3.75 @ 4.00
Light Silesias	8.25 @ 8.50	Roofing Rags, No. 1	1.90 @ 2.00
Black Silesias	5.50 @ 5.75	Roofing Rags, No. 2	1.60 @ 1.70

Imported Rags

Low qualities suitable for roofing paper manufacture are in better demand than other grades of foreign rags and yet most of the other descriptions are moving freely also. Prices exhibit much firmness and in some cases are gradually rising. Dark colored cottons have brought as high as 1.80 cents a pound ex dock New York. Quotations ex dock New York are:

Lins., White, No. 1	12.00 @ 13.00	German Linen, blue	4.00 @ 4.50
Ger. Blue Cottons..	2.50 @ 2.75	German Linen, grey	6.00 @ 6.50
French Light Blues	2.75 @ 3.00	German S P F.'s.	6.00 @ 9.00
New Light Prints..	5.50 @ 5.75	German Light Prints	3.00 @ 3.25
New Unbleached ..	9.50 @ 9.75	Dk. Colored Cottons	1.70 @ 1.80

Bagging, Rope, Etc.

Prices of old rope and bagging are holding, with no definite trend in either direction with the exception of some grades of scrap bagging which are tending upward. Domestic manila rope of No. 1 quality is bringing about 6.50 cents a pound f. o. b. dealers' shipping points, while foreign manila rope is quoted at 6 cents on the dock at New York. Roofing bagging is selling at 90 cents to $1 a hundred pounds New York, and No. 1 scrap bagging at 1.25 to 1.50 cents a pound, depending on the quality of packing. Prices t. o. b. New York follow:—

Gunny, No. 1	1.30 @	1.40	Wool Tares, heavy .	1.40 @	1.60
Foreign	1.20 @	1.30	For. Manila Rope ..	6.00 @	6.25
Wool Tares, light ..	1.20 @	1.40	Domestic Rope	6.50 @	6.75
Scrap Bagg., No 1.	1.25 @	1.50	Mixed Strings	1.00 @	1.25
Roofing Bagging ..	.90 @	1.00			

Old Paper

With several exceptions, prices of waste paper are easy. There are certain grades which are apparently in limited supply, and prices of these are firm, but bulky grades are gradually tending lower and consumers seem to be having no difficulty filling their wants at the prices they bid. Old folded newspapers are fetching 80 cents a hundred pounds f. o. b. New York, and No. 1 mixed papers 60 cents. Flat magazines have been bought at as low as 1.50 cents per pound New York though dealers generally hold out for higher prices, especially where good quality packing is involved. Shavings are noticeably neglected by buyers. No. 1 hard white shavings are available at 3.85 cents a pound f. o. b. New York, and No. 1 soft white at 3 to 3.25 cents. A firm item is white blank news cuttings, which are bringing 2.25 to 2.35 cents a pound New York. Old kraft paper also is firm at around 2.10 cents per pound at shipping points. F. o. b. New York quotations are as follows:

No. 1 Hard White Shavings	3.80 @	4.00	No. 1 Colored Shavings	1.60 @	1.75
No. 2 Hard White Shavings	3.25 @	3.50	Magazine flat stock.	1.50 @	1.65
No.1 Soft White Shavings	3.00 @	3.25	No. 1 Crumpled ...	1.25 @	1.35
Box Board Chips ..	.65 @	.70	Solid Ledger Books	2.15 @	2.25
			Ledger Stock	1.90 @	2.10
			Kraft No. 1	2.00 @	2.15
New Manila Cuttings	3.00 @	2.25	News, strictly overissue	1.10 @	1.15
Manila Env. Cuttings	2.75 @	3.00	Folded News	.80 @	.85
Bogus and Mill Wrappers	.85 @	.95	No. 1 Mixed Papers	.60 @	.65
			White Blank News.	2.25 @	2.35
			Common Paper	.40 @	.45

Twines

Seasonal quietness is noted in the twine market following a fairly active pre-holiday period. Consumers are now buying merely to satisfy urgent requirements and most sales involve small lots. Prices are firm, and an important factor in this connection is the pronounced strength in raw material, nearly all kinds of fibres being on the uptrend in price. Quotations are:

Sisal Hay, pure ..	12.25 @	13.25	Jute Wrapping twine, A grade	19.00 @	
Manila Hay, pure	16.25 @	17.25	Papermakers Twine	10.50 @	
Sisal Lath Yarn..	11.25 @	12.25	B. C. Hemp, 18 ..	.39 @	.40
Manila Rope, pure, ¾ inch diameter	14.25 @	15.25	B. C. Hemp, 24 ..	.38 @	.39
Hardware Rope ..	11.25 @	12.25	B. C. Hemp, 36 ..	.37 @	.38
Jute rope, ¼ diam. and over, coils..	12.00 @	14.00	American Light India— No. 6	14.50 @	
Sail twine, A grade	19.00 @		No. 7	13.50 @	

Chemicals

No changes of note are reported in papermaking chemical prices. Casein is quoted at a range of 13 to 15 cents a pound, duty paid on the foreign product, while bleaching powder is quoted at about 1.25 cents a pound. Caustic soda is holding at 3 to 3.25 cents per pound f. o. b. works, and soda ash is selling at 1.40 to 1.50 cents a pound on a flat basis.

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Paper

Str. Nevisian, London—W. H. S. Lloyd & Co., 26 bls. hanging; H. Reeve Angel & Co., 3 cs. drawing and 5 cs. filter; E. Dietzgen & Co., 2 cs. drawing; H. Brockelbank, 3 cs.

Str. William Penn, Hamburg—Irving Bank-Columbia Trust Company, 78 rolls newsprint; Mills Needle Company, 4 cs.

Str. Nobles, Constantinople—Order, 13 cs. cigarette.

Str. Adriatic, Liverpool—F. J. Emmerich & Co., 40 bls. hanging; Oxfords University Press, 8 cs. printing; B. F. Drakenfeld & Co., 18 cs. printing.

Str. Eglantine, Rotterdam—Wilkinson Bros. & Co., 986 bls. and 775 rolls wrapping; A. V. Berner & Co., 31 cs.

Str. Mongolia, Hamburg—Bankers Trust Company, 99 rolls wrapping; Guaranty Trust Company, 59 bls. wrapping; Bernard, Judae & Co., 4 bls. wrapping; Chemical National Bank, 78 rolls newsprint; W. Hartman & Co., 129 bls. wrapping; J. P. Heffernan Paper Company, 39 bls. wrapping; F. G. Prager & Co., 1,877 rolls hanging; Order, 522 rolls hanging, 37 cs. writing, and 30 rolls and 38 bls. wrapping.

Str. Orca, Hamburg—C. G. Keferstein, 445 rolls wrapping; Bankers Trust Company, 199 rolls newsprint; Wilkinson Bros. & Co., 534 bls. and 183 rolls wrapping; Gallagher & Ascher, 119 bls. wrapping; P. & R. Trading Corporation, 236 rolls wrapping; Blauvelt-Wiley Paper Mfg. Company, 12 rolls and 90 bls. wrapping; Chemical National Bank, 410 rolls newsprint and 696 bls. wrapping; W. Hartman & Co., 512 bls. and 1,120 rolls wrapping; J. P. Heffernan Paper Company, 86 bls. wrapping; Order, 2,945 rolls and 433 bls. wrapping and 30 cs. pasteboard.

Str. Albert Ballin, Hamburg—F. J. Emmerich & Co., 14 bls. hanging; P. H. Petry & Co., 1 cs.; American Shipping Company, 1 cse. hanging; Mills Needle Company, 5 cs.; Irving Bank-Columbia Trust Company, 39 rolls newsprint: J. P. Heffernan Paper Company, 497 bls. wrapping; Majestic Mills Paper Company, 114 bls. printing; National City Bank, 132 bls. and 59 rolls wrapping; Order, 17 bls. and 96 rolls wrapping.

Str. Byron, Constantinople—N. Stephenson & Co., 10 cs. cigarette.

Str. Bremen, Bremen—M. Grosse, 5 cs.; Order, 1 roll newsprint.

Str. Celtic Prince, Hong Kong—Martin & Bechtold, 4 cs. litho.

Str. Tyrifjord, Trondhjem—Order, 100 rolls wrapping.

Str. West Eldara, Havre—Standard Products Corporation, 112 cs. cigarette; P. J. Schweitzer, 54 cs. cigarette; F. P. Gaskell & Co., 60 cs. cigarette.

Str. Mount Clay, Hamburg—P. H. Petry & Co., 2 cs.; Chase National Bank, 429 rolls wrapping; J P. Heffernan Paper Company, 114 bls. wrapping.

Str. Rochambeau, Havre—Japan Paper Company, 6 cs.; Whiting-Patterson Company, 14 cs.; Dupont Cellophane Company, 16 cs.; Surbrug Company, 16 cs. cigarette; Southern Pacific Company, 3 cs. cigarette; Guibout Freres, 4 cs.; Judson Freight Forwarding Company, 3 cs.

Str. Tyrrhenia, Hamburg—Redden & Martin, 5 cs.; Birn & Wachenheim, 19 cs. Parchment.

Str. Grootendyk, Rotterdam—Birn & Wachenheim, 18 bls. wrapping; from Antwerp—C. W. Williams & Co., 19 cs.; P. C. Zuhlke, 71 cs. printing; Gevaert Company of America, 49 cs. photo; Order, 5 cs.

Str. Minnekahda, Hamburg—Bendix Paper Company, 6 cs. pasteboard; National City Bank, 551 rolls hanging; C. G. Keferstein, 877 rolls wrapping; W. Hartman & Co., 384 rolls and 106 bls. wrapping; J. P. Heffernan Paper Company, 165 rolls wrapping; New York & Hauseatic Corporation, 48 rolls newsprint; Whiting & Cooper, 4 cs.; M. V. Bowater & Son, 114 rolls wrapping; P. & R. Trading Company, 10 rolls wrapping; National Paper & Type Company, 166 bls. wrapping; Order, 1,103 rolls and 481 bls. wrapping and 21 bls. pasteboard.

Str. Port Caroline, Liverpool—F. C. Strype, 10 cs. tissue; American Paper Exports, Inc., 76 cs. coated manila board.

Str. Syria, Marseilles—E. Waters, 10 cs. cigarette; from Barcelona—Taylor & Co., 10 cs. cigarette; J. Victoria & Co., 2 cs. cigarette.

Str. Taketovo Maru, Canton—B. C. Ritchie, 5 cs. litho; from Kobe—Japanese Fan Company, 15 cs.

Wood Plup

Str. Jan, Kragero—Tradesmen's National Bank of Philadelphia, 11,630 bls.

Str. Mongolia, Hamburg—A. J. Bracher & Co., 671 bls.

Str. Bremen, Bremen—Castle & Overton, 2,210 bls.; Lagerloef Trading Company, 2,082 bls.

Str. Tyrifjord, Christiania—E. M. Sergeant & Co., 250 bls. sulphite and 3,350 bls. ground wood; Order, 1,500 bls. sulphite.

Str. Grootendyk, Rotterdam—Order, 1,200 bls.

Str. Minnekahda, Hamburg—A. J. Bracher & Co., 131 bls.

Old Rope

Str. Levisian, London—Brown Bros. & Co., 273 coils and 18 bls.

Str. Francisco, Hull—Brown Bros. & Co., 296 coils and 83 bls.; from Antwerp—Brown Bros. & Co., 87 bls. and 39 coils.

Str. Albert Ballin, Hamburg—Brown Bros. & Co., 55 coils and 11 bls.

Str. West Eldara, Havre—E. J. Keller Company, 65 bls.; International Purchasing Company, 113 bls. and 33 coils.

Str. Mount Clay, Hamburg—Brown Bros. & Co., 20 coils and 32 bls.

Str. Tyrrhenia, Hamburg—Union National Bank of Philadelphia, 29 coils.

Str. Grootendyk, Rotterdam—E. J. Keller Company, 88 bls.; from Antwerp—Jonas & Naumberg, 14 bls.

Str Syria, Marseilles—Brown Bros. & Co., 40 bls.

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Str. Archimedes, Manchester—Equitable Trust Company, 71 bls.

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Str. Orizaba, Havana—M. Wolfer & Co., 23 bls.

Str. West Eldara, Dunkirk—McKensie & Foster, 99 bls.; Stone Bros. & Victor Galaup Company, 126 bls.

Str. Rochambeau, Havre—Mechanics & Metals National Bank, 73 bls.; Order, 13 bls.

Str. Rochambeau, Havre—Mechanics & Metals National Bank, 73 bls.; Order, 13 bls.

Str. Tyrrhenia, Hamburg—International Acceptance Bank, 222 bls.

Str. Archimedes, Manchester—Brown Bros. & Co., 35 bls.; International Acceptance Bank, 57 bls.; Guaranty Trust Company, 203 bls.; Order, 159 bls.

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Str. Grootendyk, Rotterdam—P. Berlowitz, 111 bls.

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Str. William Penn, Hamburg—New York Trust Company, 34 bls.; Order, 233 bls.

Str. Wyncote, Dundee—Crane & Co., 29 bls.; Chase National Bank, 68 bls.; Maurice O'Meara Company, 24 bls.; Order, 35 bls.

Str. Francisco, Hull—Order, 59 bls.; from Antwerp—W. Schall & Co., 104 bls.

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Str. West Eldara, Dunkirk—Daniel M. Hicks, Inc., 23 bls.; Irving Bank-Columbia Trust Company, 109 bls.; Mechanics & Metals National Bank, 76 bls.

Str. Grootendyk, Antwerp—Hughes, Fawcett & Co., 10 bls.; Andrews & Cook, 8 bls.; Equitable Trust Company, 343 bls.; Irving Bank-Columbia Trust Company, 180 bls.; New York Trust Company, 104 bls.; Order, 429 bls.

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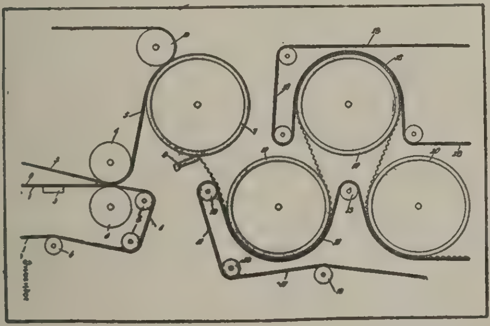

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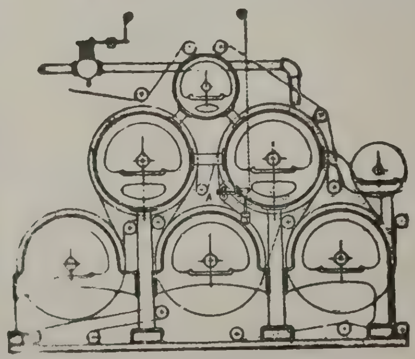

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Volume XXXIII, No. 13 PAPER January 17, 1924

The Magazine of the Paper Industry

THOMAS J. KEENAN, F.C.S., Technical Editor RUSSELL C. HUGHES, Publisher

IN ALL FRANKNESS

IT is time for PAPER to speak frankly about itself. The Hughes Publishing Company bought the magazine, PAPER, because the men who compose that company felt it was a good business investment, and because they like the paper industry and the people who compose it. In our contact as publishers with people in the paper trade we have found them to be fine, intelligent, friendly.

Moreover, an investigation of the magazine PAPER revealed that although its advertising business was not large at the time, it had an amazingly substantial list of paid subscribers. Through all the business vicissitudes reader interest had never been lost, and it was plain through this one fact alone that the people in the paper industry wanted PAPER. And as long as that interest was there, we didn't care a whoop whether the property was paying or not at the time, for we knew that upon that reader interest could be built a firm, growing, worthy business.

So we bought PAPER. And buying it we entered the field to stay.

As any publication never amounts to shucks unless it has infinite personal attention, we are here to give it that personal attention. We too are here to stay. We are going to try to inject a spirit and an individuality into it that will re-establish it as the leading paper trade magazine and furthermore as the really representative magazine of the paper industry.

We have the utmost confidence in it. Whether it carries many advertisements in the next few weeks and months is entirely immaterial to us. We know that if we build a good, honestly worthwhile journal, if we earn the support of the paper industry, the readers of which we already have in large numbers, the advertising will follow.

True it is that the industry is not in a mad flush of money-making just now. But those institutions that are permanent must take the bad with the good, must suffer or rejoice sincerely with the industry they represent. And we didn't enter the industry to skim any cream or get rich quick.

As a first step we have gathered back into the fold Tom Keenan to make the technical side of the paper sparkle with life. Do you know, we marvel at that man's knowledge of the paper business?

But he is only one good thing we have in view. They will speak for themselves. All we ask is your help, your suggestions, your kicks, honestly spoken. We want your confidence, your good-will, your friendship.

We want you to give us a chance and we want you to tell your friends to give us a chance—to make good.

RUSSELL C. HUGHES,
Publisher.

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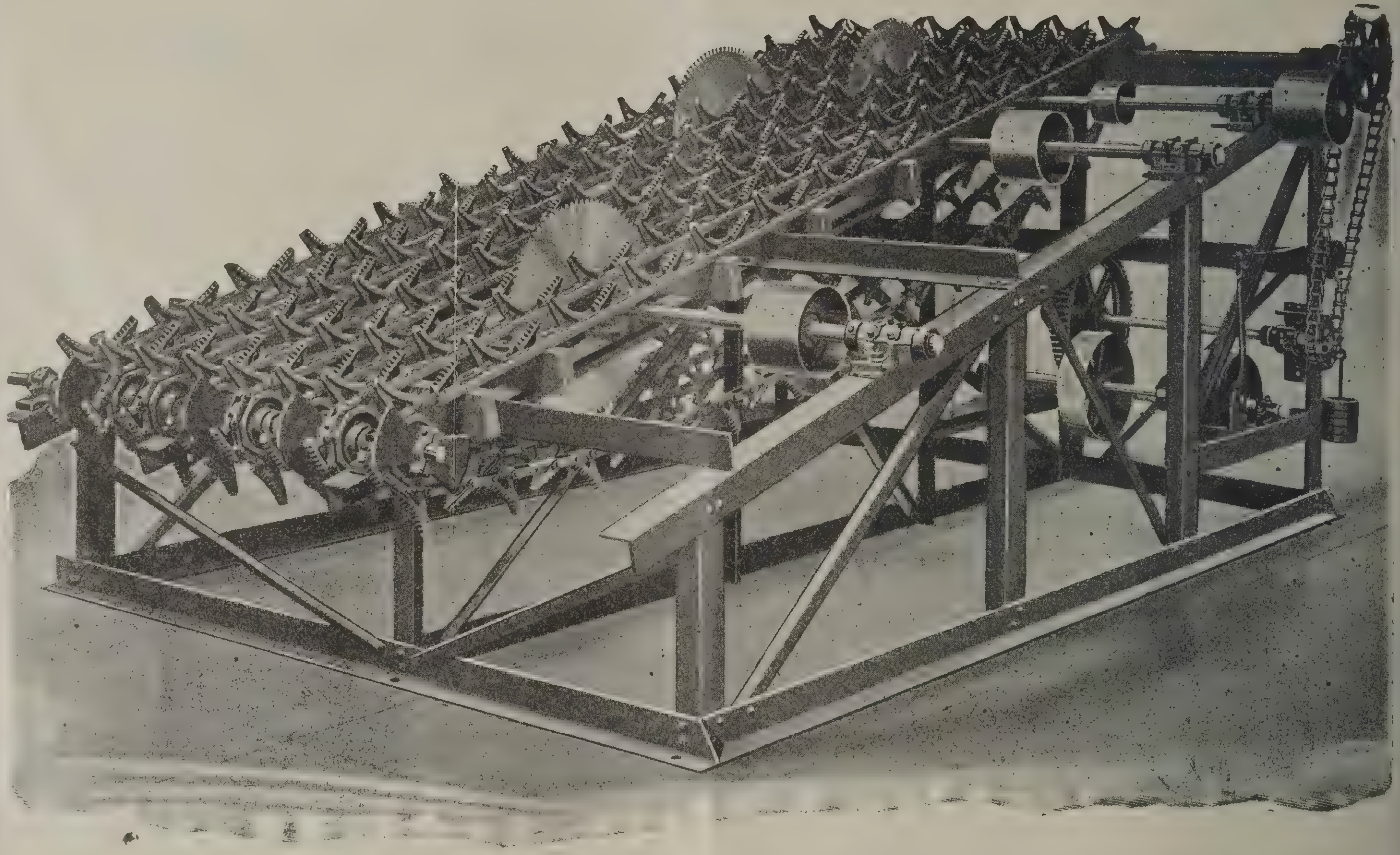

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PAPER
The Magazine of the Paper Industry

Fiber Board Manufacture

Character of Raw Material Used in Making Leather Substitute—Technical Details of Sorting and Cooking—Beating Process Determines Quality of Product as with Fine Papers—Fiber Board is Sized with Rosin and Colored with Pigments, Ochers and Oxides

By RAYMOND H. HARDING
Chemical Engineer
*Rogers Fibre Company, National Division,
Bar Mills, Maine*

SEVERAL grades of fiber board are manufactured and sold for different purposes. Some 57 per cent of the fiber board in use is made from chips, the name given to a composite of old papers, low grade and refuse materials from pulp mills, screenings and waste of other kinds repulped. Straw, ordinary farm straw, is used as raw material for 22 per cent of commercial fiber board, while 16 per cent has its origin in woodpulp of rather low grade and short fibered, to which is added a small quantity of long-fibered pulp to give the required strength. The remaining 5 per cent is made from jute. (Old rope and bagging.)

Fiber Board Used as a Substitute for Leather

THE better grades of fiber board used as a substitute for leather comes more or less under the last named class—the 5 per cent made from jute —being, jute, hemp, flax and strong sulphate pulp, with sometimes a small proportion of sulphite screenings added to act as a filling material.

Nothing in the manufacture of fiber board for use as a substitute for leather has appeared in the technical literature for a number of years. The accompanying article by Mr. Harding of the Rogers Fibre Company will accordingly attract the interested attention of all board manufacturers. The intimate details which are given concerning the sorting and cooking of the stock and the subsequent washing and beating are of great suggestive value. The modern conception of beater action in the hydration of pulp is clearly set forth and much information of value is given concerning the function of hydration.

The basic material, which is jute, hemp and manila, is usually received at the mill in the form of mixed strings, carpet strings, etc. Flax is received as carding waste and sweepings, and is graded according to the fineness of fiber and amount of dirt contained. Sulphate pulp is received n bundles, or bales, and usually in the dry sheet form familiar to all. Sulphite screenings are received in aps as they come from the wet machines of the mills and may contain as high as 60 per cent of water.

The mixed strings and flax are cut nto suitable lengths for cooking in heavy duty rag cutters, consisting of a cutter head, to which knives are firmy attached, revolving against a bed knife. A separately driven drum tudded with teeth feeds the material o the revolving knives. The length of the cut is determined by the ratio between the speed of he cutter head and the speed of the feeding drum, and may be changed at will by means of the cone pulleys driving he drum.

Owing to the length of the strings and the firmness with which they are intertwined, railroad and similar dusters re impractical. Therefore dusting is an operation following the cutting rather than preceding it, as is the case n handling rags and other like material. The dusting is ccomplished by means of blowers and collectors. The material is taken direct from the cutters into a fan and lown up into a collector. The fibers, having a specific gravity greater than dust particles in the dispersed state settle as the velocity is reduced in the collector and are delivered to the rotary boilers. Particles of metal and heavy dirt being of still greater specific gravity are delivered at the extreme bottom of the collector and are disposed of through a chute for that purpose.

How the Material is Cooked

THE cooking, which is necessary to reduce the grease and incrusting materials to such a state that they may be easily removed by the subsequent washing process, is carried out in boilers of steel plate, either of the cylindrical or spherical type. The usual size of these boilers is 8x24 ft., holding 4,000 lb. to 5,000 lb., depending on the material. These boilers are equipped with hollow trunions for the admission of steam for heating purposes. The interior usually has projecting spikes to keep the material from matting, or balling, during the cooking process, which would result in undercooked portions. This class of stock is usually cooked with lime and soda ash at a comparatively low temperature. The boiler is filled as full as possible as the material is bulky and hard to pack. If water is allowed to run into the boiler at intervals during the filling it will aid in packing and larger cooks will result. The lime and soda ash can be added either in the dry state or dissolved. More uniform results will be obtained if the lime and soda ash are dissolved before being added to the rotary. Also there will be less liability of burned spots and undercooked spots in the stock caused by high concentrations of the liquor in some places and low concentrations in other places. If the lime and soda ash are dissolved, the solution can be added with the water at the time of charging the boiler.

If warm water is added to the boiler the time required to bring it to the required temperature will be lessened and the cook can be made in shorter time. There will also be a saving in the steam required. Unless, however, there is a supply of waste heat available for this purpose, it is doubtful if preheating the water is a paying proposition. Higher concentrations of alkali and higher temperatures can be employed to shorten the cooking time but only at a sacrifice in the strength of the resulting stock. Temperature, time of cooking, and amount of alkali added being constant, the strength of the resulting stock will vary inversely with the concentration of the alkali, i.e, grains per liter. For this reason care should be taken regarding the amount of water added. This can be most easily provided by means of a water meter; filling the boiler to a certain level is not a correct indication of the amount added owing to the different absorbing qualities of different stocks. In figuring the amount of water required for a given concentration, allowance should be made for the condensation of steam resulting from bringing the boiler up to temperature.

The pressure is usually relieved and the boiler drained before removing the stock. If the boiler be blown under pressure a larger amount of dirt will be carried away, but the resulting stock loss more than offsets this. The stock from the boiler is drained either on the floor directly beneath the boiler or in pits with porous bottoms.

Washing the Stock

FOLLOWING the cooking comes the washing of the stock. This is usually carried out in a regular hollander beating engine equipped with one or more washing cylinders. Fresh water is continually added to the engine and thoroughly mixed with the stock by the action of the beater roll. The washing cylinder, or cylinders, continually remove dirty water laden with dissolved impurities. Sand catches are placed in front of the roll to catch particles of metal, dirt, etc., which are heavy enough to sink through the stock and too large to go through the washing cylinder wire. Washing must not only be carried far enough to remove the required amount of dirt but every trace of the cooking liquor must be washed out as if it is allowed to remain it will kill the size and alum used in subsequent operations.

The beater roll is lowered during the washing process enough to break up the bundles of fibers and free the encrusting materials, but not enough to produce any beating action as this would beat the dirt into the fibers and render clean washing impossible. It is rather a point of contention as to how far the breaking action can be carried without driving the dirt into the fiber. It is, of course, policy to bring the roll down as fast as possible during the washing process as this shortens the subsequent beating time. However, care must be taken not to go too far or a dirty stock will result.

Beating is a continuation of the washing process and is carried out in the same engine; the washing cylinders being raised out of the stock and ceasing to function. Owing to the necessary inequalities caused by the great variation in raw material—a bale of mixed strings never containing exactly the same proportions of jute and manila, and being too intimately mixed for sorting—small units are preferable to larger ones.

The well known saying that "paper is made in the beater" applies even more closely to high grade fiber board than to fine papers. As will be seen later on in this article there is very little control over the stuff on the machine, as compared with a fourdrinier machine, and the stock must therefore be prepared with even greater care than ordinarily is the case. The fact that the stock is seldom jordaned or screened makes uniform beating still more important. Small units aid in keeping the stock furnished to the machine of a uniform quality; heavy beaters can be balanced by light ones, too short fibers can be offset by dropping a slightly long fibered beater; stock too "slow" can be remedied by a "free" beater. With larger units, unless the chests held a great number of hours supply for the machine, this would be impossible. Chests of such a capacity would be unwieldy.

Beating Requirements

THE several grades of fiber board require different treatment in the beater. For a tough flexible board with good bending qualities a long, fine, well drawn out, and moderately well hydrated fiber is necessary. When board of a greater density is required and where the bending quality can be sacrificed a somewhat shorter fiber, more hydrated can be used.

The beater has three different actions on the fibers:

(a) A straight cutting action.
(b) A crushing and brushing action.
(c) A hydration action.

(By hydration is meant the adsorption of water by the fibers.)

There is a definite relation between actions (b) and (c). A fiber that is crushed and brushed out at the ends will adsorb water more freely than one which is cleanly cut. Therefore we can group actions (b) and (c) under one heading, hydration.

The ratio of the cutting action of the beater to the hydrating action depends on the following factors:

1. Consistency of the furnish.
2. Design and condition of the beating tackle.
3. Weight of the beater roll.
4. Speed of circulation.
5. Position of the roll.
6. Time of beating.
7. Temperature of beating.

Control of Consistency in the Beater

THE consistency of the furnish influences the ratio o cutting to hydrating in that the greater the consistenc the greater the pressure of the fiber against fiber. Thi pressure causes a rubbing action which accelerates hydra tion. However this increased pressure also causes the beate to heat and heat retards hydration. There is, therefore, point where the heating of the stock may offset the hydrat ing effect of the increased pressure and perhaps go so fa as to "free" the stock somewhat.

A sharp tackle cuts, a dull tackle hydrates. Roughly th greater the number of bars in the bed plate the greater wi be the hydrating action. In order to maintain a definit ratio between cutting and hydrating (and this is necessar to secure even stock) the tackle must be kept in conditio The use of maganese steel for bars and plates will accon plish a great deal in this line, as maganese steel resis wear to such an extent that the same cutting surface is pr sented day after day.

The weight of the roll has a definite bearing on th ratio of cutting to hydration. The heavier the roll th greater will be the crushing action, and as crushed fibe are more easily hydrated than cut fibers, the greater w be the hydration.

If the consistency is kept constant (assuming a consta beater line speed) the speed of circulation will be constar Increased speed of circulation has no appreciable effect the ratio between cutting and hydration, nearly acceleratir both in equal proportions.

In handling the roll the first two hours are probably t most important. If the roll is put down too fast on t fiber it will be weakened to such an extent that the resulti board will be soft and raggy even though the fibers m retain their length. A roll gradually lowered brushes t fibers out and allows hydration to proceed to a greater e tent than cutting. The above applies to a light roll. heavy roll lowered quickly will cut faster than hydrati can proceed. This question of the position of the roll directly in control of the beater man who must use judgment coupled with his knowledge of the requiremer of the stock. No two beaters on rope stock will han exactly alike and experience in this position is a big fact

All other conditions being equal, hydration is a dir function of the time of beating.

Use of Green's Freeness Tester

HYDRATION is also a function of the temperature beating; an inverse function. Measured by a "slown and freeness tester" similar to the one constructed by A. Green, a furnish consisting of 80 per cent mixed stri and 20 per cent strong kraft pulp gave the following average readings at different temperatures:

Degrees Fahrenheit		Cubic Centimeters
60	=	170
50	=	162
40	=	152
32	=	146
70	=	185
80	=	206

On these tests factors 1, 2, 3, 4, 5 and 6 were held as constant as possible. From these it will be seen that hydration proceeds faster in the cold.

This fact accounts for the difficulties encountered in the winter months in keeping the board from being too hard and brittle. There is a variation of from 25° to 35° Fahr. in the water temperature between summer and winter where the mill supply is taken from ponds or rivers. This change in temperature has a very decided effect on the degree of hydration and unless beating conditions are changed hard board is bound to result in the winter. There are two ways to overcome this excessive hydration in the colder months, namely, (1) lighter beating; (2) heating the stock in the beaters. As it costs approximately 80 cents to heat a 750 lb. beater of stock at 5 per cent consistency from 32° Fahr. to 60° Fahr. it would seem that the first method is to be preferred.

Sizing and Coloring

FIBER board is usually sized with rosin. Either prepared or mill made size may be used, the amount required depending on the exact use to which the board is to be put. When alum is added the size is thrown down in a flocculent precipitate. These particles are held fast in the fibers of "slow" stuff but in "free" stuff they filter through and may be deposited on the machine felts causing "packing." It seems plausible then that a "slow" stuff will be more easily sized than a "free" stuff and such has been found to be the case. Thus it is apparent that the degree of hydration has a direct relation to the sizing of the board, again showing the extreme importance of the beating operation. It is more difficult to size fiber board than it is to size paper. It is a well known fact that thin paper is more difficult to size than a heavy paper, and fiber board is made up of a great number of thin layers. As a sheet of paper comes in contact with the hot surface of the driers the small particles of size are melted, cementing the mass together and closing the pores. As fiber board is loft dried this melting of the particles is not possible. It nearly always follows, therefore, that fiber board requires more size than paper to produce an equal resistance to ink, etc.

Fiber board is nearly always colored with pigments like oxides and ochres, which also act to some extent as fillers. These colors must be fine and free from grit as the fiber board is usually cut up into small shapes in conversion and grit would dull the tools used in these processes. As a rule no alum is required to fix these colors on the fiber as they color the stock by becoming enmeshed with the fibers in the beater. The size and alum assist in retaining the pigments to some extent. Pigments do not penetrate into the central canal of the fiber as do the dyes, and there seems to be no chemical action involved except colloidal adsorption, perhaps. The retention of the pigment, and therefore the depth of color imparted to the fiber, depends on the nature of the stock, the density of the pigment, and the amount of size and alum used. "Slow" stock will give a higher retention than "free" stock. As pigments also act as fillers the use of too great a quantity will weaken the board, and where extremely deep shades are required the pigments are strengthened or entirely replaced by anilines.

The chests required for the manufacture of fiber board differ in no respect from those in any paper or board mill. For the sake of uniform stock the chests are made of sufficient size to hold a larger number of beaters than usual. As accumulated, "dead" stock sours quickly the chests should be placed where they are free of access and can be easily cleaned.

Forming the Board on the Cylinder

THE machine used for running fiber board consists of a single cylinder (or mould), covered with wire mesh, similar to a fourdrinier wire, and rotating in a vat of stock in which it is nearly immersed. As this wire covered cylinder (or mould) revolves in the vat the stock tends to flow through the wire covering into the hollow interior. The fibers, being unable to pass through the fine meshes of the wire covering, are caught on the exterior in a thin web. The water that passes through is drained out at one end of the cylinder. The difference in level between the stock in the vat and the water which has drained through to the inside of the cylinder produces a slight suction which holds the film of fibers against the cylinder as it moves around. The cylinder revolves against a head of the same size. Around the cylinder and head is a band, tight enough to secure the suction which is provided by the difference in levels between the outside and inside of the cylinder, but not tight enough to cause undue friction to the rotation of the mould. The amount of suction produced is controlled by the difference in levels between the stock on the outside of the cylinder and the water on the inside. This difference in levels is in turn adjusted by a gate controlling the opening through which the water which has drained through the cylinder escapes. The amount of suction controls the thickness of the web of fibers which forms on the cylinder.

With a machine operating in this manner the fibers are naturally drawn toward the cylinder at right angles to it by the suction produced by the difference in levels. Fibers thus drawn against the cylinders at right angles to it would not felt properly and would cause a poorly built up sheet. To overcome this tendency of the fibers to approach the cylinder at right angles various attachments are used to cause them to approach the cylinder in a position parallel to it, or in a similar relation to the cylinder that the fibers bear to a fourdrinier wire as they flow on to it.

Resting on the top of the cylinder is a couch roll with a felt running over it in the same direction that the cylinder is traveling. This felt picks up the web of fibers from the cylinder and carries it to the press rolls. At the press the web is allowed to transfer itself to the top press roll, around which it winds in succeeding layers until the desired thickness of board, measured in the wet state, is obtained. The board is then cut from the press roll without interrupting the operation of the machine, and the felt returns around the bottom press roll, to be showered, whipped free from adhering fibers, squeezed dry and returned to the couch roll.

Particular care should be taken in the design of the wet machine frames and the housings which support the press rolls. These should be heavy enough to withstand any sudden shock to which they may be subjected by the passage of lumps through them. Heavy frame construction eliminates to a great extent the vibration, caused in part by the whipper, which causes so much trouble in machines of light construction. The cylinder mould should be supported by overhanging bearings of rigid construction; when supported in this manner sagging is reduced and the resulting troubles eliminated to a considerable extent.

Delivering Stock to the Vat

THE stock cannot be rushed into the vat under pressure as this causes "boiling" and the sheet will be uneven and streaky owing to uneven consistency of the stock. To avoid this condition the head box must be so designed as to deliver stock to the cylinder vat absolutely free from currents and eddies. This is usually accomplished by dividing the head box into four or more compartments by means of partitions or baffles. The stock enters the head box from the mixing box, or mixing pump, flows under the first partition, over the second, under the third partition and over the fourth into the vat with very little momentum.

Provision is made for quick emptying of the head box, usually by wooden plugs with iron rods extending high enough to reach the top of the box. There are various patent gates and values for quick emptying of the head box, but the plug and hole remains entirely sufficient and satisfactory. An overflow should be provided from the head box to the mixing box to take care of sudden rushes of stock. All corners should be rounded to prevent lodgment of stock and a constant spray kept over the partitions to kill foam and bubbles.

Necessity of Properly Crowned Press Rolls

UNIFORM drying depends upon properly crowned press rolls. If the press rolls are not properly crowned the board will be wetter in the center than at the ends, owing to the deflection of the roll by the weights at each end. For a roll of given length the crown will vary according to the diameter of the roll and the thickness of the walls, or weight of the roll.

The nearer the circle of the vat to the mould the more dense or closely knit will be the board; the thinner the web of stock on the mould the denser the resulting board will be. The web must however, be maintained of sufficient thickness to cover the felt, if the felt is not covered weak spots will develop in the finished board. Sometimes it will be found impossible to cover the felt without running the web at a thickness all out of reason. An examination of the mould will usually reveal dirt spots as the cause of this difficutly.

Slice boards tied down too tight will cause fine checks thereby weakening the board considerably.

Lagging idler rolls will cause the felt to stretch more in some places than others. This has a tendency to pull the fibers apart and cause weak spots.

Quality of Felts

FELTS should be of good quality and somewhat open to allow the rapid removal of water and to permit ready removal of short, adhering fibers at whipper and showers. Finely woven felts make a denser board and one having a smoother surface, but a felt of this kind will fill up more quickly and is liable to mark the sheet. These finer felts are also harder to clean at the showers, and it is well known that a dirty felt is one of the causes of uneven drying. The regulation of the tension on the cylinder felt has a definite relation to the life of the felt; the felt should be allowed to run as loose as possible without sagging. The abrasive action of the whipper is exceedingly detrimental to the felt—the whipper should be so adjusted that there will be a maximum clearing action with a minimum abrasive action.

Drying Process of Great Importance

NEXT to the beating process the drying of fiber board is the most important process in its manufacture. All fiber board used as a substitute for leather is loft dried and this is a process that cannot be hurried; the water must be removed slowly from the stock to prevent brittleness. Too much heat causes the outside of the board to dry first, and the inside being wet cockles appear on the surface as round slimy spots after calendering. Some boards can be dried faster than others. The speed of drying depends to some extent on the use to which the board is to be put. Tough, flexible board requires slower drying than a hard, less flexible board.

The board going to the dry room from the machines contains approximately 66 per cent of water. This means that two pounds of water must be removed in the dry room for every pound finished. For every ten tons of board finished 20 tons or 40,000 lb. of water must be removed, and removed slowly.

Air at a definite temperature has a definite moisture-carrying capacity. This moisture-carrying capacity increases rapidly as the temperature increases. The volume of water to be removed is a constant, a certain volume of air per minute at a definite temperature, will remove this water in a given time. The speed of drying can be governed therefore by the amount and temperature of the air admitted to the dry room. Methods must be devised to insure an even circulation and removal of the air in the dry room otherwise there will be pockets where the drying will proceed faster or slower than in the remainder of the room.

Fiber board is calendered in single nip stacks either once or twice through, and hot or cold, according to the finish desired. One of the principal difficulties experienced in the calender room is a lack of uniform finish caused by different amounts of moisture contained in the board. Board exposed to warm humid air in summer may contain as high as 10 per cent of moisture, making it very hard to secure a firm product. In winter cold air containing very little moisture is taken from outside the plant and heated so that it is capable of carrying off large quantities of moisture, and the same board that contained as high as 10 per cent of moisture in the summer may, under these conditions contain as little as 3 per cent of moisture. This board, with the same calender treatment as a board containing 10 per cent moisture will be hard and brittle. A remedy for this condition would be to install a ventilating system which would always furnish air at a given humidity and temperature to the finishing room.

A Portland, Oregon newspaper in a recent issue contained a picture of the Portland Pulp and Paper Company's new ten-building plant made from the architect's plans. The building will be commenced early in the spring and will require approximately a year to get the work finished. It will be of modern concrete and re-inforced steel construction and is to be equipped with modern machinery for the manufacture of kraft paper. Slabwood lumber from the Monarch Mill will be used to make the kraft paper. A special process will be used to get rid of the pitch in the wood.

The English China Clay Industry

Extent of Development Portrayed in Photographs and Figures—Cornwall and Devon Chief Producing Centres

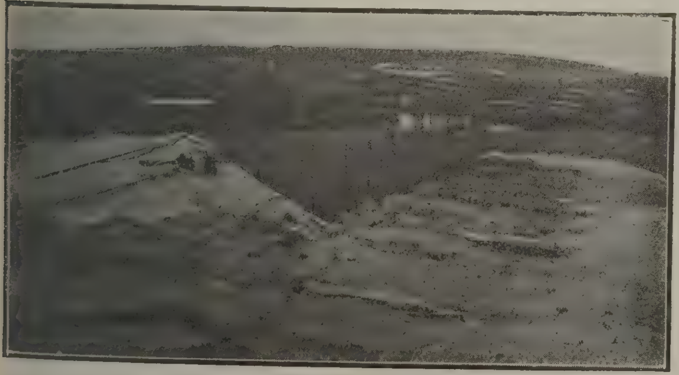
By S. P. BUNN, *St. Austell, Cornwall*

THE English china clay industry of Cornwall and Devon is peculiarly interesting to the papermaking industry of America and Canada, inasmuch as the bulk of the china clay imported is used as a coating and filling material in book and magazine paper. America may be said to be the home of the coated paper industry, for the adaptability of china clay for this purpose was first discovered there in 1875, since when the development and improvement of paper coating machines in the paper mills of America and Canada have revolutionized the coated paper industry and transformed it into a fine art.

Near view of newly opened clay pit showing men with "shivers" at work

How Imports Have Grown

As showing to what an extent the demand for English china clays has grown, in 1875 the total imported for the year was 130 English tons. In subsequent periods it grew to 7,823 tons in 1880; 10,626 tons in 1885; 27,137 tons in 1890; 70,585 tons in 1895; 104,833 tons in 1900; 231,234 tons in 1910; and 320,217 tons in 1914.



Steam engine house providing power for winding sand and debris from pit. In some mines the power for pumping and winding is provided from one station

Since then the imports have fluctuated below this figure, the best after-way year having been 1920, when nearly 318,000 tons were taken. The quantities taken by Canada direct have been very much less, seldom having exceeded 12,000 tons in the year.

Taking the English china clay industry as a whole, it reached its zenith in 1912, when the total delivered to the home and overseas markets nearly reached one million tons. Since then the highest totals have been, 895,250 tons in 1914, and 864,500 tons in 1920.

Cornwall and Devon Chief Sources

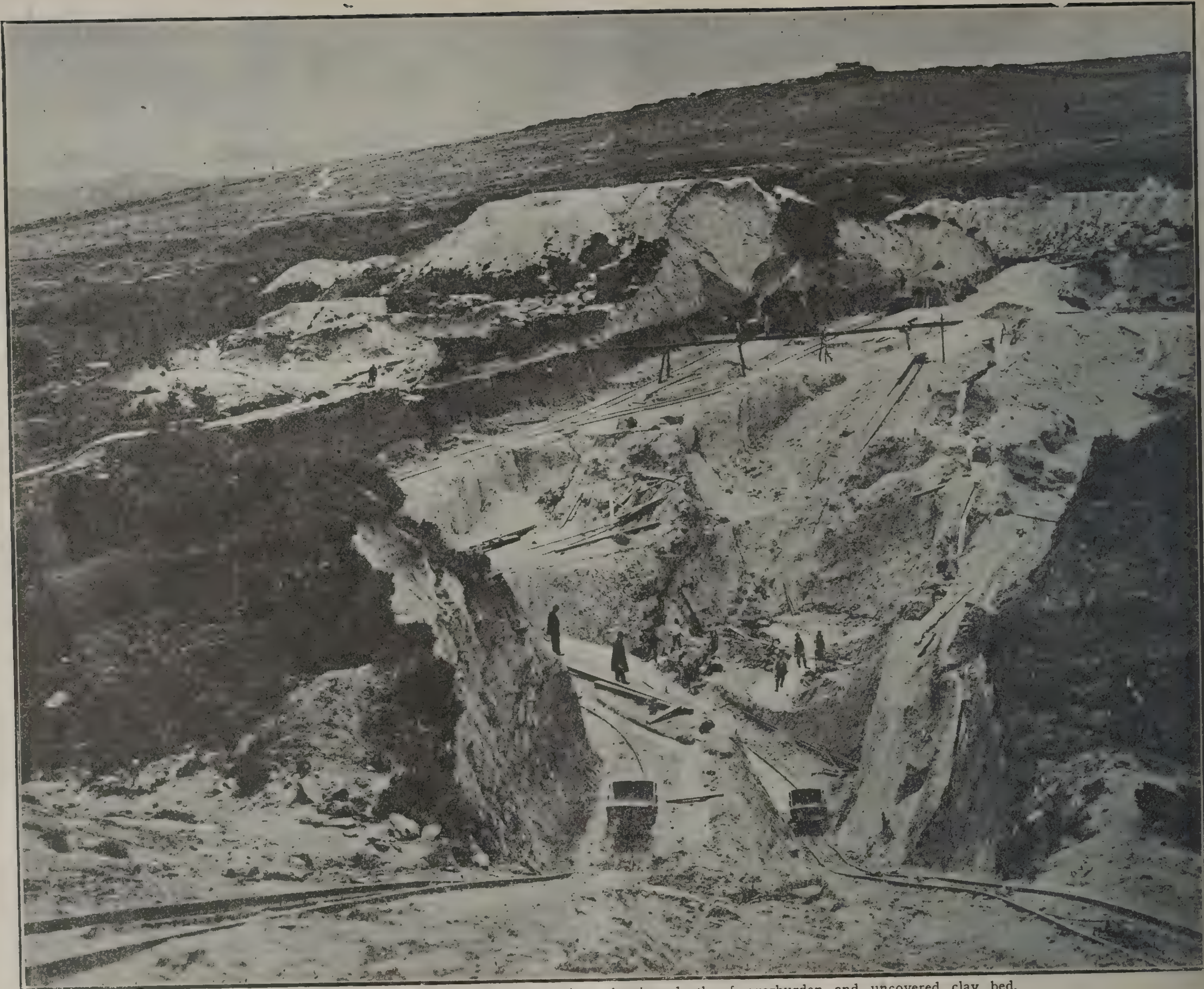
The bulk of the china clay produced in Cornwall and Devon, the latter county producing only one-tenth of the total, is used in the papermaking industry, none of the koalins produced in any other country possessing in such a high degree the attributes specially suitable for use in papermaking. Amongst the other main uses of china clay are pottery, cotton goods, and chemicals.

Pump shaft leading to underground level at bottom of pit. The liquid clay is pumped out by a suction pump, with power furnished by gas plant in house adjoining

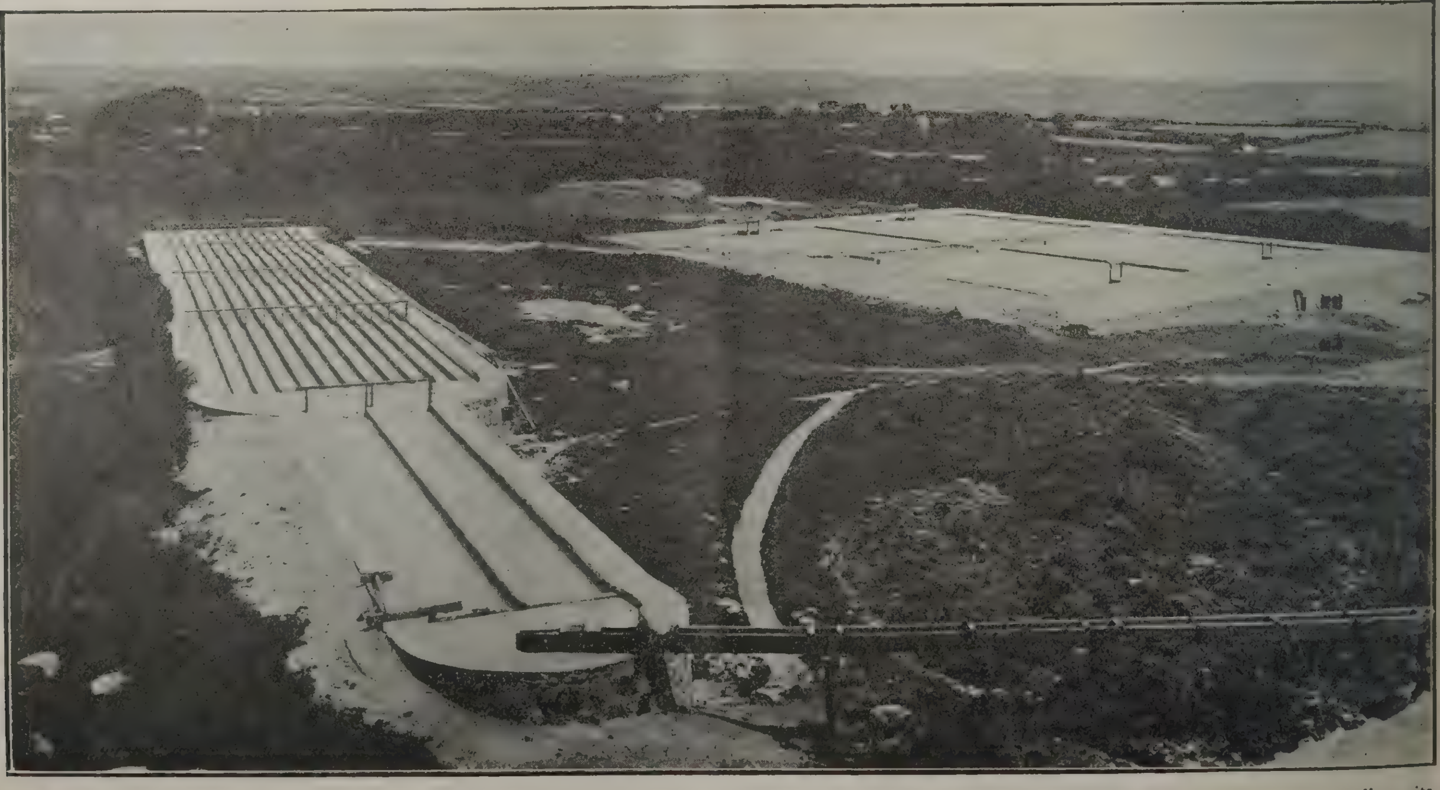
How the Clay Is Mined

The secret of the success of the English china clay industry has been the proximity of the china clay mines to the seaboard, and to the existence of a bountiful supply of water essential in the refining process. English china clay is found in its virgin state mixed with quartz, the extraction of which is secured by means of water, the clay being washed in a liquid state to the base of the pit, where it runs into a level from which it is pumped up through the shaft connecting the level to the surface. Here it runs over hundreds of feet of refining troughs, known as "micas", so named because the coarse, micaceous material is left behind in the troughs, while the liquid clay runs on in

Rear view of kiln showing tanks containing wet clay ready for drying as in all modern "layouts"



No. 1. View of newly opened china clay mine, showing depth of overburden and uncovered clay bed.



"Micas" or refining troughs (on left) over which liquid clay is run and in which the coarse particles fall, while the refined clay flows on to settling pits seen on the right.

suspension to settling tanks. From the settling tanks the clay is piped down to the elongated kilns, which are invariably situated alongside railway sidings or ports, located many miles from the works where the clay is raised.

The clay enters huge tanks adjoining the kilns, where it remains to settle for several weeks, after which the water is drained off, and the wet clay, of a glutinous consistency, is "trammed" onto the pan of the kiln. Here it remains from twelve hours to two days, depending on how near to the furnace end the clay is placed on the pan, and is then cut up into suitable sizes for handling and thrown into a linhay, or store, ready for shipment.

Change in Form of Package

Before the war a large proportion of the china clay shipped to America was sent in casks, but in consequence of the prices to which casks rose during the war, the American market now takes most of its china clay in bulk, a large proportion of the remainder being dispatched in bags, the contents weighing 224 pounds or 2 cwt.

Until fifteen years or so ago, the shipment of china clay from Fowey, the port of shipment for most of the export trade, was done through small steamers for transhipment at Liverpool or Bristol, but since the quick-loading electrical apparatus was installed at one of the jetties, it is now taken by large oceangoing steamers from Fowey direct to American ports. A further advance has recently been made in the accommodation and quick-loading apparatus at Fowey by the recent opening of the new jetty and the deepening of the estuary, so as to permit of the ingress and egress of large steamers at all states of the tide. Fowey can therefore now lay claim to possessing all the facilities for quick loading such as are possessed by larger British ports, and has the reputation of being the cheapest loading port in the United Kingdom.

List the Approved Chemists

Work of a joint committee representing the American Paper and Pulp Association, the Technical Association of the Pulp and Paper Industry, and the Association of American Wood Pulp Importers for the listing of approved chemists for weighing, sampling and testing pulp has progressed so far that the various forms for use in this work have been completed. A detailed statement of experience and qualifications is prepared for the chemists who wish to be rated as approved chemists for the joint committee, and a set of instructions for the chemists to follow in making tests has been completed. The chemists must also be approved by the Scandinavian wood pulp associations, and the specifications for testing are so complete that it is believed that there will be a great reduction, if not an entire elimination of difficulty due to questions of quality.

Buying Foreign Bleaching Sulphite

Some of the New England paper mills have been purchasing considerable foreign easy bleaching sulphite in spite of the fact that their own pulp mills were not being operated at full capacity. This has been largely the Scandinavian sulphite, which would indicate that paper manufacturers can buy foreign pulp to better advantage than they can manufacture their own. The majority of the New England manufacturers of machine finish book, coated book and sulphite bonds, however, have used the domestic supply of pulp and have paid the slightly higher prices for the same in order to maintain a higher quality of product.

Prices of sulphite, f. o. b. domestic mill or dock are quoted as follows: domestic bleached sulphite, $3.80 to $4.50; foreign bleached sulphite, $3.75 to $4.30; foreign unbleached sulphite $2.60 to $2.80; kraft pulp $2.40 to $2.85; soda pulp $3.50 to $3.80; ground wood pulp, per ton, $38.00 to $42.00.

Take Handsome New Office

Hollingsworth & Vose Company, 141 Milk Street, Boston, where they have been located for many years, have leased the eighth floor of the new Province Building at 333 Washington Street, Boston, and during the past week moved into their new quarters. The new quarters are in one of Boston's newest and most up to date office buildings. It is in the heart of the business district of the city. The company will have about 4500 additional feet of floor space in its new quarters in addition to more light and better arrangement of its offices and accounting rooms. The company manufactures paper at its mills at East Walpole, Mass., and West Groton, Mass.

Notes of the New York Trade

CASTLE & OVERTON, of 200 Fifth Avenue, New York, among the oldest and best known concerns in the papermakers' supplies trade, have incorporated under New York State laws with 4,000 shares of preferred capital stock of $100 par value and 1,000 shares of common stock of no par value. William A. Castle, Frank C. Overton and Carleton B. Overton were the incorporators. Mr. Castle is president and treasurer of the new corporation, Mr. Frank C. Overton is vice president, and Mr. Carleton Overton is secretary.

A. H. Searle has opened an office at 132 Nassau street, New York, where he will carry on a general business in paper mill supplies, and represent the interests in the United States of G. Wallace & Co., Dundee, Scotland; Mayer Bros., of Hanover, Germany, and I. & J. Hyman, of London, England, exporters of papermaking rags and other materials.

The Reading Paper Mills, of Reading, Pa., manufacturers of high-grade rag papers, have opened a New York sales office in Room 1126 of the Canadian Pacific Building, 342 Madison Avenue, with Edwin D. Peck in charge. Mr. Peck has had many years' experience selling paper in the metropolitan territory, and he will endeavor to make the Reading lines more popular in this city than heretofore. The Reading Mills have been producing fine rag papers for 50 years but this is the first time they have been represented directly in New York City.

Johaneson, Wales and Sparre, Inc., wood pulp agents and importers of 16 East Forty-first Street, New York, announce that they have been assured of close co-operation from several New York State paper mills and as a result have opened a paper department under the direction of J. R. Newton, who is in intimate touch with each one of these mills and who will aim to give the best service possible to the firm's customers.

A new paper concern in New York has been organized by the consolidation of Blake & Decker, Inc., formerly at 50 East Eleventh Street, and the New York house of Dill & Collins Company at 419-421 Lafayette Street, the name of the new firm being Marquardt, Blake & Decker, Inc., notice of the change in name having been filed with the Secretary of State at Albany, and also notice of an increase in capital stock from $75,000 to $150,000. Oswald F. Marquardt is president and general manager of the new company, Bertram T. Blake is vice president, and Randall H. Decker is secretary and treasurer. Mr. Marquardt has been manager of the local Dill & Collins branch for some years, and Messrs. Blake & Decker were associated with the same company before starting in business for themselves in 1918. The new concern will occupy the quarters on Lafayette Street, where all the lines hitherto carried by the two former companies will be stocked.

The Publicity Paper Corporation, paper importers and merchants, has moved from 1476 Broadway to 406 West Thirty-first Street, New York. The new telephone call is Chickering 7755.

Maurice London, secretary of the Lagerloef Trading Company, Inc., wood pulp importers of 52 Vanderbilt Avenue, New York, sailed a few days ago on a business trip to Europe.

John J. Spinnelli has severed his connection with Atterbury & McKelvey, Inc., of 145 Nassau Street, New York, and has opened an office in Room 1607 of the Park Row Building, 15 Park Row, New York, to handle all classes of papermaking materials. Mr. Spinnelli has been in the paper stock trade for 30 years and is thoroughly conversant with the wants of paper and board mills, and in close touch with packers of rags, waste paper and similar materials.

Jacob Erichsen and Johannes Westergaard, well known in the local wood pulp trade, are now associated with Atterbury & McKelvey, Inc., pulp importers and dealers of 145 Nassau Street, New York, which firm has just been appointed sole agent in the United States for A. S. Tofte Cellulosefabrik, of Christiania, Norway, manufacturers of bleached sulphite.

Joseph F. Keene, of Katzenstein & Keene, Inc., importers of papermaking raw materials of 200 Fifth Avenue, New York, recently returned from a two months' business trip to Europe, and reports that he found stocks of rags on the other side of the Atlantic at an unusually low level.

C. A. Wadsworth, who has been connected for several years with H. B. Wadsworth has resigned from H. B. Wadsworth, Inc., of 51 East Forty-second Street, New York, and has opened his own office for the sale of wood pulp, paper and a general line of paper mill supplies at 342 Madison Avenue, New York.

The Editorial Page

KEEP ON THE WARPATH

THE American Paper and Pulp Association should keep up a steady, consistent, unremitting campaign to curb the dumping of pulp and paper in the American market at ruinous prices. The evil is apparently not growing less.

The entire industry can't get away from it. America is not Germany or Sweden or Norway. With the proud position of America's money and America's labor, this nation cannot successfully compete with paper imports from abroad under the present tariff law. Then when upon the top of this general condition there is added the suspicion of dumping, the battle should go on.

It is obviously impossible for the American Paper and Pulp Association or any association to cause a sudden change in the law. The paper trade, both in the mill and in the selling end, must realize this fact. The present situation is likely to remain for many months. But this does not mean that the industry should sit down supinely and do nothing. The battle should go on constantly.

A change in the tariff law that will make imports of paper unprofitable will only come after a long, unrelenting, and statistical battle. And it is certain that even fortunes will not be handed to the paper manufacturers of America on a silver platter, nor should they be. Competition will always be keen. But the fight must not be dropped.

Importations are not vital to the American paper industry, but it would be a callow mind indeed, that does not admit the seriousness of the situation. While they never possibly could be the death blow of the American paper industry, they can be tremendously disturbing.

PAPER has every confidence in the heads of the American Paper and Pulp Association. It knows they will not leave any proper stone unturned in an effort to protect their members. But the fight must go on, unceasingly, vigorously and with discretion.

"JUST BECAUSE"

By B. T. McBain

THE law says that competing manufacturers must not work together; that jobbers must work by themselves except as to standards. Is that a good and sufficient reason why we should all take ourselves so seriously and think that we are the only fellow in the market? Is that cause for any of us to sell our product at a price which is below cost? Is that any basis for taking the stand that because someone of our mills are old and have been charged off to Depreciation once or oftener, that Depreciation should not be included in their cost figures, for the day is coming when replacements must be made and then what? Is that business reason for setting aside the use of common sense?

Is that any reason why anyone should accept prices for his product which will not allow of paying a fair wage to his workers and which in the end may shut his mills down and force not only loss upon stockholders; but upon that larger part of our organization, the wage earners?

I think that before long, one great majority of the American citizenship, the wage earner, will rise up and demand that the law makers of our truly great country change their views and take into consideration that the wage earners' prosperity begins with prosperity of their employers. As soon as these demands are made, the Courts of the land, always keeping their "ear to the ground", as they must; will then find it practicable and important enough to declare certain laws now on the Statute books, unconstitutional, because as at present, with cut throat competition in so many lines and Foreign goods coming in produced by cheap labor, what chance has either American employer to pay or American employee to receive an amount sufficient at all times to meet the needs of the average American family under present American standards of living.

In any event "Just Because" is no reason why we should not use our cost figures and charge a legitimate profit on our goods, no matter what some foolish competitors may be charging, for it is surely better to sell part of a loaf at a profit, than a whole one at a loss.

BOTH HAVE MOVED ON

CARLYLE was living in London. A man drove a wagon through the street on which Carlyle lived. On the wagon was a huge hat bearing its maker's name. It was one of the early crude attempts to advertise a product.

Carlyle at his window saw the hat go by. He walked to his desk and wrote a screed against advertising. "Good goods," he said, "are their own advertisement and no amount of hawking signs would make them better."

To Emerson is attributed the story of the mouse trap and the beaten path. Authorities differ as to whether Emerson was guilty but he might well have been. It is quite in keeping with his character and the time in which he lived, says A. Booster in The Ambassador, the zippy house organ of the Niagara Paper Mills, Lockport, N. Y.

But Carlyle and Emerson lived before modern business was born. The locality's supply was the local dealer's stock. The source of supply was known and handy. Advertising was unnecessary. There was no mail order business then. Catalogues were unknown. Jones in Chicago was not trying to sell to Brown in Boston, nor was Brown in Boston trying to sell Smith in San Francisco.

Today an army of traveling salesmen equipped with the necessary paraphernalia covers the country and spreads out across the civilized world.

It happens often that the best goods are made in places far distant from the place of market. Today, without advertising, Carlyle would not know about them, nor would Emerson, walking, be able to find them if all his days were spent afoot.

Advertising is today the key that unlocks the door to commercial knowledge. It is essential to correct buying information. If Carlyle and Emerson were living today, it is an insult to their intelligence to believe that they would not agree.

Absurdity In High Places

A SUDDEN shock of fear swept through all the various national associations of the paper industry when announcement was made a few days ago that Attorney General Daugherty had ruled—in reply to a letter from Secretary of Commerce Herbert Hoover—that associations may collect information with regard to production, sales, stocks, costs, and prices on closed transactions, but that such information must not be distributed among its members. It may, however, be transmitted to the Department of Commerce or some other Government agency, and through this medium be given to the general public.

Secretary Hoover in his letter to Attorney General Daugherty stated that associations will hardly go to the expense of collecting statistics if the only use that can be made of them is to transmit them to some Government department. "If this should happen," said the Secretary, "I fear that the efficiency of this department in carrying out the purposes set forth in the act creating it would be very greatly impaired."

The occasion for this correspondence was the recent decree of a Federal District Court in the Government's suit against the Tile Manufacturers' Credit Association of America and the Cement Manufacturers Credit Association in which the court restrained the association from distributing among its members certain information.

The ruling of Attorney General Daugherty is the veriest nonsense. According to some of the best legal advice in the country, it is not backed by either the law or a Court decision.

It is preposterous to think that Attorney General Daugherty can proceed to bring suit against the myriad trade associations in the paper industry and others for their dissolution. Most of these associations have their very foundations on the rocks of common-sense and square dealing rather than upon any hint of restraint of trade. The wisdom of the sage of Ohio seems to be missing on several cylinders.

The various associations in the paper industry are expected to sit tight and ignore the ruling entirely. A symposium of opinions of the leaders of the industry, although they will not be directly quoted, shows that they will ignore the ruling. And it is right they should.

As long as any association merely endeavors to give its members facts and does not attempt these three cardinal sins:

1. Control of prices;
2. Limit of output;
3. Manipulation of markets,

it has nothing whatever to fear. The gathering of facts and figures and their promulgation to a membership or in fact to the public if the public desires them constitutes no crime. These are the things the Department of Commerce has been clamoring for for years and has only just got going nicely. It is through such figures that millions of dollars are being saved annually.

Such services cannot be performed by the government. It would entail a burden that the government could not bear. It would mean a huge bureaucracy and vast masses of red tape and delay. It would be safe to assume that some two years after a terrific loss was sustained by an industry, the means of preventing it would appear.

It is the belief in some quarters that Secretary Hoover only wrote his letter to the Attorney General to smoke him out in the matter, so that the Department of Commerce and the trade associations would know where they stand.

To strike out the work of these associations would throw American industry back possibly two decades. The mere possession of knowledge seldom harms anyone and it gives the possessor of it a confidence that is invaluable.

Trade association leaders are plainly dissatisfied with the new ruling. Most of them refuse to speak for publication but personally have many pertinent things to say in the matter. And their views are seconded by many members.

It is possible that the emanation from the Attorney General's office was penned originally by a young and inexperienced department official and only approved by the Attorney General. But of course he must be responsible for everything his department does.

It is high time such all-inclusive, ill-considered rulings are themselves ruled out of American trade. To attempt to kill off organizations that are already working hand in hand with the government to prevent just the very things this new ruling aims at is like a slap in the face. It doesn't maim for life, it doesn't even seriously injure, but it is cussedly irritating.

A Week Crowded With Events

AS the date approaches for the second Paper Industries Exposition in New York, interest in the success of the enterprise grows more intense, not only on the part of the organized pulp and paper manufacturers of the country, but among the general public as well, who thanks to the initial exposition a year ago, have now a clearer idea of the fundamental importance of papermaking to the welfare of the nation. This year's exposition is certain to be more attractive and a greater success than last year's which was largely an experimental venture and one that was conducted under many handicaps and peculiarly trying difficulties. Notwithstanding the aloof attitude toward the first exposition displayed by several of the more successful and responsible firms, a sufficient number of enterprising concerns lent their support and at great expense exhibited the productions of the American paper industry in the varied forms of pulp and paper now used so universally. The builders of machinery employed in papermaking were better represented at the first exposition than were the makers of paper and paper products, with one notable exception, the Hammermill Paper Company, which put on a large and creditable exhibit of great educational value as showing the expanding use of wood fiber in the manufacture of fine papers. Bewildering to the layman must have been the presentation of modern papermaking machinery and processes and the evidences given of the numerous chemical and engineering industries on which pulp and paper manufacture is dependent.

That this year's display of machinery and of paper products and processes will far outshine the initial exposition of 1923 is already assured. The entire first floor of the Grand Central Palace will be given over to exhibits and the display will be reached by the main entrance to the exposition building on Lexington Avenue. Last year the exposition managers were unable to reserve the main floor of the building and as a consequence difficulty was experienced in installing some of the mammoth exhibits of machinery that were shipped to New York from distant parts of the country, the elevator to the fourth floor being inadequate to accommodate certain parts intended for display. No such difficulty will be encountered this year and the exposition space will be much more advantageous and accessible both for visitors and exhibits.

The Technical Association of the Pulp and Paper Industry is expected to take an active part in assuring the success of the Paper Industries Exposition and this is as it should be, since the growth and development of the association has been aided year by year by the promoters of the Exposition who are also the founders of the conspicuously successful Chemical Industries Exposition in which the chemists and engineers of the paper industry have always taken a leading part.

It is pleasant to recall the success of the second Chemical Industries Exposition held in 1916 at the Grand Central Palace, New York. The American Paper and Pulp Association and its lusty child, the Technical Association of the Pulp and Paper Industry, were represented at the opening ceremonies by special invitation, the other associations who were officially represented being the American Chemical Society and the Electrochemical Society. In formally opening the the Exposition an address on "The Connection Between Chemistry and Papermaking" was made by the present Technical Editor of PAPER, who was then secretary of the T. A. P. P. I. If the Technical Association of the Pulp and Paper Industry then took a prominent part in furthering the success of the Chemical Industries Exposition, what shall be expected of it when there is an exposition of paper industries to be promoted? Surely every officer and every member of the association will do his utmost to make the exposition truly representative and one that will demonstrate fittingly the extent and importance of papermaking among the great basic industries of the country!

The week of April 7 will be crowded with events for all who are connected in any way with the pulp and paper industry, for it is the week of annual meetings, which will bring to New York, not alone the manufacturers and mill technologists and engineers, but the vastly greater number of paper men represented by the merchants of paper holding membership in the National Paper Trade Association, the auxiliary associations, which include the mill supply dealers, and a host of others.

It should not be necessary to urge on all who purpose attending the annual meetings and visiting the Paper Industries Exposition to make early application for hotel accommodations. The editor of PAPER will be glad to assist in any way he can, and the secretaries of the various associations having headquarters in New York can be confidently depended on for information concerning, or help in securing comfortable rooms at hotel headquarters or adjacent thereto.

A Popular Talk on Cellulose

Some Chemical Reactions Explained in Popular Language—An Account of the Changes which Raw Materials Undergo in the Conversion Process

By JESSIE E. MINOR, Ph.D.

Flower in the crannied wall,
I pluck you out of the crannies,
Hold you here, root and all, in my hand.
Little Flower,—but if I could understand
What you are, root and all, and all in all,
I should know what God and Man is.

THE thought of the great poet nature-lover as he gazed on a commonplace little flower and meditated on the marvel of its construction, so delicate and yet so marvellously intricate as to be entirely beyond his comprehension, is expressed in the foregoing stanza. Just as sincerely could the artist papermaker gaze upon a sheet of paper and declare,

Scrap of paper on the office desk,
I pluck you out of the cluttered mess,
Hold you here, marvel of ages, in my hand.
Scrap of paper,—but if I could understand
What you are, fibers and sizing, and all in all,
I should know what God and Man is.

Still Guessing at the Nature of Cellulose

While the artists of the trade have been making paper of wondrous quality for centuries, it is comparatively recently that the chemists have begun to study papermaking and to analyze the materials used and the physical and chemical changes which are brought about in these materials during the process of making paper. These chemists now tell us that the fibers of rags and chemically cooked woods, both of which are used in papermaking, consist almost entirely of CELLULOSE. But when you ask them, "What is Cellulose?" they confess that, while they know that cellulose is a material abundantly supplied by nature, chemically it is one of those complex colloids about whose constitution they know little more than the poet knows of the construction of the flower in the crannied wall. However, in spite of this lack of knowledge as to the constitution of the original material used, there has been accumulated considerable information as to the physical and chemical changes which the papermaker is able to bring about in the materials used. A review of this information will serve to quicken our admiration for the complexity of the materials so abundantly supplied by nature.

In Which We are Introduced to "Residual Valence"

If we could sufficiently magnify a single fiber, we would see a central tube surrounded by a wall made up of a sponge-like structure of particles of cellulose held together in a very definite way by a force similar in nature to electricity, which is called by the chemists, Residual Valence. Fibers from different sources have also, besides this general structure, certain definite arrangements, as the striations of the cotton fibers, the large holes for the entrance of sap in the fibers of the spruce and pine trees, etc., and it is largely by means of these special markings that the different kinds of fibers used in papers may be accurately identified under the microscope.

Stains That Tell the Nature of Fibers

More convenient distinctions are brought out by the use of specific stains which, besides bringing out these specific markings more clearly, often give to one kind of fibers a color entirely different from that given to another kind. Thus Phloroglucinol colors groundwood pink and well cooked wood or rag remains colorless, the Herzberg stain colors groundwood yellow, chemically cooked wood a deep blue, and rag a wine red. With a little practice it is quite easy to determine by means of these stains, within one per cent, the exact proportions of each of two or more kinds of fibers which are used in the furnish of a given piece of paper. This test has been valuable in stabilizing the prices of paper since it gives to the buyer and to the competitor a method of knowing the exact value of the materials used in making each kind of paper.

> *It is difficult for a scientific person to put in plain language those facts of chemical interest which relate to the nature of cellulose and paper fibers generally. Dr. Minor has been successful in putting in popular language, such as will be understood by non-technical readers, some of the basic chemical reactions which cellulose fibers undergo in the preliminary treatment applied to them in the process of producing a sheet of paper. Many of the men in the mills and not a few "Higher-ups" and even paper chemists may derive useful information from a perusal of this paper or at least get a new slant on some of the processes of papermaking.*

All fibers when suspended in water have the power of absorbing water into their pores, especially if the water is slightly alkaline, and they will continue to take up water until the water is actually compressed within the tiny pores to a greater extent than in the surrounding medium. This is evidenced in a large way by the common experience of papermakers that dry pulp can be furnished to a beater up to 25 to 40 per cent of the weight of the water without causing any marked increase in the volume of the liquor.

Swelling and Bursting of Fibers in Water

When the fibers are first immersed in water, only the pores on the surface of the fibers begin to absorb water and swell. The limit of this expansion depends upon the amount of alkali in the water and the resisting power of the residual valence force which holds together the tiny particles which form the walls of these pockets. If there is no motion or friction, this swelling proceeds very slowly to its limit of expansion and then the pocket bursts, throwing the tiny fragments of the outer wall into the water. Because of the pressure of these swollen outer pores, the layer of pores just below the outer layer is unable to expand, but as the outer one bursts and relieves this pressure, the layer of pores next to this outside layer begins to expand and continues until it ruptures and allows the layer below to have its turn at swelling and bursting.

Heating of Stock in Beater a Chemical Reaction

This process continues in this way until the liquid becomes milky in appearance owing to the presence of such a large amount of swollen, insoluble particles of fiber wall and pore contents in the water. If the fibers are rubbed against each other, as in a beater, the breaking down of the fiber surfaces occurs long before swelling is completed and the resultant slowness develops much more rapidly and extensively than when pulp lies in the beater without motion. It has been definitely proved that in this process of swelling considerable heat is given out and it is this chemically developed heat, rather than the mechanical heat of friction which causes the heat development in the beater, especially when rag stock is beaten. The greater ease in developing slowness in a cold pulp than in a warm one is explained by the fact that a chemical reaction which develops heat is always repressed by outside heat and favored by cold.

Slow Stock Means Hydrated Cellulose

This process of swelling by the taking in of water which gives to a pulp its characteristic slowness is spoken of by the chemist as the HYDRATION of pulp. Coupled with this hydration and the breaking down of the surface layers of the fiber structure, there always occurs a partial change in the chemical constitution of the cellulose molecule which is called HYDROLYSIS and which gives to the swollen pulp and to the milky liquor filled with tiny cellulose particles that adhesive property which serves to cement more firmly the fibers together and close the fiber channels in order that the finished paper may the less easily absorb water, ink or grease. If the pulp is overheated or overbleached, then the cellulose molecule undergoes a different change and a compound called OXYCELLULOSE is formed which, once started, spreads rapidly through the paper causing loss of strength, yellowing and brittleness.

In the brushing or beating of fibers, hydration proceeds with relative rapidity followed by a slower hydrolysis, but when stock is cut, as in a Jordan or refining engine, then the exposure of the more tender inner surfaces of the fibers causes a rapid hydration without sufficient lapse of time for any appreciable hydrolysis. With Fourdrinier papers, this increased hydration very much retards the rate of draining on the machines.

Hydration Retarded by Acid

The addition of acid to a beater in a slight amount has a tendency to harden the fibers and retard hydration. Any excess of acid will cause a breaking down of the fiber structure and a brittleness of the finished paper similar to the formation of oxycellulose. Papermaker's alum has the remarkable property, when dissolved in water, of partially separating into alumina and acid. If there is anything like lime in the water which neutralizes this acid, more alum will separate, thus giving a continuous supply of a small amount of acid and at the same time protecting against the effects of a large amount of acid at any one time. Since for most papermaking processes it is absolutely essential that a small amount of free acid be present and just as essential that an excess of acid be avoided, alum finds a very wide use in the process of papermaking.

Greaseproof Papers

In the making of greaseproof papers, such as are used for butter and ice cream wrappers, it is desired to obtain the maximum amount of adhesive sealing material made by the hydrolysis of the fibers and yet to protect the fibers against so much hydration of the fiber surface as to destroy the fiber structure and lose that felting power necessary for the making of a strong sheet of paper. Therefore, in making these papers it is advantageous to add a small amount of alum to the beater at the time of furnishing to enable the beaterman to develop the excessive hydrolysis and yet protect against excessive hydration.

Pulp for Blotting Papers Must be Cut Rather Than Beaten

For blotting papers the furnish must be especially free from all foreign material and beaten as lightly as possible in order to leave open all the sap channels in the fibers that they may serve for the absorption of water or ink.

Theory of Rosin Sizing

For many other papers, including all the writing and printing papers, it is desired to have a waterproof surface. For this purpose the most satisfactory treatment is the addition of rosin in the form of a milk size to the beater. Rosin melts or dissolves to a very sticky substance and dries to a hard glossy substance which is entirely waterproof and, if it can be spread in thin layers over the individual fibers, it gives exactly the effect desired for printing and writing. The great difficulty in the way of easily applying the rosin coating to the fibers lies in the fact that the electrical charges on the surfaces of the fibers which cause chemical reaction are negative and can only firmly hold a positively charged surface. Unfortunately, rosin has a surface which is also negative and, therefore, normally there would be no affinity to bind the rosin and fiber together. If the rosin were dissolved in a solvent like alcohol and added to a furnish, the most of it would drain away in the back water due to this lack of affinity between the fiber and the rosin.

How Rosin is Used in Sizing Paper

To meet this difficulty the papermaker has a very ingenious scheme. He cooks the rosin with caustic soda or soda ash, thereby changing it from a negatively charged mass insoluble in water to a positively charged mass so largely soluble in water that as little as one per cent of the weight of the pulp in rosin can be made to adhere evenly distributed over the surfaces of the fibers. But this coating, even if it could be made to resist the backwater drain, would have no waterproof quality, so at this stage the papermaker adds to the furnish an amount of alum just sufficient for the acidity of the alum to release the negatively charged rosin. At the same time the alumina of the alum fastens itself very firmly upon the fiber and, by means of its positive charge, forms the cementing material by means of which the originally negatively charged fibers can hold the negatively charged rosin in a thin film over the entire surface. Also, the action of the acid has restored the rosin to a form in which it is capable of drying to a hard, waterproof surface.

Paper Stock Must be Hydrated

For the success of this rosin coating process it is essential that the fiber surfaces be sufficiently hydrated to hold the alumina firmly and this hydration cannot be maintained unless the stock is protected from overheating while in beater or Jordan engine. For a writing paper where a smooth surface as well as a waterproof surface is desired, the paper is sized with rosin in the beater then, after drying on the machine, it is dipped into a bath of glue or starch, dried and calendered.

Use of Fillers and Loaders

For book paper where, besides smoothness of surface, a certain amount of bulk or body is desired, the paper is usually finished, then coated with a thick paste made usually of casein and some filler like baryta or clay. For these papers greater opacity is also obtained by adding to the furnish a certain amount of filler as clay. While there is very little chemical affinity between such particles and the fiber surfaces, a large portion of it is held in the sheet by mechanical entanglement between the fibers and thus adds to the weight, bulk and opacity of the paper.

The time is rapidly passing when even those intimately connected with papermaking can claim anything like an intimate knowledge of the details of the process of all kinds of papers for the varied uses of paper today is demanding such varied production methods that, as with the flower in the field, it is beyond the ability or opportunity of one man to comprehend the whole of it.

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

W. W. CRONKHITE,
Manager of Sales, Paper Section,
General Electric Company

A PARTICULARLY good story that is typical of the industry, is told on W. F. Robertson of E. C. Robertson and Sons, Hinsdale, Mass. This joke was told by Winne on himself so it probably *isn't* true but it is a good paper mill story in any event.

It seems Winne was supplying paper for a concern in New York who in turn was using it to make playing piano records. Winne was called to New York on a complaint that the paper was not up to standard. When he arrived at the customer's plant, the player piano record man took him into the factory and holding a sheet of Winne's paper up to the light, remarked as follows:

"Look at this paper, Winne, and please remember when you make paper for us in the future that it is our job to put the holes in the paper, and not yours."

ROTHERMERE INTERESTS TO ERECT MILL

Are Successful Bidders in Block of Timber Limits

It is authoratively stated that English interests, of which the Rothermere interests are said to be principals were successful bidders for a block of timber limits on the north shore in the Basin of the Manicougan River, and that they will erect a pulp mill, and later a newsprint mill a few miles from Quebec at an expenditure of sixteen million dollars. More than 1,000 men will be employed on the new enterprise. Concurrent with this report is the announcement that the St. Regis Company will build a mill in the same section, near the Parish of St. Augustine, at an expenditure of four million dollars. The reported mills of the British interests will likely be located at the western end of the city, a short distance from Quebec bridge. The larger part of the pulp manufactured, and later the newsprint, would be shipped to England to meet the growing demand of a group of newspapers there. Building operations will commence, it is said, when weather conditions permit. In the district this means that an additional investment of $19,000,000 or $20,000,000 for new pulp and paper mills for Quebec alone is in sight, to say nothing of other enterprises now under way.

CADMAN CONFIDENT OF THIS YEAR

Says Outlook is One of Promise and Anticipated Development

E. A. Cadman of the Canadian Pulp and Paper Association in a recent statement respecting the future of the industry in 1924 says: "The outlook for the coming year is one of promise and anticipated development. The new construction being undertaken in the newsprint branch of the industry is sufficient indication of the confidence in the future development of this industry in Canada. In other lines there are improvements and extensions being carried on and it is expected that general business conditions, which failed to come up to expectations in the later months of 1923, will show some improvement during the coming year. The industry in general has shown a good recovery from the effects of the depression of 1921 and 1822, and with the economies and reorganizations then effected, has experienced very stable conditions, during the past year, which will be an important factor in its development during the year to come."

Directors Re-elected

The entire board of directors of the Michigan Paper Company at Plainwell was re-elected at the annual meeting during the week. The election of officers was deferred until the February meeting of the board. Numerous improvements and an excellent business for the last twelve months were reported by George W. Gilkey, secretary and general manager.

Zwart New President

Richard Zwart, chief engineer, is the new president of the Foremen's Club of the Bryant Paper Company at Kalamazoo. He was elected at the annual meeting during the week to succeed George McGuire. Richard Milham, foreman of the Imperial division, replaces Nicholas Colignan as vice president; and Aloysius Hisgen, foreman of the unloading plant, was made secretary to succeed Irwin Starrett. A chicken supper followed the business meeting.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, The New York State Forestry Association

MORE THAN PULPWOOD NEEDED BY MILLS

Claim Is Made That Far West Is Too Far from Eastern Market

AN extensive agitation on the Pacific Coast for the establishment of additional paper and pulp mills, based on the large timber resources of that region, has brought comment from a successful Pacific Coast manufacturer that something more than pulpwood is needed for the successful operation of paper and pulp mills west of the Rockies. This writer, one of the pioneers of the industry in the west, outlines the situation as follows:

"Except during the War it has never been possible to manufacture paper in the West on any basis that would enable successful competition with Eastern production in the markets of eastern United States or European countries bordering the Atlantic Ocean. The present production on the Pacific Coast is limited for a profitable market to the Pacific Coast states and to such foreign markets as adjoin the waters of the Pacific Ocean."

There are at least five essentials necessary for successful paper manufacture, he says: 1. Raw Materials; 2, Power and Steam; 3, Satisfactory Labor; 4, Transportation; 5, Profitable Markets.

The northwest, according to this manufacturer, has all but the fifth—"Profitable markets for our finished products." As pulpwood represents but 15 per cent. of his sell-

1. Raw Materials
2. Power and Steam
3. Satisfatory Labor
4. Transportation
5. Profitable Markets

The northwest, according to this manufacturer, has all but the fifth—"Profitable markets for our finished products." As pulpwood represents but 15 per cent of his selling price, his problem is, therefore, largely, the other 85 per cent. In addition to timber, water and transportation, he must cope with the necessity of providing reasonable social and welfare activities, which, in a sparsely settled region as that of western Washington or Alaska, may be a vital additional cost in securing and holding contented employees.

His pertinent comments on the possibilities of further development of the paper industry in the west may be summed up as follows:

"It is only natural that our great potential wealth of timber and hydro electric development possibilities should appeal so strongly but to those who have spent most of their active business life in the Paper Industry in the far west, these resources can only be profitably used when natural economic conditions of the United States change so as to permit Coast products to compete successfully in the markets of the whole of the United States."

To Plant Million Trees

A program for the planting of 1,000,000 trees in the region near Reading, Pa., is to be carried out during the coming spring. This will surpass the total planting for the preceding thirteen years in this district. A volunteer fire patrol including 20,000 school children has been formed to aid in fire prevention.

Associations to Meet

The American Forestry Association, which includes in its directorate some of the best known of the country's paper manufacturers, is planning for a banquet with notable speakers at the time of the annual meeting in New York, January 23. The banquet will be held the evening of that date at the Hotel Commodore, and an energetic committee on arrangements is already busy with plans for the program. It has already been decided to make the program non-technical in character, and the speakers will be men with a broad appreciation of the need for national conservation. Dr. Hugh P. Baker, secretary of the American Paper and Pulp Association, Julian Rothery, forester with the International Paper Company, and E. A. Sterling of James D. Lacey & Company, are among the men closely connected with the paper industry who are on the committee of arrangements. Other members are Nelson C. Brown, chairman. Barrington Moore, F. A. Silcox and John B. Burnham.

Association Submits Plan

A forest policy for New York has been formulated by the Empire State Forest Products Association, in which most of the big paper and pulp mill operators owning timber lands are members. The chief features of the policy endorsed as a proper one for the state include fire prevention, extention of public forests based on timber surveys, employment of nine district foresters to aid in fire prevention and to aid private owners in formulating plans for management of their lands to bring about continuous production of forest crops. A yield tax to preserve the forests, in place of the present method which tends to encourage the cutting of the timber, is particularly stressed. A feature of the plan is also the establishment of modern forestry management methods, to apply equally to private and state park land. In all the management plans the cooperation of the specialists of the Society of American Foresters is suggested as advisable in order to secure the best technical knowledge possible.

Pulpwood Study in the South

A study of the yields obtained from the southern yellow pine for pulp is now under way through the cooperation of the Great Southern Lumber Company with the Southern Forest Experiment Station. Cutting has been done according to different methods on a block of 200 acres. All seed trees and immature timber adjacent to the plots on which this study is being carried out have been tagged, mapped, and described in order to get the increased rate of growth on these trees which will follow the cutting operations. It is planned to remeasure these plots again in about five years.

An Interesting Note

A twenty-seven-year-old yellow poplar yields as much fertile seed as a fifty-five-year-old, according to the Appalachian Forest Experiment Station which has completed a study on this subject. The data so far shows that there is very little difference in the yield of seed from the two age classes. An average of 14 seeds to the strobile or seed container were found which probably mature into good seed.

FORESTERS TO HEAR FROM KELLOGG

Interesting Addresses on Program for February Meeting at Albany

CHAIRMAN W. G. HOWARD has prepared the following tentative program for the Winter Meeting of the New York Section of the Society of American Foresters to be held in Albany, Wednesday, February 6. The entire program will be open for informal discussions.

Sample Plots................A. S. Hopkins
What Constitutes a Practical Working Plan for a Lumber of Pulp Company in the Adirondacks..............H. S. Churchill
Research in Silviculture........H. C. Belyea
Commercial Possibilities of Reforestation.... ....O. M. Porter
Most Urgent Forestry Problems of Today ....C. R. Pettis
Progress in White Pine Blister Rust Control.......................A. F. Amadon
Relation of Gypsy Moth to Forestry in New York State..............H. L. McIntyre
The Need of an Advisory Committee for the Northeastern Forest Experiment Station.. ....S. T. Dana

The New York State Forestry Association will hold its annual meeting on February 5th, with banquet at the Hampton Hotel. Members of the New York Section have been invited to attend this meeting of the New York State Forestry Association.

It is fully expected that members of the New York Section, Society of American Foresters, will assemble in Albany in time to take part in the deliberations of the Forestry Association, February 5th. The Association's program, while not so technical in its scope, includes some able speakers including R. S. Kellogg, Secretary of the News Print Service Bureau; H. O. Cook, Chief Forester of Massachusetts; and Senator Rabenold, who sponsored a large number of the conservation measures in the New York legislature in 1923. Dr. William T. Hornaday, head of the Bronx Park Zoological Park, has also been asked to speak on the occasion of the joint dinner to be held on the evening of the 5th of February.

The Forestry Association, in addition to regular business, will hold an open discussion on forestry problems during its afternoon session. Non-members of the two organizations are cordially invited to cooperate in making the meetings productive of good results.

Buys Cut Over Land

The Washington state board of forestry has approved a proposal for the purchase of 8,000 acres of logged off lands, with good natural reproduction, to be handled for reforestation purposes. Two and three quarter million acres of land are assessed by state authorities for the cost of fire prevention, the rate ranging from 1¼ cents to 5 cents per acre. The cost of fire fighting during the past year was $167,687, and there were 640 fires, nearly 50 per cent of those whose causes are known being due to smokers, hunters and berry pickers. Nearly 60,000 acres were burned over, and the loss totaled 33,000,000 board feet.

Year Is Reviewed By Association

Summary Is Given of the Work Accomplished by Paper and Pulp Association As It Looks Toward New Problems This Year

NO year in the history of the American Paper and Pulp Association has een marked by more important activities on behalf of the paper industry in the United States than the year just closed. New and vital work of importance to the industry has been taken up, and important projects inaugurated, which will mean much to the paper manufacturers of the country.

Not the least of these has been the development of the monthly statistical summary for the entire industry. This work was taken over in June when discontinued by the Federal Trade Commission.

A conference on the increasing abuses of the import laws, such as dumping, under-valuation and improper classification resulted in aggressive action for the prevention of future abuses of this nature.

Still another important activity was the taking of steps which led to the formation of a special committee of United States manufacturers to combat the proposed embargo on Canadian pulpwood for American mills. This Committee on the Perpetuation of the Paper Industry in the United States includes many of the biggest men in America's paper industry. The Committee has worked actively to prevent action north of the border that might be mutually injurious to mills on both sides of the line.

Aye, Here's Action

"The development of export trade, and the restricting of unfair foreign competition in the domestic markets," will be two of the big features of the 1924 program of the American Paper and Pulp Association, according to the annual review of the organization.

And the paper industry will say Amen to this. If the association does just these two things it will have justified its existence.

When in the Spring a Swedish strike was in progress, affecting the situation in the United States, and later in the year when a Norwegian lockout was threatened, the Association kept its membership informed of the developments by maintaining cable contact with both of these countries.

Developments in the campaign for national forestry legislation, in which the paper industry has been a leader were also of importance. The Association was represented in several phases of this campaign, the executive secretary of the Association being vice-chairman of the Forestry Committee of the National Chamber of Commerce, which conducted a referendum after a year of investigation by the Committee. This referendum brought out the largest voting strength of any referendum conducted by the Chamber since 1917 and resulted in committing the Chamber to an aggresive national forest policy. The Association was represented by request at several sessions of the McNary Committee of the United States Senate which toured the country studying forestry conditions. The Committee is now sponsoring a bill providing all essential features of a national forestry policy as advocated by the paper industry.

Several important problems were handled in behalf of the industry before governmental bodies. The Association presented briefs to the Assistant Secretary of the Treasury in support of charges that Norwegian manufacturers were dumping kraft paper in this country. Many specific cases of customs abuses were presented to the Federal Customs authorities. The Association assisted in the fight of the coated paper manufacturers for a reduction of the duty on casein, which cannot be manufactured in quantities sufficient for the industry in this country. A hearing on this question was given by the United States Tariff Commission under the flexible provisions of the tariff law. The Commission has been asked by the Association to engage an expert to handle paper problems before the Commission.

A committee has been named to represent the industry in an advisory capacity for the Department of Agriculture, and the industry was represented before the Congressional printing committee in the committee's hearing at which an effort was made to have governmental specifications brought into closer conformity with the commercial practice of the trade, says the January Bulletin of the American Paper and Pulp Association.

Even the Pesky Income Tax

INCOME tax problems were handled through the Cost Association. A referendum was taken on the Mellon bonus and tax reduction plan, which showed the industry strongly in favor of the Mellon plan of tax reduction. Congressmen and Senators were notified of the result. Co-operation with the government on its standardization proposals, with a view to simplifying sizes and other economic forms of standardization was another feature.

Considerable assistance was given manufacturers in different parts of the country. The New York State proposed legislation to limit the activities of trade associations was combatted, on the ground that the proposed laws were unduly restrictive of individual activity of the paper manufacturers. A conference in Pennsylvania of engineers on the subject of stream pollution was participated in by the Association, and the policy of the central organization was stated as being for clean water, but insisting that a proper study of the whole subject be made in advance of legislation which mibht otherwise be economically impracticable. In Wisconsin the Association led in the organization of pulp and paper manufacturers to secure legislation to permit the development of permanent forest areas needed to fortify the paper mills for the future.

The Association participated with other national organizations in the study of such problems as arose from the threatened coal strike, the immigration problem, and in a survey of the national labor situation.

Backed Paper Industries Exposition

ON behalf of the industry as a whole, the Association provided the stimulus which resulted in the holding of the first Paper Industries Exposition. This was so successful that it is to be repeated in 1924. It was the first such exposition ever held by or for the paper manufacturers, and was attended by some 65,000 visitors in a single week. Two of the most important conventions in the history of the industry were held, the Spring annual meeting at New York, when it was determined to go ahead with well planned projects in behalf of the entire industry, and the Fall Business Conference at Chicago, when the manufacturers and merchants were brought closer together on mutual problems. In addition a series of luncheon conferences was held in every important paper making center, and these will be repeated during the coming year.

The Association was active in the successful effort to have a representative paper manufacturer named as a director of the United States Chamber of Commerce.

In the summary of the year's activities, the work of the Woodlands Section and the Information Service should not be overlooked. To a large extent these departments provide the machinery for the giving of general service.

There Is Prosperity Ahead

Leaders of the Pulp and Paper Industry Generally Express Confidence in the Coming Eleven Months

THE year 1924 will be kind to the paper industry. That is the only conclusion that can be drawn from the words of the leaders in the various branches of the industry. A canvass of their opinions is almost invariably optimistic. They are confident in saying that the worse of the bad times are over for the paper trade, that conditions are on the up-grade. Prices are better, the demand is stronger.

The paper industry has now recovered from the inevitable headache that was bound to follow the hectic boom time. The reaction has reacted as far as possible and a strong healthy growth is now coming.

The survey of the industry brings forth these opinions, which cannot be taken lightly:

Newsprint Looks Good

"If I read the signs of the business sky aright demand for newsprint will be strong throughout the greater part of the year. This should spell prosperity for the papermaking industry. It should also mean steady and profitable employment for all those who derive their living from this great industry."

PHILIP T. DODGE,
President,
International Paper Company.

* * *

"In general, the state of the paper industry at the opening of another year may be considered satisfactory. Basic conditions seem to be sound, the industry itself is in a good position to go forward after the inventory period is ended, and the mill stocks on hand are about normal, so that any increase in demand will mean an increased production to meet the requirements of the trade."

HUGH P. BAKER,
Secretary,
American Paper and Pulp Association.

* * *

"We feel that production will be greater in 1924 than it has been in 1923 but it is questionable if profits will be as great. Competition is growing keener and some may be forced out of business, yet others with reduced costs and quality goods will continue to get the business and make a reasonable profit.

Fundamentally this country is sound. Conditions all over the world are gradually getting better and we cannot see any reason for being discouraged over the outlook for 1924."

Z. W. RANCK,
President,
Crystal Tissue Company.

* * *

"I am of the opinion that any improvement in conditions abroad will increase their domestic consumption of paper to such an extent that they will not have much to export. In other words; the beginning of 1924 looks more encouraging to me than the beginning of 1923."

FELIX PAGENSTECHER,
President,
Bryant Paper Company.

* * *

"Although 1923 has been a banner year in the history of this company yet we anticipate a large volume of business and correspondingly a greater prosperity for 1924.

"As sulphuric and sulphurous acids, most of which are made from sulphur, enter either directly or indirectly the manufacture of nearly every product, we believe that the year 1924 will be exceptionally prosperous year throughout the country."

H. K. WEMPLE,
Sales Manager,
Texas Gulf Sulphur Co., Inc.

"There is no doubt that conditions in the paper trade will be near normal in 1924. Labor is so well employed at high wages that it does not seem possible that the spending ability of the people will be curtailed in any way and in our opinion the quality of business is dependent more on wages received than on any other single item. We surely have faith in the future, and are going forward with the belief that 1924 will be equal to 1923."

M. M. DEWITT,
President,
The Waterbury Felt Company.

* * *

"Agricultural products have been produced in abundance, and failures have not been excessive. Labor is very generally employed at remunerative wages, and as a consequence, the purchasing power of the people has not been impaired. But in spite of these facts, we find business slowing up. Orders given in small quantities, and there seems to be a general feeling of pessimism, a feeling that we have passed the peak, and are on the decline in the volume of business."

B. A. VAN WINKLE,
General Manager,
Hartford City Paper Co.

* * *

"We believe the fundamental conditions to be good; do not look for either a runaway market or a decreasing one, and are looking forward to a very good year."

B. A. FRANKLIN,
Vice President,
Strathmore Paper Co.

* * *

"Whereas some minds may seem somewhat disturbed owing to a feeling of over-production of paper, I have every reason to believe that the law of average, as is usually the case, will assert itself and after the usual temporary depression that generally follows the inventory period, we shall enjoy a year of business that will compare favorably with the business of 1923."

F. W. POWER,
President,
National Paper Trade Association.

* * *

"We believe the coming year bears good evidence of being a successful year from our point of view. While there was a little depression at the close of business for 1923 in the paper industry, there is no question but that it will revive in the near future. All industries throughout the country seem to be active and the purchasing power of the people is enormous.

"While it is national election year we believe that the country is well satisfied with President Coolidge and we will not have the depression that usually obtains in election years.

"Just at this time we do not see any breakers ahead and if the foreign situation clears up, which is always a factor in general business, we see no reason why this should not be one of prosperity for American business.

"We feel that fundamentals are alright and there is nothing for us to do but go ahead."

M. C. PURRELL,
Vice President,
The Orr Felt & Blanket Co.

* * *

"While there will be no boom, general business during the first six months of 1924 at least will be good. In most lines, however, the margin of profit will be below average rather than above average and some industries affected by particular conditions will undoubtedly find difficulty in making any profit. The particular conditions affecting the pulp and paper industry will be the extent of pulp importations from Europe."

S. W. WEBB,
President,
Eastern Manufacturing Co.

PAPER MILLS BUY OLD MARKS BY CARLOAD

Foreign Factories Find German Money Is Now Cheaper Than Cellulose

A LARGE part of the German flood of paper money is now being "redeemed" at no cost to the Treasury, through purchase by foreign paper factories as material for new paper.

Paper factories at Rosenberg, in Jugo-Slavia, and Frazenthal, in Czecho-Slovakia, for instance, have bought up old notes in small denominations by the carload to be turned into pulp, finding this cheaper than regular cellulose.

A carload of million-mark bills, for instance, is worth about a thousand times as much for papermaking purposes as its nominal value at the present exchange rate of four trillion marks to a dollar, while the one, two and five-mark notes, which were turned out in vast quantities when these denominations possessed actual purchasing power, are of too infinitesimal value to count.

The authorities at first looked askance upon this traffic in old money and arrested several dealers engaged in collecting and exporting it. It was soon realized that the notes were not worth as money the trouble of assorting and counting them, and that the Treasury, at no cost to itself, was getting rid of a note issue which had supported the entire budget of Germany for two years after the revolution.

"Powdered Paper" Wanted

One of our friends in the chemical line is seeking supplies of "powdered paper." Will any reader who knows of such an article and the manufacturer thereof be good enough to supply particulars? We have never heard of paper being obtainable in powdered form.

Economic Survey Completed

The State of Michigan has completed the first phase of the economic survey of the forest resources of three counties and much valuable information on the present condition of the forests and forest land in this region has been secured, announced the Lake States Forest Experiment Station.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Buck Run, Pa.—The General Paper Co., is perfecting plans for the electrification of its plant at Beaver Dam, Buck Run, and will replace present steam-driven equipment in practically all departments. Central station service will be used from the lines of the Chester Valley Electric Co.

Tonawanda, N. Y.—The Collins Mfg. Co., manufacturer of paper products, has acquired the plant equipment of the Bison Cone Mfg. Co., Buffalo. It will be used at the local works of the purchasing company on Young Street, for increased production.

Los Angeles, Cal.—Blake, Moffitt & Towne, 242 Los Angeles Street, wholesale paper, are taking bids and will soon break ground for the erection of a new addition to their plant, on site in the rear of the present structure. It will be four-story and basement, 187 x 216 ft., and equipped for general warehouse and distributing service, including handling machinery, conveying and hoisting apparatus, etc. It is estimated to cost close to $85,000. J. D. Galloway, First National Bank Building, San Francisco, Cal., is engineer.

Los Angeles, Cal.—The National Paper Products Co., and the Zellerbach Paper Co., 220 S. Los Angeles St., of which J. Y. Baruh is general manager have purchased a 25-acre tract at Cudahy station and will erect a paper mill at a cost of $2,500,000.

Los Angeles, Cal.—The Pioneer Paper Co., 247 S. Los Angeles St., has purchased 2-½ acres adjoining its present plant at 55th and Alameda Street and will erect an addition to cost about $40,000.

Marinette, Wis.—The Victory Bag & Paper Co., Ludington Street, is planning for the construction of a new two-story building at its plant, estimated to cost about $55,000, and expects to lay foundations at an early date.

Indianapolis, Ind.—The International Printing Co., 230 West McCarty Street, has preliminary negotiations under way for the purchase of the former plant of the Lafayette Motors Corporation, in the Mars Hill section, Lafayette Avenue. It consists of a main three-story structure, 53 x 500 ft., and a number of one-story buildings, located on a 25-acre tract of land. The purchase price will be in excess of $150,000. The purchasing company specializes in the production of paper boxes and containers, and purposes to remodel and equip a portion of the proposed new plant for this service, with plans to remove the present works to this location. Edwin A. Hunt is president, and W. H. Latta, vice-president.

New Orleans, La.—Work is to begin at once on a $20,000 warehouse building for the Letellier-Phillips Paper Co.

New Orleans, La.—The Bogalusa Paper Co., is to begin at once the erection of a $1,000,000 plant for the manufacture of chip board and all other kinds of board used in the manufacture of containers, and as soon as this paper mill is in operation, which it hopes will be in about four months, they expect to install machinery for the manufacture of solid fiber and corrugated shipping cases and all kinds of small boxes.

St. Joseph, Mich.—The Williams Brothers Paper Box Mfg. Co., has plans under way and will take bids early in the spring for the erection of a new three-story addition to its plant on East Broad Street, to be equipped for general manufacture. Ralph Oliver, 115 South Dearborn Street, Chicago, Ill., is architect.

St. Stephen, N. B.—The Hollingsworth & Whitney Co., 185 Devonshire Street, Boston, Mass., manufacturer of paper products, is proceeding with plans for the erection of its proposed new pulp and paper mill on local site, on the St. Croix River, and expects to take bids in the near future. It will consist of a number of buildings, estimated to cost close to $350,000, including equipment.

St. Louis, Mo.—The Orchard Paper Co., 713 Spruce St., will expend about $30,000 remodeling the building it recently purchased, and will install machinery.

Winnipeg, Man.—Fire, Jan. 1, destroyed a portion of the five-story building on Williams Avenue, occupied for the most part by the John Martin Paper Co., Ltd., with loss to the company in stock and equipment, estimated in excess of $300,000. It is planned to re-establish the works at another location at an early date.

New Companies

New York, N. Y.—The Peerless Folding Box Co., has been incorporated with a nominal capital of $5,000, to manufacture paper boxes and containers. The incorporators are M. and J. M. Kornfeld, and C. Salk. The company is represented by Mackinstry & Kornfeld, 198 Broadway, New York.

New York, N. Y.—The Wansco Paper Products Co., has been incorporated with a capital of $10,000, to manufacture paper goods and deal in specialties of this kind. The incorporators are R. Parizer, I. and C. Wansker. The company is represented by M. S. Seidler, 291 Broadway, New York.

Grand Rapids, Mich.—The National Box Board Co., has been incorporated with a capital of $2,475,000 and 125,000 shares of stock, no par value, to manufacture box board, paper board and kindred products. The incorporators are Harry C. Angell, A. H. Apted and J. M. Alt, 561 Turner Avenue, Grand Rapids.

Long Beach, Cal.—The Western Paper & Envelope Co., has been incorporated with a capital stock of $150,000, by Bert P. Boles, H. G. Pohlman, Walter P. Warmbold, Leigh A. Hume, Frank H. Jacques.

Greenville, Tex.—The Greenville Paper Co., has been incorporated by W. H. Camp, T. D. Starnes and others.

Financial

Muskegon, Mich.—The Central Paper Co., has filed notice of increase in capital from $1,400,000 to $2,600,000, for general expansion.

Chicago, Ill.—The Arc Paper Co., has filed notice of reduction in capital from $50,000 to a nominal amount of $2,000.

Philadelphia, Pa.—A voluntary petition in bankruptcy has been filed by Auer & Twitchell, Inc., 134 South Third Street, paper dealer. The assets are stated to be $229,924, and the liabilities, $203,819. John M. Hill will act as referee in bankruptcy.

Plant Operations

Boston, Mass.—The majority of the paper and pulp mills in the New England district are running on a good production schedule, giving employment to close to a normal working quota. This is in decided contrast to the relapse in the industry in this section sustained during the summer period, and since that time there has been a gradual trend towards normal. It is said that the bulk of the mills will continue on the active list for some time to come.

Newark, Del.—An action to show cause why an injunction should not be issued enjoining from the alleged pollution of White Clay Creek, has been brought against Curtis & Brother, Inc., operation a local paper mill, and the American Vulcanized Fiber Co., with adjoining local plant. It is held that the alleged pollution is making the stream unfit for other use.

Stamford, Conn.—The Pine Waste Products Co., Inc., is reported to have leased a tract of land in Georgia for the establishment of a paper and pulp plant, but company makes statement that no decision will be made for sixty days about establishing a plant in that state.

Iroquois Falls, Ont.—The harvesting of pulpwood in the northern portion of Ontario has been inaugurated in active fashion and a large output is expected. It is said that as soon as snow comes, work will begin on hauling the logs in, and large stocks for mills throughout this section will await this activity. The Abitibi Power & Paper Co., is one of the prominent companies in this section, and has commenced to harvest heavy quantities of material for early disposition.

Business Opportunities

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Montevideo, Uruguay, in the market for American machinery for the manufacture of paraffin paper milk bottles, No. 8742. Also, of a concern at Goteburg, Sweden, desiring to purchase a quantity of blotting paper for offset printing service, No. 8765. Full information upon request.

EXPANSION OF VICTORY COMPANY HAS NOW BEGUN

Huge Warehouse Will be Constructed at Marinette so That Factory Space May be Increased

THE Victory Bag & Paper Co., of Marinette, Wisconsin, has under construction a large warehouse, just across the street in the rear of its big plant on the corner of Ludington and Wells Streets. This warehouse will permit the company to utilize more room for factory purposes and a considerable expansion will be the result. The output of present bag product will be increased and the company will enter into the manufacture of bag specialties also.

This will mean an increase of about fifty employees the installation of more machinery and the gradual maturing of plans for more expansion in the near future. The new building is to be of frame construction, one story high and 100x170 ft. in dimensions, thus affording 17,000 additional feet of storage room. The building will be so constructed that an additional story can be erected. When this is done it will be connected with the main building by overhead construction. For the present only one story will be built and a chute extending across the street will permit of sending the bags across the main factory buildings, for storage and shipment.

1923 PULP IMPORTS STILL UNDER THOSE OF 1920

Large Volume of Paper Produced Does Not Reflect Larger Imports

THE large volume of paper produced in the United States in 1923 does not reflect a corresponding increase in imports of pulpwood, according to compilations made by the American Paper and Pulp Association.

Pulpwood imports from Canada in 1923 were considerably below those of 1920, when the production of paper was only slightly larger than that of 1923, though the value of the wood imported was higher. Figures for the four yearly periods ending November 30, 1923, the latest month for which figures are now available, show that imports of wood in 1923, while large, did not bring up the average imports for the four years to the total importation four years ago.

Imports of pulpwood for the Canadian fiscal year ending March 31, 1920, totaled 1,600,000 cords. Imports for the last four, twelve month periods ending November 30, based on Canadian governmental and trade association reports, were as follows:

Year Ending	Cords
November 30, 1920	1,323,149
November 30, 1921	1,218,123
November 30, 1922	971,967
November 30, 1923	1,416,558
Average per year	1,232,449

It is evident from a comparison of the imports of 1922 and 1923, that the higher imports for the latter year were merely sufficient to compensate for the abnormally low imports of 1922. The 1922 period was one of low production. Even with the greatly increased production of 1923 the imports for the year ending November 30 were less than 200,000 cords above the four year average, as indicated above.

Mellon Thanks Paper Industry

The action of the American Paper and Pulp Association in endorsing the Mellon plan for tax reduction has brought the following expression of appreciation from Secretary Mellon:

"I received your letter stating that members of your Association in recent meetings have expressed approval of my recommendations for tax revision and disapproval of the bonus. I am glad to know that the Treasury's recommendations are meeting with approval and note that you will ascertain the wishes of your members through a referendum and bring their views to the attention of Congress."

Waste in Pulp and Paper Industry

Lack of Safety Appliances and Thought

By B. T. McBain, *Assistant General Manager, Nekoosa-Edwards Paper Co.*

IF a railroad is known to have more accidents than average, people fear to travel that route. Waste. If a steamship line is managed by careless people and some ships have been wrecked, with loss of life because of poor management, lack of repair, or carelessness generally, travellers seek another way to their destination. Waste.

So it is with cities—one will have a greater number of accidents and deaths from violent causes than another and that sort of advertising does not help it. Waste. People will always hesitate when a place, a means of conveyance or what not is known to be unsafe. They will wait for the next car or the next taxi even at the expense of time. Waste.

Office buildings have been known to lose tennants because of unsafe elevators or careless operators and it is a difficult matter to get new tennants in such event. Waste. Factories of every kind soon become known to the working people as unsafe places to work, if they are not as careful as they should be in the guarding of machinery, or if the Foremen insist upon the workmen performing certain or all work in an unsafe manner. Waste.

There are pulp and paper mills that live up to the Laws in safe guarding of machinery and receive A1 certificates from State Inspectors, but who act only in a cold blodded business manner and comply with the Law only because they have to. They do not get the good out of the work they have done, unless they properly organize their employees to think Safety. Less than 25% of the safety game is guarding of machinery. There are mills today guarded to the limit that are having more accidents than other mills who are not complying with the requirements of the Safety Code. The reason is apparent. No one thinks Safety; even the employees resent the placing of guards. Waste.

In Nepco mills it is different. Safety pays. Waste stops. Careful men make careful workmen. Careful workmen use care in the making and finishing of the product. Careful men ship the paper. In the past four years, the savings have been enormous. The work done by our Safety Department with the aid and guidance of the National Safety Council, has saved much loss to employees and employer alike.

The record shows:

1920 — 212 accidents.
1921 — 158 "
1922 — 154 "
1923 — 100 "

Every time a man is injured that accident is an economical loss—the employee suffers pain, possibly loss of life or limb, the employer suffers loss in many ways; but just in proportion to the importance of the man in the Organization.

Safety Pays—Mr. Pulp and Paper Manufacturer and I recommend the National Safety Council, its principles and its teachings to your early earnest attention and action.

NEWS FROM CANADA

BARNJUM CONTINUES TO DELUGE NEWSPAPERS

Fighter for Embargo Uses Every Argument He Can Find in the Matter

F. J. D. BARNJUM of Annapolis Royal continues to deluge the daily and weekly newspapers of eastern Canada with letters protesting at what he terms the "efforts of United States pulp and paper companies to hoodwink the Canadians into defeating the embargo." It was thought that Mr. Barnjum's letter writers would be now suffering from writer's cramp, but such was apparently an erroneous opinion. The leader of the fight for the embargo accuses representatives of United States pulp and paper companies with attempting to manufacture opinion against the embargo throughout Canada. He does not explain why hundreds of settlers went before the Pulpwood Commission and vigorously opposed the proposed embargo, and even went so far as to protest against the export tax, which is looked upon as a substitute measure for the more radical embargo on shipments of pulpwood to the United States.

Mr. Barnjum has been campaigning against the present Canadian government in two special elections. In both instances, the government candidates were beaten, and Mr. Barnjum states that the failure by the government to impose the pulpwood embargo, was the reason for the defeat of the government candidates. Sentiment is in opposition to the embargo as disclosed by the hearings of the pulpwood commission.

Action Has Been Started

Action has been started at Osgoode Hall, Toronto, by a legal firm representing the Fort Frances Pulp and Paper Company, against fourteen Canadian pulp and paper companies, to recover payment of "the difference between the value of the Canadian fixed price for all newsprint paper supplied to Canadian newspaper publishers in excess of the plaintiff's proportion during the years 1918 and 1919 whilst the distribution and price of newsprint paper was under Government control.

Heavy Cut Is Expected

Weather conditions in Northern Ontario having been exceedingly good for timber and pulpwood operations, Hon. James Lyons, Minister of Lands and Forests, stated in Toronto last week that a very heavy cut of timber and pulpwood was expected this fall. Sufficient frost and snow have made the roads suitable for heavy operations, while little snow has drifted in the bush. Pulp cutting concerns report that weather conditions have been very favorable. "So heavy is the cut we have almost exhausted our list of scalers," stated the Minister. "In fact, this, and several other indications point to one of the best winters for lumbering that has been experienced in many years."

Vancouver Hard Hit

Vancouver interests have been very hard hit by the Whalen pulp and paper failure, having claims to the extent of nearly $1,000,000. They have asked the provincial government to investigate the circumstances under which there was a transfer of receiverships and it is understood that this will be done.

McLEAN HITS PULP THAT IS FROM ABROAD

Says Canadian Pulp Manufacturers Cannot Continue to Compete Along the Same Lines

THE following forecast of conditions in the pulp and paper trade for 1924 has been made by Angus McLean, president and general manager of the Bathurst Company of Bathurst, N. B., pulp and paper manufacturers and owners of vast pulpwood lands in eastern Canada:

"There are large quantities of Scandianvian pulp coming into the American market and this foreign pulp is being sold at ridiculous prices. This means that Canadian manufacturers of pulp are today selling their product under cost, in trying to meet this competition. If this thing continues there is no hope whatever for pulp and paper and conditions for this year look anything but hopeful. Our only hope is that trade in the United States continues on the boom, and the Scandinavian pulp manufacturers decide they cannot afford to continue manufacturing and shipping pulp at the ruinous prices that prevailed all through 1923.

"The cost of logging this winter is to be increased considerably over last winter. The only remedy for us pulp producers is to inaugurate so efficient an organization that we can reduce our cost of production but this only can be attained by a general lowering of costs which would include wages and workmen's compensation. Wages, taxes and workmen's compensation must be reduced and brought down to the very lowest possible basis. My slogan for 1924, would be 'efficiency and more efficiency and still more efficiency.' We cannot emphasize this too much, and the only hope for the pulp and paper trade in the eastern provinces of Canada, in my opinion, is we can sell our products, meet the foreign competition and still make a profit. At the present cost of production it is certainly not possible to do this. I would surely emphasize the necessity of economy and of faithful work on the part of every worker and this would help us to compete with the foreign manufacturers. Then there would be something accomplished during 1924."

United States capital is largely interested in the Bathurst Company which owns a large pulp mill and a large and new paper mill. The pulp mill was enlarged last year, so that capacity is increased one-third. The company also built tidewater decks, and hydro-electric station on the Nepisiguit River.

Want Compensation Reduced

One of the questions that are of interest to the pulp and paper manufacturing executives in Canada, is that of reducing workman's compensation rates and thus allowing the manufacturers of pulp and paper to participate in the compensation schemes of the various provincial boards, without exorbitant cost. In the province of New Brunswick, the cost of such compensation is beyond all reason, due to hostility of politicians to the pulp and paper industry. Another question that is of interest to the industry is that of wages. It is the opinion of many close students that wages must be reduced if the industry is to compete successfully with the Scandinavian imports.

NEW EFFORT TO USE STRAW FOR PAPER

DeVain Process Company Making Experiments With Canadian Straw

WESTERN Canada is very hopeful that a way may yet be found whereby her huge straw piles may be converted into paper. In this connection much interest is attached to the experiments of the DeVains Process Co., of Grenoble, France, which has now under consideration the establishment of a pulp-straw plant in the vicinity of Winnipeg. In order to conduct further experiments along this line, 200 bales of wheat, oats and straw flax from the prairies were shipped recently to Havre, France, where they will be sent to the Grenoble plant of the company. There it is proposed to manufacture the product into straw pulp and reship to Winnipeg for inspection purposes. If the straw-pulp proves to be suitable for the production of high grade paper products, it is proposed to establish mills near Winnipeg that will produce from 50 to 100 tons of paper daily.

Representing the De Vains Company Sir Frederick and M. Dolfus visited Winnipeg some months ago and were said to be very favorably impressed with the outlook for the industry.. Abundance of raw material and a ready market for the output were factors that weighed heavily with them. Western interests are also watching the experiments very closely, and as there is unlimited supply of straw on the prairies, other mills will assuredly be built, if the process is a success. It has been thought that the failure of the Becker Company might seriously affect the venture, but it is now assured that this will not result. If straw can be made into paper at remunerative prices, all the money necessary to set the industry on its feet may readily be secured in Canada.

Paper Companies Use Power

A number of the big pulp and paper companies in Ontario have been large contributors to the development of hydro-electrical power in Canada during the past year. The Spruce Falls Company completed a 2,500 h. p. development at Kapuskasing, on the river of the same name, for use in connection with a sulphite plant at that point. In the Kenora district the Backus-Brooks Company installed two additional 1,200 h. p. units in its plant at Kenora, and with four more if the same capacity early in 1924, the station will have a total capacity of 12,000 h. p. for use in connection with the company's pulp and paper mill. The Dryden Paper Company also completed an installation of 1,400 h. p. on the Wabigoon River.

New Discount in Effect

The paper jobbing houses of Toronto at the first of the year put into effect a new quantity discount list on the standard mill brands of high grade bonds and ledger papers. Ream and case lots remain unchanged but the ton discount, which was formerly fifteen per cent, has been changed to twelve and a half per cent in assorted tons. In solid tons of one brand or watermark the discount is seventeen and a half per cent. A couple of brands of bond papers have been reduced two cents a pound, long list price.

NEWSPRINT MAKE YEAR'S RECORD GOOD

Canadian Pulp and Paper Industry Had a Splendid Year During 1923 in General

THE Canadian pulp and paper industry had a good year during 1923, this being true especially of the newsprint end of it. The chief feature was the growth of the manufacture of newsprint, which went well over 1,250,000 tons, or about 170,000 over that for 1922. This was brought about through increased output on the part of existing mills and by the opening of new ones. Six new newsprint machines were installed; two at St. Lawrence Paper Mills, a new mill at Three Rivers, Que.; two at the Fort William Paper Co., a new mill at Fort William, Ont.; one at the Belgo Paper Co., Quebec; and one by the Bathurst Co. at Bathurst, N. B. These machines added 445 tons to the daily newsprint output of the country bringing the total up to 4,400 tons daily. Another two new machines are about to come in.

The heavy demand from the United States, and the ease with which newsprint may be shipped there meant a steady market that encouraged an increase in the output. On the other hand shipments to other countries fell off, this being especially true in the case of Australia, where the British Preference hurts Canadian exporters. Exporters of pulp increased during the year, but in the United States keen competition was encountered from the mills of northern Europe. And the same may be said of outside competition in book papers.

The outlook for the industry in 1924 is one of steady business. It is expected that the United States will maintain its demand for newsprint and conditions there in Canada appear to be fairly stabilized. Prosperity in the pulp and paper business, of course, depends on prosperity in business generally, and as the prospects for the latter appear to be bright the industry should thereby benefit. The chaotic conditions in Europe, however, will make it difficult for Canadian mills to do well in the foreign market. In the meantime plans for considerable extensions are going on apace, which of themselves are an assurance that the outlook is fairly satisfactory.

Papers Are Merging

Recent amalgamations and mergers in the Ontario daily newspaper field have caused some speculation as to whether or not the cutting off of so many papers would affect the quantity of newsprint consumption. Previous to the war every town and city in Ontario of 10,000 population and up, with the exception of one or two places, had two daily papers, and in some instances three. During the war, owing to the high cost of newsprint, high labor cost extended news service and greater overhead expenses for collection of news, there were a number of amalgamations, but since the war closed there have been more mergers than during the five years of the conflict.

A Good Thing to Know

S. J. Frame, secretary of the Toronto Carton Club, has sent out a circular to the Canadian paper box making trade pointing out that if in the process of making boxes the imprint, "Printed in U. S. A." is in any way eliminated from the printed matter received from the United States, the paper box manufacturer is liable to a heavy fine. It is recommended, therefore, that the imprint be in such a position that it cannot be cut off when the printed matter is put to the use for which it is intended. It is suggested that the Canadian manufacturers, in respect to box wraps supplied by them, that the imprint "Printed in U. S. A." be inserted in inconspicuous but legible type immediately below the center design.

Many Are Wondering

As the late F. H. Anson, together with Alexander Smith of the firm of Peabody Houghteling & Company of Chicago are understood to have held 54 per cent of the outstanding common stock of the Abitibi Power and Paper Co., much interest has been manifested in the disposal of this, especially as it was held under a trust deed, and in the natural course of events would have been kept off the market for a considerable length of time. The unexpected death of Mr. Anson confronted the executors with a problem; but it is understood that a syndicate has been formed to take over the Anson holdings, and that these will be held together for some time. Several prominent Montreal people figure in the syndicate, among others some who have long been prominent in Abitibi.

Hawkins Brings Suit

Edwin Hawkins, of London Township, Ont., recently brought suit against Charles W. Cox, lumberman and pulpwood dealers of Port Arthur, Ont., to recover $1,000 for services said to have been rendered in Government circles in connection with pulpwood limits. Judgment has just been delivered in favor of the plaintiff for $400. In his pleadings Hawkins said he went to Toronto in February and March, 1923, during the Labor-U. F. O. regime "to prevent large timber limits from being acquired by a corporation which would debar the defendant's operation as a dealer, and to negotiate with the Government to the end that the defendant might obtain an opportunity to acquire by tender or otherwise certain timber lands and rights that were being disposed of by the Government and desired by the defendants." The limits are around Fort William.

Plan to Dam River

At a recent meeting of the Richmond, Que., town council, F. J. Campbell, general manager of the Canada Paper Company, outlined a proposal to dam the St. Francis River 30 feet high at Ulverton, Que., and back the waters clear up to Richmond. This is an electrical power development which the Canada Paper Company will undertake provided it can get the provincial government to put up at auction the lease rights of the Ulverton power and this hinges on whether the Richmond town council will pass a resolution saying that it has no objections. The plans are now being considered by all parties concerned.

May Build Pulp Mills

It is understood that American capital is interested in a proposal to build pulp and paper mills near Campbellton, N. B., on the Restigouche River, and that in this connection enquiries have been made of the New Brunswick Electric Power Commission with a view to securing a supply of current. The pulp mill would be built first, if the venture goes through, and will be quite large.

Increased Their Output

Despite the fact that a number of difficulties were encountered by the book paper trade, the Howard Smith Paper Mills enlarged their output in 1923, the incerase in sales being approximately 10 per cent over those for 1922. The export sales amount to about 10 per cent of the output. Secretary H. Crabtree says: "As very little of our tonnage is sold on contract, the volume of unfilled orders at the end of the year is small, but sales are keeping up in a satisfactory manner. The number of employes is about the same as last year. When one takes into account what the world conditions are like today, it is difficult to say what conditions in our industry will be during 1924. But there are indications that the European situation is improving and this should be reflected in better business during 1924."

BAKER PRAISES THE A. E. F. FORESTERS

Adapted Himself to French Methods During the War, Secretary Says Before American Legion

"HOW the American lumberjack, used to the methods of the American lumber industry in getting out timber, was able to adapt himself to the technical requirements of the French forestry service was one of the romances of the war," said Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, before the City Club Post of the American Legion this (Tuesday, Jan. 8) noon. "This readiness to adapt himself to the highly technical forestry methods is evidence that as the practice of forestry develops in this country the American lumberman will be able to put into effect the most advanced methods of forestry practice.

"As a technical forester, I am proud to say that the forestry profession was more largely represented in military service in proportion to its membership, than any other group of professional men—due in part to the fact that it is a young profession, made up of the highest type of out doors men.

"As the war in Europe advanced it became evident that the nation or nations which could control raw material—plus men of course—would eventually win the war. How the United States recognized this is shown by the fact that lumber production was under way for the A. E. F. in December, 1917, when six saw mills were put in operation in France. At the time of the armistice there were 90 operations, including 81 saw mills, including nearly 12,000 technical engineer troops and 8,500 service troops, all under the supervision of the Forestry Engineers.

"At the time of the armistice the monthly requirements of the army, according to Lieut. Col. W. B. Greeley, now chief of the U. S. Forest Service, were 50,000,000 feet of lumber 250,000 railroad ties, 6,500 pieces of piling and 1,500,000 poles, as well as 100,000 cords of fuel wood."

Just a Few Facts

Aside from the ordinary uses for paper for newsprint, books, magazines, wrapping and the usual lines of stationery and office, supplies are found some special uses of interest—packings for gas engine and hydraulic work, in the shoe business for box toes, counters, heel boards, etc.; in candy factories for imprinting trademarks on the bottom of sweets; in the novelty trades for flowers, new wall papers and all kinds of fancy goods.

Paper now enters into waterproof, greaseproof and even fireproof articles, among which are spoons, dishes, cups and saucers, table covers and napkins.

Starting with baby carirages made from so-called Japanese fibre, which is nothing more or less than paper, and ending with the crepe paper-lined casket, our lives cannot be separated from the use of paper and paper products.

Loses His Life in Mill

John O'Leary, an employe of the hydro pulp mill at Campbellford, near Peterboro, Ont., lost his life a few days ago. He was adjusting a belt on the shafting when he was hit on the head with the propeller and instantly killed. He leaves a wife but no family.

Turn to the Clearing House and Read Every Line—It Will Pay You

SPACE SELLING FAST FOR ANNUAL PAPER EXPOSITION

One Manufacturer Sold $8,000 Worth of Machinery and Takes More Space This Year

THAT one paper manufacturing company which exhibited at the first Paper Industries Exposition secured enough direct sales as a result to fully compensate for the expense of the space taken is given by this company's sales manager for an increase of the space to be taken for the Second Paper Industries Exposition at the Grand Central Palace the Week beginning April 7th. A machinery manufacturer placed $8,000 worth of business in the course of the week, and this manufacturer of supplies has also taken increased space for the 1924 Paper Show.

With a large proportion of last year's exhibitors already contracted for space next April, the exposition management is working out plans for the dividing of the main floor of the Grand Central Palace into separate divisions for different types of exhibits. Several of those who have already secured space have taken more booth space than last year. Several have doubled their space, while others have taken three, four and even five times the space used at the first Paper Show. At least one manufacturer has been forced to cut down his space below what he desired to secure because the available space which he desired was already taken by another company.

With the exposition still nearly three months distant, this evidence of the value of the big show by "satisfied customers" is extremely gratifying to the management. The Exposition space is being subdivided into sections, with the machinery, supply, chemical, equipment houses all segregated into their respective groups, paper and paper products having the center of the floor, and other products into another group, and so on throughout the whole big floor.

The fact that all the paper manufacturers associations, as well as the merchants are to be in New York for their annual conventions during the week of the Paper Show will aid in making the 1924 Paper Week a big week for every department of the industry. The American Paper and Pulp Association and its affiliated organizations will be in session during the week at the Waldorf-Astoria, as will also the National Paper Trade Association, composed of the paper merchants. The Technical Association of the Pulp & Paper Industry, best known as TAPPI, will have its big annual meeting during the week, and if last year's program is duplicated will have one of its general meetings at the Exposition. If this is done, the program will be such as to include problems of interest to the Superintendents. Many manufacturers after viewing the exhibits a year ago said that it was an excellent opportunity for the superintendents to see the array of equipment and machinery that was shown.

The general plans for the Paper Industries Exposition are already well formulated. It is decided, for instance, that the Paper Show will be so organized as to be of great interest to the general public, as well as to those directly interested in the manufacture of paper and paper products. The story of how paper is made will be graphically shown. Educational exhibits will be included in space provided by the Exposition management for agencies which serve the industry in an educational capacity.

Before many weeks have passed the general plan of the Exposition will be submitted to the members of the Advisory Committee, which will include every group interested in the proper organization in Exposition form, of the story of paper and its making.

Takes Over New Quarters

The International Purchasing Company, which has for some years occupied offices at 141 Milk Street, Boston, has leased a suite of offices on the seventh floor of the Province Building, 333 Washington Street, Boston, and will move into its new quarters the first of next month. The company is a large buyer of papermaking rope and similar products.

SAFETY WORK AT NEKOOSA-EDWARDS MILLS IN 1923

Safety First Work Has Greatly Progressed During the Year, Correspondent Writes

ONE of the most important factors in the paper mill industry of today as well as every other one is the "Prevention of Accidents."

At the Nekoosa Edwards Paper Company with Mills at Port Edwards and Nekoosa, Wisconsin during the year of 1923 there was conducted a most strenuous "No Accident" campaign. 1923 is now a year of the past and it has been in many ways an important factor in the History of Nepco. Some of the accomplishments are known to all, as they are visible to the eye. The new additions to the mills, with new machines, and other extensive improvements, all tending to increase production and at the same time give employment to more men.

But one of the greatest accomplishments of the past year has been the decrease in the number of accidents. This is the first time in their known record of the mills where there have been less than 100 accidents, and this is in spite of the fact that there has been extensive construction work, which is always dangerous, and that the number of men employed has been materially increased.

Comparing the record of 1920 with that of 1923, one is astonished to find the list of accidents has been reduced by one-half. From 212 to less than 100.

The safety campaigns have had a great deal to do with this reduction and the Nepco safety department is to be congratulated on the splendid work they have done.

The bronze trophy put up by the company was won by the Nekoosa Mill. The mill scoring the least number of accidents during the month made the score. The score was Nekoosa 7, Port Edwards 4, with one month resulting in a tie.

The careless workman is a menace to any company, both to himself and his fellow workman. When a man's carelessness causes an injury to himself it is regrettable, to another it is a Crime. The man who takes no chances with his fellow workman's life will seldom take chances with his own.

A more strenuous campaign has been started for 1924 and it is hoped to decrease the record of accidents in 1923 by 25%. That will mean 75 accidents for the year, about 6 a month, 3 for each mill. The usual trophy will be put up for 1924 and Port Edwards is bound and determined to win it.

During 1924 there will probably be an Inter-Mill Contest among all the paper mills of the State of Wisconsin.

Davis Heads New York Chemists

C. E. Davis, chief chemist of the National Biscuit Company, it was announced today, has been elected chairman of the New York section of the American Chemical Society for 1924. Mr. Davis succeeds Dr. Charles A. Browne, recently appointed chief of the United States Bureau of Chemistry. P. A. Levene of the Rockefeller Institute was named vice-chairman and D. H. Killeffer, associate editor of the *Journal of Industrial and Engineering Chemistry,* secretary and treasurer.

The new executive committee is composed of Prof H. R. Moody of the College of the City of New York, Prof. R. R. Renshaw of New York University, Col. Raymond F. Bacon, chief of the technical division of the Chemical Warfare Service, A. E. F., and H. B. Faber, consulting chemist.

Lease an Entire Floor

The Continental Paper and Bag Mills of 18 East 40th Street have leased the entire tenth floor of the Pershing Square Building at Park Avenue and Forty-second Street, New York City, which they expect to occupy about March 15th next. The new location affords much more space than at their present address which was found necessary for the business expansion planned for 1924.

Hugh P. Baker Says

Secretary of the American Paper and Pulp Association

DEAR MR. KEENAN:

The last copy of PAPER has just come across my desk and the fact that you are again its Editor pleases me very much indeed. I like the new form of the material and I want to assure you of our interest and help in making PAPER what you would like to have it.

Sometimes I have wondered if the paper industry may not be blessed with too many journals. I have always stopped at the point of wondering and have not attempted to form any conclusion in the matter. I know that the journals which are giving service will continue, and in its new form and with its new Editor, I am very sure that PAPER will give valuable service to the industry.

With best wishes for 1924, I am,

Very truly yours,

HUGH P. BAKER, Secretary.

Apprenticeship in Paper Mills

Outline of a Plan Proposed by a Joint Committee Representing the Various Technical Associations

By **W. G. MacNAUGHTON**
Secretary of the Joint Committee on Apprenticeship

An outline of a scheme for apprenticeship in paper mills which has been drafted by W. G. MacNaughton, Secretary of T. A. P. P. I., for the joint committee on Apprenticeship representing the Canadian Technical Section, the Superintendents Association and the Technical Asociation, is published herewith.

There is to be a meeting on the subject in connection with the annual meeting of the Canadian Technical Section to be held at the Ritz-Carlton Hotel, Montreal, on January 24, and the outline will be presented for discussion as part of the report of the Joint Committee.

Apprenticeship is distinct from, although related to, the training of skilled operators as well as vocational education for pulp and paper mill workers. There is in addition the development and training of foremen and superintendents where there is necessary not only knowledge of the operations involved and skill in them but also executive ability and judgment. When a system of apprenticeship has become fully developed and its value appreciated it might follow that the higher skilled operators both in pulp and paper mills would require to have taken the apprenticeship course but at its inception it is not to be expected that individual mills will be able to take on more than one or two apprentices a year since in some departments, during training, they would to a certain degree be supernumeraries. If, too, it is arranged to furnish instruction or assistance at stated periods, in their studies, it might be necessary to give it during a period when they would otherwise be employed.

Remuneration During Course

As to remuneration, at the beginning of the course it should be sufficient to cover the living cost but should not be more than that of the lowest common labor. During the course the rate should be increased a small amount at the end of each period of training, the increase being dependent on the attainment of proficiency in the particular phase of training.

If an apprentice started at $50 a month with an increase of $5 at the end of each period, at the completion of fourteen periods he would be receiving $120 a month. On the basis of twenty-five days of eight hours each the final rate would then be sixty cents per hour. The base rate might be $71 a month with increases of $3.50 a month, giving the same rate at the end. It might be advisable to leave the matter of compensation to individual agreement or perhaps to fix the relation which the apprentice rate should bear to that of a regular operator.

Educational Qualifications

The educational qualifications required for apprenticeship would be high school graduation or its equivalent so that the apprentice could proceed at once to the special studies required in the course without being obliged to devote time on elementary subjects.

Courses Provided

In the correspondence courses provided by the University of Wisconsin and the Massachusetts Division of University Extension, there are the following unit courses: Mechnical Pulp, Sulphite, Soda and Sulphate Pulps, while among those of the Institute of Industrial and Domestic Arts there are in addition Beater Room Practice, Paper Machine Operation and Paper Finishing. In any scheme for apprenticeship these courses and others that may later be devised, should be linked up with periods of practical training in well operated mills, of sufficient length to insure sufficiency. The end desired is the production of papermakers and since under modern conditions most of the paper made is from wood pulp rather than from rags the papermaker should know how to make the chief pulp used in the kind of paper he elects as his specialty.

Kinds of Paper

The chief kinds of paper made in largest volume, and neglecting the special boards and special papers, are news, book or printing, wrapping, tissue, writing and board. They all differ in fiber composition, preliminary treatment, method of paper machine operation and to a certain extent in the type of machine used. In consequence of these rather wide differences the apprentice would almost of necessity have to select early in his training the particular kind of paper in the making of which he desired to become proficient.

Considering the kinds of paper named they may roughly be classified as follows, the kind of paper being named first, followed by the pulp used and machine on which it is made:

News, mechanical pulp, fourdrinier machine; Book or printing, bleached sulphite and soda, or waste paper, fourdrinier (straight or Harper); Wrapping, unbleached sulphite, or sulphite and mechanical, fourdrinier (ordinary or M. G.); Tissue, unbleached and bleached sulphite and rags, fourdrinier and single cylinder; Writing, bleached sulphite and rags, fourdrinier; Boards, waste papers, and mechanical pulp, multi-cylinder.

At its inception no attempt should be made in apprenticeship to cover special board or special papers of various kinds. In all cases the minimum educational requirement should be high school graduation and it should begin by a period of practical experience in the mill laboratory, perhaps with similar periods with each phase of training, especially those dealing with pulp manufacture.

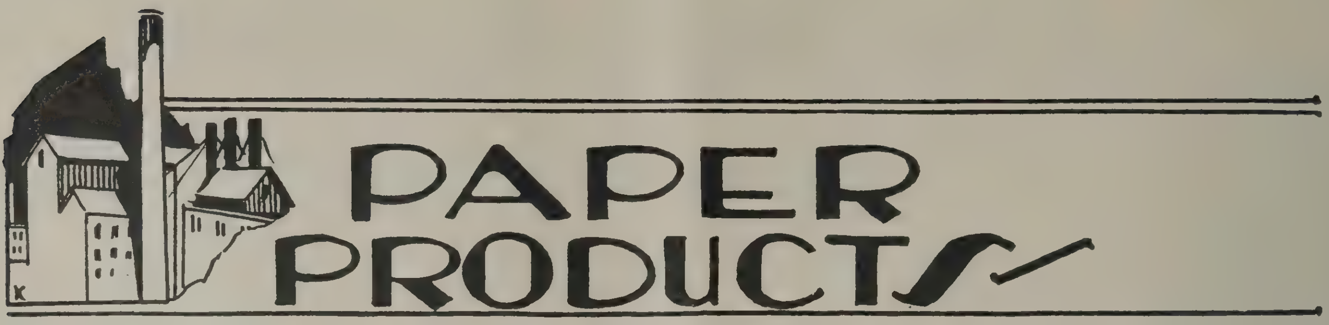
Study and Practical Work

The course of study for the apprentice should be divided into major and minor subjects, depending on the kind of paper upon which he is specializing. The major studies should cover the branches of chief importance while in the minor ones he would get a general knowledge of allied subjects. It is attempted to outline the courses of study and character of practical training that might be required with the suggested minimum period of practical work. The courses of study are divided as follows:

(1) Mechanical pulp; (2) sulphite; (3) soda; (4) sulphate; (5) bleaching; (6) beater room practice; (7) waste paper; (8) rags; (9) paper machine operation; 10 paper finishing.

Reduce Tax on Newsprint

A reduction of fifty per cent in the sales tax on newsprint went into effect on Jan. 1, as a result of a conference at Ottawa when various features of the impost were discussed. Beginning the first of the year the sales tax on newsprint is now three per cent instead of six per cent, and the reduced rate will apply to newsprint used exclusively for producing newspapers and quarterly, monthly and semi-monthly magazines, weekly literary papers unbound, hymn books, religious tracts and Sunday school lesson pictures.



The Paper Specialty As a Need

Pioneer Specialist in Specialties Writes Illuminatingly On Important Part of Paper Making

By J. E. WILLERT

Sales Manager,
American Paper Forming Co.

PAPER is more susceptible to conversion into useful, sanitary and ornamental articles than any other manufactured product. Its cheapness lends itself finely to the economy necessary in any article for a one time use only or for temporary decorative purposes. The manifold uses created contribute to sales of a large volume. The multitude of its grades disclose unlimited possibilities for conversion.

In the same period that the telegraph, telephone, typewriter, talking machine, moving picture, automobile, motor boat, airplane and the radio came into the world, came the paper bag, the paper folding box, toilet paper, paper towels, oyster pails, ice cream pails, paper napkins, paper plates, paper doilies, paper cans, paper spoons, and the long list of paper specialties. The place of these is secure in the world, their service lightens burdens and injects pleasure in the every day grind. Their influence for good is as great in their sphere as that of the great inventions.

Now a Dignified Thing

HUMAN need has dignified the paper specialty. The paper specialty manufacturer has a vital position in the consumption of paper. The paper manufacturer a further important position and an ever increasing outlet for his products. A perfect coordination should always be maintained between these industries.

The necessity of a standardized price for a paper specialty is apparent, the decorative side not needing it so much as the one time use side. Decorations are used on special festal occasions, holidays, etc., a desire for pleasure causing the demand. The one time use side is a strictly service side and the price must be such as will allow it to meet the ability of the service rendered to absorb it. Thus, although the price may fluctuate with the buying power of the dollar it must not so constantly change that it will bring confusion to the ultimate consumer. The price can be a compelling force or a deterrent.

As human knowledge increases the call for greater utilities becomes more insistent, the paper specialty has a major place in answering this call. The paper specialty manufacturer keenly alive to this hunger has an enviable future. His market is not entirely a commodity one, but a service one as well.

The understanding of the paper specialty market, etc., needs its scope and its service absorption possibilities are a controlling factor in the success of the paper specialty manufacturer. A wide source of information should be at his disposal.

The Need of the Brand

SELLING is psychological, the approach to the buyer and the impress left determine the volume of sales. The prospective customer must be made to feel the lure for buying. These are times when all things are distinctive and highly specialized. All commodities are being branded. Manufacturers are educating the public to buy their goods by asking for their brand, claiming for it all needful virtues.

Living examples of brands are we. Our breakfast consists of branded coffee, branded grapefruit or orange, branded bacon, branded eggs and branded bread, clothed in branded underwear and suit we walk in branded socks and shoes, sporting a branded necktie in a branded collar on a branded shirt, topped off with a branded hat. We eat, drink and sleep branded.

The paper specialty manufacturer has adopted brands, but the danger is in having too many brands, this a manufacturer should avoid. In the multiplicity of names some are forgotten and none make a dent. A few striking brands hit hardest.

The popularization of his brands is a problem we must solve, the firm implanting in the mind of the consumer that he has the leaders, he must establish. Some manufacturers are reaching the public by advertising in the weeklies and monthlies, seeking an increased use of their product by an effort to enlarge the use of the commodity to which the service of their product is necessary, featuring that the virtues of the commodity used are greatly enhanced by the superior service that their product renders.

Other manufacturers are reaching out through differing periodicals, featuring their product as a boon in their sanitary and useful effects on the physical and the home life.

The success of this character of advertising can only be gauged after a sufficient period of time has elapsed to allow the public to absorb the idea and get the habit. Its greatest value is to incite the distributor to talk more and to gain publicity.

What it Must Have

THE practicability of a paper specialty, the value it offers, the superiority of its service, how well it meets the expense to be absorbed in its service, the economy it may afford are determinators in its sale. If these conditions are not well met all advertising is of no value, but the meeting of these conditions coupled with proper advertising are big strides to large demand and consumption.

In the Paper Industries Exposition of last year, the first one to be held, a number of paper specialty manufacturers demonstrated their product and the interest shown by both distributor and consumer gave strong proof of desire to be better posted on this section of the paper business.

Successful demonstration is the strongest and most lasting appeal that can be made and it is through exhibits of the character of the Paper Industries Exposition that the manufacturer can reach the distributor, and it is by attending such an exhibit that the distributor can become posted in a line which will be of lasting worth.

During the coming year many new paper specialties will be introduced, the fertile minds of inventors are at work in this field. This past year there have come under my observation many new ideas in paper specialties as well as many new improvements in paper specialty machines. Opportunities large and prolific are open both to papermaker and specialty manufacturer in this field.

The paper specialty is no longer a specialty but a staple. It has become a staple specialty as necessary to a distributor's stock as the most staple sheet of paper he has, an enlivening sales maker full of growth.

Rush to Northwest Forests

R. W. Vinnedge of North Bend, Washington, in an address, "The Genesis of the Northwest Lumber Industry and Its Development" delivered under the auspices of the Yale university school of forestry, predicted that the zenith of lumber production in the Pacific northwest would be reached within two decades.

Lumbermen of the east and the south are going to the northwest now to secure timber holdings as the forests in the east and south are being exhausted. Large tracts of forest land in Washington and Oregon have thus changed hands.

PAPERGLAS

Registered United States Patent Office

The Utility Paper With a Thousand Uses

Here Are Some of Them

- Advertising Envelopes
- Airproof Wrappers
- Bags and Containers
- Book Inserts and Jackets
- Bottle Wrappers
- Bread and Cake Wrappers
- Coffee and Tea Bags
- Film Wrappers
- Florists' Wrappers
- Fruit Wrappers
- Glove Wrappers
- Greaseproof Wrappers
- Laundry Wrappers
- Millinery Bags
- Candy Cups
- Odorproof Wrappers
- Sandwich Wrappers
- Soap Wrappers
- Complete Envelopes
- Tobacco Wrappers
- Tracing Paper
- Window Envelopes

PAPERGLAS provides an excellent hygienic wrapping for food, candy, cigarettes, drugs, and all products that require moisture, dust, grease, and air proof coverings. No chemicals are used in its manufacture. It is made in plain bleached, special transparent and eleven designs of embossing, covering every requirement. There is a large field of demand for PAPERGLAS and every paper house should have it in its line. Your salesmen can always sell this utility paper. PAPERGLAS in your stock will add profits to your ledger.

Manufactured by
WESTFIELD RIVER PAPER CO., INC.
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Direct all inquiries and orders to the
New York Office
350 Madison Ave., N. Y. C.

What W. H. Deubener Did with a String and a Paper Bag

By LUTHER P. WEAVER

A PIECE of String.

Guy de Maupassant made a classic of it.

W. H. Deubener, St. Paul, Minn., groceryman, turned it into—a big growing manufacturing business.

One fall night in 1918, this St. Paul groceryman couldn't sleep because of an idea.

Day after day for four years since he had started the first cash-and-carry grocery in St. Paul, he had been wrestling with the problem of making packages easy to carry. He wanted his customers to have tidy bundles, ones that would not come undone and spill groceries all over a street car floor.

This night he tried to sleep but a vague outline of what might be a solution of his problem kept intruding itself into his semi-consciousness. At last fully awake, he grasped the import of the thing that had been trying to force itself into his mental vision, namely, and to quote his own words: "Strings through and around the sack; I could see them going around it in a way that would make just the strong shopping container I wanted."

This was along toward morning. He arose quickly, and, after dressing, hastened to the garage and cranked up his flivver. His wife, as much interested in the idea as he was, accompanied him on that memorable ride down town to the store. It's a good thing for Deubener that traffic cops were not around. Once in the store he grabbed the first empty sack he could lay his hands upon and passed cord—common white wrapping cord—around it from top to bottom and through the sack in the identical manner in which millions of housewives have found it on the Deubener shopping bag in the stores throughout America. It was the first Deubener shopping bag, and though various improvements have been made in materials, the idea of the strings is the same.

How It Has Grown

THIS bag, about fifteen inches wide by eighteen inches deep unopened, probably has been as important as any single factor towards reviving individual and profitable shopping by housewives. It enables a shopper to have a neat appearing container in which to put a grist of groceries up to seventy-five pounds in weight, and furthermore she—or he—gets them home without trouble for the two heavy cords that pass around and through the sack carry all the weight from the bottom.

Deubener began making the bags that same fall in a corner 10x10 feet square in his warehouse, the daily output at that time being 500 to 600 bags and his total force of employes—two women.

They used an old leather punch to punch the holes in the bag by hand, through which holes the strings passed. In two years the factory has been enlarged four times, the total floor space now being 15,000 square feet, with the employes totaling as high as sixty workers. And his output now is 100,000 bags a week.

Deubener's first order was for twenty-five bags from a St. Paul wholesale grocery house, and last year he sold 8,002,200 bags.

Deubener Speaks

ASKED about difficulties encountered in making his article a success, Deubener's reply was characteristic. "Difficulties! We had so many we cannot begin to think of them all now," he said. "You must remember this bag was a new thing never made before and we had practically war conditions with which to contend.

"The best method of doing each operation had to be figured out, each piece of machinery created in the mind, then built to order only to be rebuilt time after time. Meanwhile our money was melting away.

"One mistake we made was to advertise our bag before we were in shape to handle the business. Every mail brought us orders and inquiries in a flood and at one time we were nine months behind our orders.

"One problem we remember distinctly came up when we got into our new factory. We needed fifty more girls to increase our production but it was at a time when manufacturers were bidding against one another and we could not get enough help. We tried every way for several days, until finally we thought to ourselves: 'Why not give married women a chance to earn some money working odd hours.' We advertised and got all the women we could use.

Deubener has perfected the equipment of his plant as business increased, every piece of machinery, as he said, having been invented by him. Such equipment includes a double punch to take the place of the old leather punch and a string cutter, three of which were entirely rebuilt before he got one that would do the work right. Now he is working on a machine that not only will punch the holes in the bag for the strings to pass through but also will paste on the bottom of the bag the protecting strip which holds the cords in place.

Besides United States rights, patents have been obtained in the Philippine Islands, Denmark, Canada, with application made for the English rights and other leading countries.

Inquiries have come from Melbourne, Havana, St. John's, Newfoundland; Lausanne, Switzerland, Paris and London, and from Belgium, Norway, Italy, India, China and Japan. Besides going to many states of the Union, shipments have been sent to Honolulu, Canada and Panama. They will go into many new foreign ports in 1921, and this will also increase the production of the home plant materially in the next year.

All this because W. H. Deubener fumed and fretted one night back in 1918 over his customers' carrying problems, finally corralling the elusive idea of strings that would go around and through a big sack, supporting the weight from the bottom, and forming handles at the top that wouldn't pull out.

THE NEW WOOD PRODUCT —CELLOPHANE

New Product Lends Itself to Many Uses, It Is Being Found

By JAMES PIANI

THIN as tissue but hard to tear; like paper but not paper; transparent as glass but not glass—a non-fragile, waterproof product with a singularly wide range of uses—that's cellophane. Possibly you do not know it by that name, but surely you have seen the de luxe material that perfumers, confectioners, and other manufacturers use to wrap their fancy packages.

A chemist named E. Brandenberger first made cellophane in 1903 at Taon-les-Vosges, France. Today Bezons, eight miles northwest of Paris along the river Seine, is the home of the French cellophane industry and the source of supply for practically all of the product now used in this country. But American consumers will not have to wait long before American-made cellophane will be available, for the Du Pont Cellophane Company, a subsidiary organization of the Du Pont Fibersilk Company, is now building a large plant at Buffalo, New York, for the manufacture of this interesting material. Just why Fibersilk Company is interested in cellophane manufacture becomes clear when it is understood that both products are identical in composition and both follow through the same manufacturing processes until the final stages.

The raw material used is pure wood pulp, first treated with caustic soda, then with carbon bisulphide. The product thus obtained is completely soluble in water, and the solution is called viscose—an absolutely transparent fluid that can be compared to collodium. Viscose coagulates or solidifies very rapidly when brought into contact with certain salts or acids, just as the white of an egg does when it is brought into contact with boiling water; and this cellulose solution is used without distinction for the manufacture of both artificial silk and cellophane. It is only in the method of their fabrication that these two products differ. When artificial silk is made, the viscose is forced through a nozzle having a number of minute holes, and all the filaments obtained are solidified as they pass through a coagulation bath. The reunion of the filaments constitutes a silk thread.

In making cellophane, the viscose passes into a manifold and is forced through a slit-like aperture into a coagulation bath where it solidifies in the form of a sheet. Then it is treated chemically to eliminate all foreign matter. Washing and drying complete the process and the final transparent product is a sheet approximately 35 to 38 inches wide, from 1/1000 to 5/1000 of an inch thick, and of indeterminate length.

This sheet is perfectly transparent, with its surface as smooth and lustrous as polished glass. Of homogeneous texture, without pores and fibers, it is far stronger than paper. It is supple and flexible. A heat test shows that even at 100° Centigrade cellophane will not disintegrate as paper does. It burns like paper, however, but is not highly inflammable. Cellophane put into boiling water does not melt nor is it in any way affected. It also resists the action of acids or bases. One of its most valuable properties is waterproofness. Grease, ether or gasoline put in cellophane will not penetrate or evaporate. Containing no animal matter, cellophane does not decompose, is bacteria-proof and can be easily sterilized in an autoclave.

Remarkable as these properties are, the list is by no means complete, for cellophane, like other cellulose products of which paper is perhaps the best known type, lends itself to many finishing operations.

Stephenson Is Bound for Piccadilly

J. Newell Stephenson, M. S., editor of *Pulp and Paper Magazine of Canada,* intends to leave for the British Empire Exhibition at London some time in March. He will sail from Boston and be gone at least six months. Mr. Stephenson is an American citizen and has a multitude of friends in the membership of T. A. P. P. I. and elsewhere, who will wish him a happy and profitable sojourn in the land of his forbears.

SECOND ANNUAL
PAPER
INDUSTRIES
EXPOSITION

You can benefit immeasurably by the Paper Exposition in two distinct ways

1. It will give you a profusion of new practical ideas and information which will promote economy and efficiency in your mill. It will do this through exhibits of:

Raw Materials—pulp, chemicals, dyes and colors, sizes, fillers, etc.; **Machines** of all kinds used in paper mills; **Instruments of Precision** for recording, controlling or measuring temperature, volume, pressure, speed or velocity, etc.; **Apparatus** for examining and testing materials and products by chemical and physical means; **Forestry** care, use, management and reforestation; **Recent Developments** in paper making—in short there will be exhibits of everything connected with the paper industry.

GRAND CENTRAL PALACE
NEW YORK CITY
WEEK OF APRIL 7, 1924

2. This Exposition will give you an opportunity to get in closer touch with your market, and increase your sales through an exhibit of your own. You can tell the story of your products and your service in a graphic way to thousands of the very people on whom your greater success depends—which is the essence of good advertising.

REMIND YOUR SALES DEPARTMENT that this golden opportunity to make some worth while strides forward should not be overlooked.

The Exposition will be on the MAIN FLOOR of the Grand Central Palace this year. Select space for your exhibit now. Write for costs and diagram.

PAPER INDUSTRIES EXPOSITION
Grand Central Palace New York City

KRAFT BY-PRODUCTS MEN TO ERECT RE-CALCINING PLANT

W. D. Mount, Consulting Engineer, Will Make a Report on Proper Place

ON December 13, 1922 we printed in this magazine an article on the proceedings of a meeting of the Kraft By-Products Association held in Chicago on November 30th. At that meeting it was decided to select a place for the erection of a lime sludge re-calcining plant.

During the past week an inspection was made by W. D. Mount, consulting engineer of Lynchburg, Virginia, who for many years was connected with the Matheisan Alkali Works and now with the Glamorgan Pipe & Foundry Co.; Professor A. H. White, Head of the Engineering Department of the University of Michigan at Ann Arbor, Michigan together with Mr. B. T. McBain, Chairman of the Kraft By-Products Association, which is composed of kraft pulp manufacturers of Wisconsin, Michigan and Minnesota visited the following plants for the purpose of determining the one best suited for the installation of the plant.

Wausau Sulphate Fibre Co., Mosinee, Wis.
Stevens Point Pulp & Paper Co., Stevens Point, Wis.
Nekoosa Edwards Paper Co., Nekoosa, Wis.
Falls Manufacturing Co., Oconto Falls, Wis.

Data was secured at the above mentioned plants and Engineer Mount will make a complete report on the place best suited for this proposed plant to save the lime sludge which is now being wasted.

Another meeting will be called for a final decision and arrangement as soon as complete report is received from Mr. Mount. This meeting will probably be held in Chicago or Milwaukee.

Claim Colorimeter Is Needed

The Bureau of Standards of the Department of Commerce recently carried out some measurements of the color characteristics of white paper, the results of which have been published in Technologic Paper, No. 244, for sale by the Superintendent of Documents at 5 cents per copy.

In attempting to measure the color properties of white paper use was made at the outset of a single reflection of light from the paper into a spectrophotometer. However, it was found that the color differences of various papers were so small that they could not be determined readily and accurately by this means.

A colorimeter, designed and built by **Prof. A. H. Pfund**, of Johns Hopkins, was next tried. This makes use of three or more diffuse reflections from the paper, and determines the color characteristics by measuring the coefficient of diffuse reflection for red, green, and blue light. 21 samples of paper of commercial grades, collected from various sources, were tested with satisfactory results. It was found that all specimens were deficient in the proportion of blue light reflected and to a much less extent in the green.

Lastly it was found that the colors of these same samples could not be successfully matched by the unaided eye, even by trained observers. For instance, there was practically no agreement among the 17 individuals as to the "whiteness" of the various papers. This would seem to be a good argument for the substitution of this colorimeter for the unaided eye in the color grading of white paper.

Campbell Honored with Appointment

A. H. Campbell, traffic manager of the International Paper Company, one of the traffic men asked to represent the American Paper and Pulp Association at the January 3 organization meeting of a Shippers Regional Advisory Board for the Middle Atlantic States has been asked to serve as chairman of the paper and pulp committee of the new organization. L. B. Palmer, of the American Newspaper Publishers Association has been named as vice-chairman of the committee. The function o fthe board will be to supply the railroads with accurate information concerning carload requirements of the shippers in the district and to cooperate with the railroads to secure adequate service. It will also endeavor to adjust difficulties between shippers and the carriers, without resort to the Interstate Commerce Commission, but will not handle rate problems. The American Paper and Pulp Association was also asked to participate in a general railroad conference at Washington, Jan. 9, when the problems of the railroads were taken up on a national basis, under the auspices of the United States Chamber of Commerce.

Building New Warehouse

Tileson & Hollingsworth, paper manufacturers and paper dealers of 49 Federal Street, Boston, are constructing an additional storage warehouse at 854 River Street in the Hyde Park section of Boston where they already own a large plant.

SAYS MILL POLLUTION IS NOT INJURIOUS TO FISH

Conservation Commission, in Response to Inquiry, Gives Facts on River Situation

POLLUTION by paper and pulp mills, while it may at one time have been responsible for almost eliminating game fish from the Wisconsin River, is not now of such a degree as to interfere materially with such fish, is indicated by information which Elmer S. Hall, state commissioner of Conservation, and officers of paper mills in the Wisconsin Valley, have given.

Whether the presence of frequent effect upon game fish has an adverse effect upon game fish is not definitely decided, but investigations conducted by the federal and state governments have revealed that game fish will not take advantage of fishways to pass around dams.

Pulp Waste Injurious

Paper mill waste, according to Mr. Hall, is not detrimental to fish when turned into a river the size of the Wisconsin. Pulp mill waste, he says, is detrimental to fish life, but can be kept out of the river by a device known as the "saveall." Such devices, of greater or lesser effectiveness, have been installed by all pulp mills on the Wisconsin River, and efforts are continuously being made by most mills to perfect them.

Existing laws forbidding the pollution of streams with injurious materials are enforced, according to Mr. Hall, and paper mill men report that occasional inspections are made by state deputies.

Statement by Hall

Mr. Hall's complete statement of the situation is as follows:

"1. It has been the experience of this commission that paper mill waste when turned into a river the size of the Wisconsin River, has not detrimental effect on fish. The waste from pulp mills we find is detrimental to all kinds of fish, as the pulp which escapes through the screens seems to settle in the still water in the bend of the river, which are natural spawning grounds for a great many fish and accumulation of pulp both prevents the spawning of fish or smothers the eggs after they are spawned. As to other factory and mill refuse, it depends largely upon the nature of the factory and the waste that is turned into the stream.

Can Avoid Damage

"2. I think there is no question but what with a reasonable expense all mills and factories can avoid disposing injurious waste materials in the river. In the case of pulp mills the saveall which will catch the fine pulp which is now being turned into the streams can be installed which will remove any waste from this source entirely. I have been given to understand that the savings of one year will pay for the installing of the saveall. As to the other mills and factories, there are methods by which it can all be prevented.

"3. There are laws forbidding the polluting of any stream by dumping in any refuse that is detrimental and provision is made of this law under the direction of the board of health.

Fishways of No Value

"4. As to providing for fish gates and the effect of their absence in dams, I would call your attention to the fact that in 1916 the United States Government, in cooperation with Canada and all the fish commissions of the various states, went into an intensive investigation as to the value of fishways. It had always been considered that fish had the sense of sheep—as an instance, if there is a hole in the fence and one sheep goes through, the entire flock will follow, and people were of the opinion that if fish found a fishway and one would go over, they would all follow.

"In Wisconsin we carried on an experiment for sixty days during the months of April and May when the fish were all running up stream. The experiment was carried on at three places, which contained the most up-to-date fishways, i. e. the dam at Kilbourn on the Wisconsin River, the dam at Weyauwega on the Wolf River, and at the United States locks at Eureka on the Fox. Two men were on duty at all three places, one from six in the morning until six at night and vice-versa. A trap was built at the head of each fishway so that we would be absolutely sure as to how many fish went up the entire distance and over the top of the dam. The water was shut off at the dam, the traps were lifted and the fish that were in the fishway were counted. In a sixty day period at each of these dams and where all varieties of fish were particularly abundant, not one game fish went up the entire distance. The only fish that did go over the dam were suckers, the very fish that sportsmen do not care to get into their waters. The reason that suckers made the ascent was that they are bottom feeders and accidentally struck the entrance to the fishway and worked themselves up.

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PAPERMAKING EPOCHS ARE RECITED

Historical Sketch by Prof. Weston Has Much to Interest Paper Men

THE latest bulletin of the New York State College of Forestry contains an interesting historical sketch by Prof. Weston, on the development of the paper industry throughout the world. Of particular value to American manufacturers is the portion devoted to the history of the business in this country, of which the following is a digest.

America Started in 1690

Roxborough, near Philadelphia, had the of being the home of America's first paper mill. The mill was built in 1690 by William Rittenhouse, a Dutch papermaker, and William Bradford, a printer of Philadelphia. Bradford was the printer who introduced Benjamin Franklin in Philadelphia and also aided in securing employment for him in that city. Encouraged by the success of the Rittenhouse mill, a number of other mills were established in the colonies, but the production never kept pace with the demand. The first New York mill was built in 1768 at Hempstead on Long Island by Hendrick Onderdonk and Henry Remsen. It was on account of the scarcity of paper that the Journal of the 2nd Session of the New York State Assembly, in 1870, was not printed. The nearest paper mill to Albany, N. Y., at the time was located at Bennington, Vermont. The product was frequently brought from the mill on horseback and although it was very coarse and unbleached compared with papers of today, it was so valuable that every torn or broken sheet was repaired with paste. For over 100 years the very existence of the industry in this country was constantly imperiled by the scarcity of rags.

Canada in 1803

An interesting account of the history of papermaking in Canada is given in the Handbook of Canadian Pulp and Paper Industry for the year 1920. The first mill in Canada was established at St. Andrews, Quebec, in 1803, and the second at Bedford Basin, near Halifax in 1818. Both of these plants were located in what was then known as Lower Canada. The first mill in Upper Canada was erected in 1825 at Crook's Hollow. Since that time the pulp and paper industry has become one of Canada's most important industries. Statistics for the year 1920 show that there were 101 pulp mills and 67 paper mills within the Dominion.

Wood Fiber Enters

In the past, as in the present, investigators were searching for suitable raw materials. In 1800, Mathias Koop printed a book on paper he had been able to manufacture from straw and wood. According to his account it was the first useful paper manufactured solely from straw and one paragraph in the appendix reads, "The following lines are printed upon paper made from wood alone, the produce of this country, without any intermixture of rags, waste paper, bark, straw or any other vegetable substance, from which paper might be, or has hitherto been manufactured and of this the most ample testimony can be given if necessary."

He adds, "Having thus far succeeded in my researches to make a useful paper from one kind of wood, I doubt not but that I shall find many others equally eligible for the same purpose of which I trust it will be in my power, within a few weeks, to give indisputable proof that my expectations have been well founded and that I have not cherished a visionary opinion."

Such investigations proved to be the forerunner of the ground wood pulp process which was invented in 1840. The development of this process, together with the invention and development of the other wood pulp processes marked a great epoch in the history of paper manufacture. Even as late as 1874, after three of the four commonly used processes had been invented an English Journal stated that "Great endeavors had been made to introduce wood pulp as a fiber but practical papermakers deem it a failure." The dates generally accorded to the invention or introduction of the wood pulp processes other than ground wood, as used in the present day industry are:

Soda process—1854—By Watt & Burgess, in England.

Sulphite process—1866-7—By Tilghmann, in the United States.

Sulphate process—1883—By Dahl, in Germany.

Gradually these processes have been perfected and, at present, wood is our most important raw material.

As yet not every kind of wood can be successfully used for the manufacture of paper. During the year 1920, more than six million cords were used in the United States for the production of wood pulp for papermaking. Approximately 57 per cent of this total was spruce, 15 per cent was hemlock and the remaining 28 per cent was made up of fifteen or twenty other species.

Forestry or New Species?

From these figures one would conclude that spruce is our most satisfactory wood for producing wood pulp and that our supply is diminishing at a rapid rate. Such is the case, but it does not mean that wood pulp will disappear as a raw material for papermaking, but rather that forest species more difficult to utilize and now considered unsuitable will gradually come into use. The time is not far distant when scientific forestry methods will have to be adopted and practiced by concerns desiring to continue operations with the same species which they are now utilizing.

SNAPPY NOTES ON ADDING DYES TO BEATER

Much Should Be Left Up to the Foreman, Is Opinion Expressed

THE question as to whether the staining of pulp while in beater should be completed, and the proper shade for the match obtained *before* or *after* adding the size, is a matter that *Dyestuff* says rests largely upon the judgment of the foreman, and governed to some extent by the quality of paper produced.

Some dyes are not particularly influenced by the size or by any of its components. Where this condition exists and is definitely known, it is immaterial whether the dye is added to the beater before or after the size has been added. Where there is reason to believe that the dye is altered in shade by the action of the size, however so slightly, prudence and caution dictate adding the dye after the size. There is every reason for this; when the size has been added, the beater is practically finished from the beaterman's point of view, and only awaits the addition of the proper coloring matter before it is run off to the stuff-chest. If the size is already in the beater, the only concern of the foreman is to strike the desired match as quickly as possible by adding the nearest quantities of dye in solution, and bring up the shade by such further additions as experience suggests. If the size has not yet been added, there may be doubts in the mind of the foreman as to whether the exact match already obtained is likely to be thrown off its tone, or otherwise modified.

Not all beatermen follow identical methods, but it is regarded as an established fact that the majority of them add the size to the beater before adding the color. Of course, there are some colors not influenced by size; these colors are of the insoluble class, pigments and lakes, and it is immaterial whether they are added to the beater before or after the size. These insoluble colors do not actually dye the fibers as is the case with anilines; being in a state of fine division, they become distributed throughout the mass of fibers in such a firmly divided condition that they impart to the finished paper the appearance of having been actually dyed. These extremely fine particles of pigments are held in place mechanically by the action of the size, while the anilines are generally absorbed by the actual fiber substance.

Were Given Vacations

Oregon City, Oregon, employees of the Hawley Pulp and Paper Mills and of the Crown Willamette Paper Company mill across the river at West Linn, also workers in the Lebanon paper mill were given a few days' vacation during the holidays. The employees were given Christmas presents of cash and checks by the paper companies.

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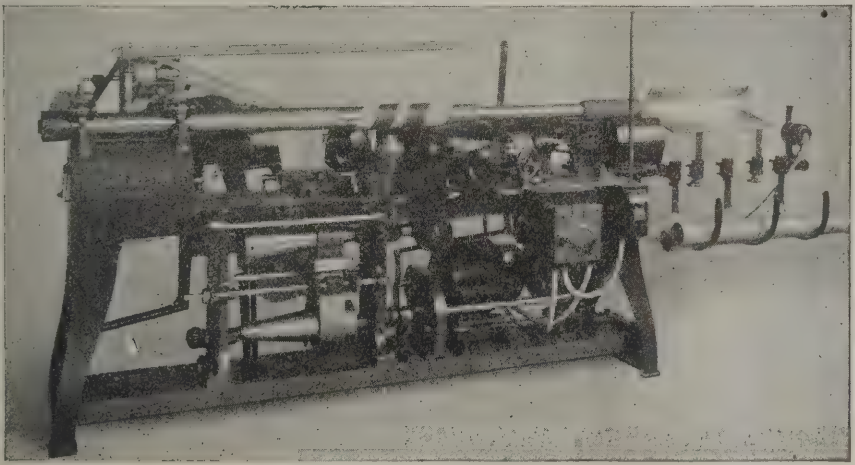

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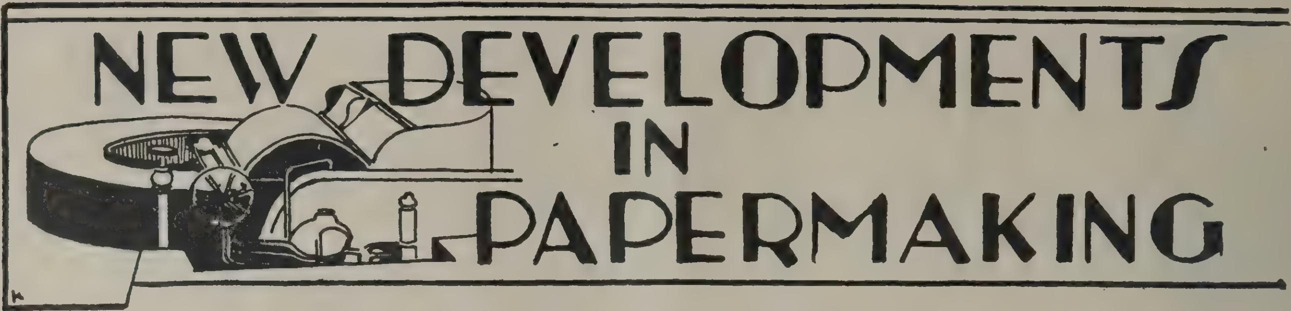
NEW DEVELOPMENTS IN PAPERMAKING



Cellulose Determination by Means of Phenol

The lognin of the wood is dissolved by heating with dry phenol, but the action is rapid and complete only in the presence of traces of mineral acids or dissociable acid salts. This reaction can be utilized for the quantitative determination of resistant cellulose provided that the hydrolysis of the carbohydrates is controlled by the careful regulation of the concentration of the acid, the time and the temperature of the heating.

The finely rasped wood material is passed through a sieve with one hundred meshes per square centimeter and then the ground product is extracted with water and acetone and then dried in an oven. Four grams of this material is treated in a test-tube, 18 by 3 centimeters, with fifty grams of dry phenol containing O.1 per cent of its weight of hydrochloric acid. The contents of the test-tube are then heated in a water bath at a temperature of 97 degrees C for a period of one hour with occasional stirring.

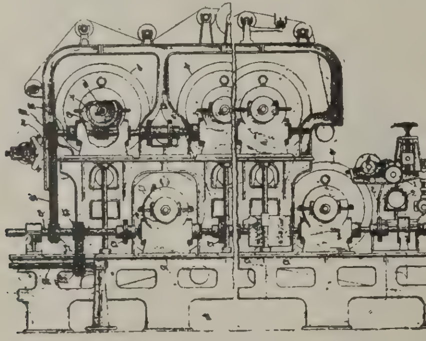
Under these conditions constant yields are obtained but the more readily hydrolyzable hemicelluloses and pentosans are attacked and dissolved, so that the yield of cellulose from spruce wood is 48.3 per cent and from beech wood 46.4 per cent.

The same method may be used for the determination of the resistant cellulose in sulphite pulp and cotton, for which materials the concentration of the hydrochloric acid should always be reduced to 0.05 per cent. The results may be corrected for the quantity of pentosan remaining in the crude cellulose. The values obtained while constant under specific conditions have no direct relation to any absolute standard and stand between those found by the Cross and Bevan method, where a minimum attack on the hemicelluloses is aimed at, and those found by the Koenig method, where the maximum elimination of the hydrolyzable carbohydrates is ensured.

For further details about this matter see Cellulosechemie, volume 4, pages 37-40.

Papermaking Machine

The papermaking machine which is patented in United States Patent No. 1,479,128 was developed by the Albany Paper Mill Machinery Co. This machine comprises a series of drying rolls having spindles and carrying gears adjacent ends of their spindles, a driving shaft extending longitudinally of this series of drying rolls adjacent to the said gears. This driving shaft carries gears meshing with the gears that are carried by the drier spindles. The accompanying illustration shows how the machine is built.

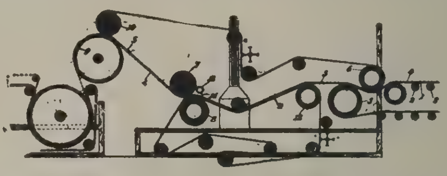


Waterproof Paper Board

Paper pulp is beaten with water at a temperature of approximately 45 degrees C with the addition of a small quantity of lime, and when the disintegration is complete, finely divided montan wax is shaken in and the beating is continued until thorough mixing is obtained. Small quantities of sodium silicate and sodium resinate are added, and after mixing sufficient alum to precipitate the lime and montan wax. From the stock which is prepared in this manner a sheet is formed in the usual way, the drying rolls being heated to a temperature sufficiently high to melt the montain wax and cause the whole to permeate through the paper structure. Preferable composite sheets are manufactured by the use of a multicylinder machine, the additional layers of paper being formed of any suitable fibrous stock. The finished sheet is preferably calendered. In the place of montan wax other hard gums or bitumens may be used. The waterproofing effect of montan wax is so great that the sheets in the composite product containing it can be made as thin as 0.002 inch, thus cheapening the whole greatly. This process is patented in United States Patent No. 1,468,959.

Papermaking Machine

A papermaking machine is patented in United States Patent No. 1,479,265. The machine comprises means of forming a paper web, upper and lower press rolls, upper and lower felt aprons passing between these rolls and adapted to carry the paper web and means located in advance of the press rolls for forcing air under greater than atmospheric pressure through the paper web. The accompanying illustration shows the essential parts of this machine.



Testing Strength of Wood Pulp

Strength tests on chemical wood pulp sheets are misleading as they are reported on import invoices. Properly felted test sheets must be made, and, if comparable results are to be obtained, the pressure that is exerted in making these test samples must be the same in each case.

The most satisfactory method, however, is to develop the papermaking qualities of the fibers by beating under standard conditions as far as it is possible to attain them and then to test the paper that is made from this stock. Experiments on a series of pulps show that the order of strength of the series as shown by the test sheets is not necessarily the same when the strength of the paper made therefrom is taken as the standard. Comparative tests on several pulps before and after bleaching show that the bleached pulp is from 50 to 100 per cent stronger than the unbleached pulp, the increase in strength being most marked in the case of the easy bleaching pulps. When converted into paper the greater strength of the bleached material is still apparent but less marked. From the figures obtained the strength of the paper made from a pulp before or after bleaching appears to decrease as the cellulose content of the original unbleached pulp increases, that is, as the cooking conditions become more severe.

For further details on this interesting subject see Proceedings of the Technical Section of the Papermakers Association. (England.)

Conducting Referendum on Bok Plan

The American Paper and Pulp Association as the only national organization of manufacturers representing an entire industry on the American Peace Award, is conducting a referendum among its members on the Bok peace plan. The ballots mailed from this Association are to represent the opinion of the paper industry, and the cooperation of the American Paper and Pulp Association has been extended merely to secure some expression of sentiment on the part of the industry. In the letter to members Dr. Baker says:

"The plan selected by the Peace Award Jury contemplates action vital to the interests not only of paper manufacturers as citizens of the United States, but to individuals and nations throughout the world. If this plan contains the solution of the present world problem, let us push it aggressively; if not, action must be started elsewhere."

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Development in Papermaking Machinery

Newsprint Machines Have Been Greatly Improved—Production Accelerated by Use of Magazine Grinders—Improvements in the Slice and Use of Ball Bearing Equipment Give High Efficiency

By A. N. RUSSELL, *Engineer*

Paper Machinery Department, Dominion Engineering Works, Ltd., Montreal, Canada

> *While it is true, as brought out by Mr. Russell in the accompanying article that there have been no radical departures in the type of the original fourdrinier machine, production and efficiency have been notably increased by improvements in equipment and in auxiliary machinery. For all who wish to visualize the changes that have resulted in higher speeds and better paper a reading of Mr. Russell's paper is to be commended.*

THE necessity for increased production has been the compelling reason for most of the major improvements in paper machines and their auxiliaries in recent years, and naturally the greatest developments has taken place in machines designed for the production of newsprint papers.

The development of the modern high-speed machine has led to many improved types of auxiliary machines, all of which have played their part in the ultimate development and may be properly classed as improvements.

New Magazine Grinder Important Auxiliary

Among the more important of the auxiliary machines may be mentioned the magazine grinder which produces a more uniform groundwood pulp than was possible with the older type of three or four pocket grinders, and permits of a much closer control over the quality of this most important ingredient of newsprint papers, though the only commercially successful magazine grinder is still very similar in its operation to the pocket type with the exception that the charging of the pockets is mechanical and eliminates the human element to a considerable extent. A new and improved magazine grinder has been designed and is now being placed on the market, in which the grinding operation will be continuous instead of intermittent, as in the existing types, and excellent results in quality and uniformity of pulp have been obtained, with a lower power consumption than is possible with the intermittent type of grinder.

Self-Cleaning Rotary Screen

Another important accessory improvement which has much to do with the "safe" running of the modern machine, is the rotary self-cleaning screen, of which there are several types, the most commonly used being the inward flow, shaking vat screen. In this type of screen the screening plates form part of a slowly revolving drum, partly immersed in the stock, through which the fibers are forced by a shaking or vibrating movement applied to the vat. A continuous cleaning shower keeps the slots in the plates clean, thus attaining two important ends, namely, constant capacity and uniformly screened stock.

Important Improvements on Paper Machine

Coming to the paper machine, the more important improvements are confined to the folowing sections:—flow-boxes, slices, suction boxes, couch and press rolls, bearings, reels and driving mechanism.

Considering the slower running machines making book, writing, etc., it is no doubt true that the formation of the sheet can be controlled to a considerable extent on the wire between the slices and the suction boxes, by varying degrees and speeds of "shake," and that slight inequalities in the fiber distribution as the stock enters the slices may be corrected before the sheet is formed; but as the speed of the machine is increased it becomes increasingly difficult to make any such correction in the few seconds of time taken for the stock to travel from slice to suction boxes. For instance on a machine running at 1000 feet a minute and having an 80 ft. wire, the actual "making" length of wire would be about 24 ft. and the time taken for the wire to travel this distance would be only 1.5 seconds.

No "Shake" on Modern High-Speed Machine

Chiefly for this reason the "shake" has been abandoned on the modern high-speed machine and the greatest care taken in the design of the flow box to assure an even stock mixture flowing on to the wire. The modern flow box is designed so as to gradually still the flow of stock as it comes from the screens, and is provided with baffles of various forms to prevent side currents and surging. This is accomplished by providing a series of vertical partitions, which are spaced so as gradually to reduce the velocity of the stream, and also one or two perforated baffle boards or plates are placed between the final partitions to break up side currents and assist in securing a uniform fiber distribution in the mixture.

Straightening Out Side Currents

A recent and highly successful improvement consists of a rectifier made up of a series of thin plates set closely together and extending the full width of the flow box immediately back of the slice, which, by dividing the main stream into a series of very narrow streams, has the effect of straightening out side currents, and uniformly distributing the flow across the width of the machine.

Another recent improvement consists of a large perforated roll extending the full width of the flow box and practically filling the space between the last two partitions in the box. This roll is built of thin brass plate or tube, with large perforations, and is revolved slowly by means of a belt or other drive from the end of the breast roll, thus forming a self-cleaning baffle which greatly improves the fiber distribution without forming lumps which the ordinary perforated plates or boards are inclined to do, unless they are very carefully constructed.

New Slice Arrangement

Coming now to the slice, development has taken place along two clearly defined lines. The first is intended simply to increase the height of the standard form of plate slice so as to impart a velocity to the stock as it is placed on the wire approximately that of the wire itself, and the second the adoption of a nozzle orifice under the slice through which the stock is projected on to the wire across the gap between the breast board and the breast roll without the use of the usual apron cloth. One objection to the ordinary plate slice operating under high heads, is that it is impossible to provide a fine adjustment of the depth or orifice across the width of the machine, and another is that, owing to the sudden increase in velocity of the stock as it passes under the slice, it is difficult to obtain a smooth flow of stock on to the wire. With the nozzle form of slice the velocity of the stock is gradually increased to the point of discharge, and a series of adjustments provided to regulate the depth of the issuing stream across the full width of the machine, thus insuring a flat even discharge of stock without which it is difficult to form a good sheet at high speeds.

Suction Box Improvement

The only improvement in suction boxes or their operation in recent years, has been the means devised for oscillating or vibrating them for the purpose of preventing grooving and ridging of wire and also reducing to some extent the friction between the wire and the surface of the suction boxes, thereby increasing the life of the wire and permitting the boxes to run longer without resurfacing. This improvement has been applied to practically all modern high-speed machines with excellent results.

Roller Bearings on Couch and Suction Press Rolls

Suction couch and press rolls which were introduced some years ago and are now generally accepted as a distinct improvement over the old couch rolls, for most grades of paper, have been very much improved recently by the application of roller bearings and by other minor changes in their construction. Suction couch rolls in particular are now considered standard equipment on modern high-speed new machines, and practically all of the wide or fast machines being built today are so equipped. The fastest running and most efficient news machine are also equipped with suction first presses, and, with the improved types of bearings now in use both suction couch and press rolls rank among the most successful and efficient improvements in paper machinery.

Design and Type of Bearings

Considered as a piece of mechanism, any paper machine is simply an aggregation of rolls of various sizes and types which revolve in bearings, and the continuous and successful operation of the machine as a whole depends to a very great extent on

(Continued on page 40)

Errors in Sulphite Mill Table

Through regrettable inadvertence, the table of Sulphite Mill Calculations by W. B. VanArsdel, which appeared on page 6 of PAPER for December 27, was published before the author had an opportunity to revise the proof. As a result there are a few misprints which detract somewhat from the value of the table. Corrections should be made as follows:

In the 8th line of "Gas Volumes,"

$R = 0.08204$, not 0.08024.

In the 1st line of "Constants,"

Loge, not Logo; x, not X; $\sqrt{2g}=8.025$ goes on a separate line; the square-root sign should extend over the quantity 2g.

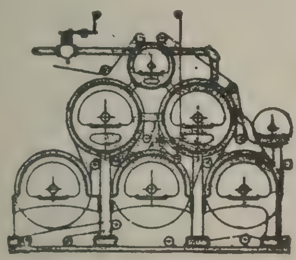
Readers are asked to make the foregoing corrections.

Resigns from American Writing

Edmund E. Keough has resigned as Advertising Manager of the American Writing Paper Company, to become Sales Promotion Manager of the Paper Utilities Co., of New York City, manufacturers of the Tulip Drinking Cups and a wide range of Paper Specialties.

The Pickles Drying Regulator

Reasons why you should have it on your machine are: First, it regulates the drying of paper automatically, irregularities are eliminated; second, higher machine finished papers are attainable, because it is possible to maintain the proper quantity of moisture in sheet, as it passes to calenders; third, mills having tried it on one machine have ordered it for all their machines. Full particulars upon application to



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COLONEL HASKELL DIES IN CALIFORNIA

Was One of Organizers of Great Northern Paper Company

COLONEL EDWARD H. HASKELL, one of the most prominent paper manufacturers of New England, died January 9 at Pasadena, Cal. In the paper trade he was best known as a director of the Great Northern Paper Company. In addition he was president of the Haskell-Dawes Machine Company and president of the Hastings Lumber Company. His Boston offices were at 176 Federal Street and his home was at 888 Beacon Street, Newton Center, Mass.

He was one of the organizers of the Great Northern Paper Company, was chairman of the board of directors for some years and had always been, up to the time of his death, a director. He organized the Rumford Falls Paper Company at Rumford Falls, Me., which afterwards was sold to the International Paper Company. He had gone to Pasadena after having spent several months in the Canadian Northwest looking aver timberlands and on December 30 was joined at Pasadena by his wife. They had planned to spend three or four months in Pasadena before returning to Boston.

Born in Gloucester, Mass., Oct. 5, 1845 and served in the War of the Rebellion in Company C of the Twenty-third Regiment. At the close of the war he engaged in the newspaper business but soon left that business to engage in paper manufacturing and at the time of his death was one of the leaders in that industry.

He was president of the Press Paper Trade Association, vice president of the Boston Associated Boards of Trades, president of the Essex Club of Massachusetts, president of the American Baptist Home Mission Society, vice president of the Home Market Club and a member of scores of social, religious and philanthropic organizations.

He represented Gloucester in the Massachusetts Legislature in 1878, served as adjutant general of that state for three years under Governor John D. Long, served as a member of Governor Benjamin F. Butler's council in 1883 and in the same capacity in Governor Robinson's council in 1885. He was very active in Grand Army circles, and was a member and past commander of Charles Ward Post and had served in various financial offices of the Massachusetts Department and National G. A. R. bodies. He had supervised many campaigns for the raising of funds for the Grand Army.

In Baptist circles he was long a leader. In 1919 he presented a modern gymnasium to the Shanghai Baptist College and Theological School and had many times visited China in the interest of the Baptist organizations, in 1901 going as the New England representative to the 11-day missionary conference at Shanghai. He was also largely interested in the American Girls' College at Constantinople and had been a frequent visitor there. During his recent visits there he had charge of several buildings which were under construction.

He had given generously to many charities. He gave over $150,000 to the New England Baptist hospital in Boston and at the time of his death was constructing, to present to the hospital, a nurses' home on Parker Hill. He also participated in many national republican campaigns and in 1880-1884 was secretary of the Republican National convention.

He is survived by a widow, Mrs. Harriett J. Haskell; two daughters, Marion R. and Edith I. Haskell of Newton Center, Mass., and a son, Edward A. Haskell of Braintree, Mass.; also by a brother, Charles A. Haskell of Newton, Mass.

Funeral services were held January 11 at Pasadena with Rev. O. P. Gifford of that city, formerly of Boston, Mass., officiating. The body will be brought to Boston in the spring for burial.

Development in Papermaking Machinery

(Continued from page 38)

the design and type of bearings employed. Until the era of high speed operation almost any kind of bearing was considered good enough for a paper machine, but the modern machine calls for the very best types of bearings that can be designed for their particular location and purpose. For the wet end, **self-aligning, grease lubricated,** waterproof bearings, or very carefully housed ball or roller bearings have been designed by most modern machine builders, and for the dry end, collar, or ring oiling bearings carefully designed to retain oil and exclude dust, have been generally adopted with a great resulting economy in lubricant and power.

Ball Bearings Non Essential

Several machines have been ball-bearing equipped throughout, and have given remarkable results in saving of power, and a large number of machines have all the small rolls such as press and dry felt rolls so equipped, but as ball bearings require very careful attention, if the best results are to be obtained—particularlv on the fourdrinier sections of machines, where water conditions make their use hazardous —they have not been generally adopted by the modern machine builder.

The importance of the bearings on a paper machine has grown tremendously in recent years, due not only to the increased speed at which machines operate, but also to the greatly added weight of the various rolls on account of the widths of the modern machines, and it may safely be said that the most successful machines today are those with the most carefully designed and constructed bearings.

Pope's Carrier

The mechanical leading and transportation of the paper over a paper machine has been largely responsible for successful operation at high speeds, and much credit is due the late Mr. Elmer Pope for the introduction of the compressed air devices now so universally used in leading paper through the presses and other sections of the paper machine.

The Sheahan rope carrier as a means for transporting the paper through the dryer section also ranks as an improvement of far reaching importance, and is now practically standard equipment on fast machines.

Improvements in Paper Winding

Improvements in reels made in recent years have been practically confined to the "Uniform Speed" type of which the most notable is the "Pope" patented reel. In this reel paper is wound on pipe rolls by direct contact with a large revolving drum, and the special feature of the machine which gives it a great advantage over other uniform speed reels is that all reels are started on the side next to the calender and then the roll on which the paper is being wound is transferred forward to a second pair of supports where the reel is finished. In this way a new reel is always started back of the finished reel and the change can be made by means of an air jet with a minimum of waste in time and paper.

Sectional Drives

The necessity for careful speed regulation of the paper machine as a whole, and of the various sections in their relation to each other becomes increasingly important as the speed of the machine increases and the introduction of the sectional electric drive has done much to solve this problem in connection with high-speed newsprint production. There are now several types of sectional drive on the market, and in successful operation, which consist of either a motor generator or a turbo-generator set, a D. C. motor for direct driving on each unit, or section, of the paper machine and some form of mechanical or electrical interlock or control by which a very close speed regulation can be maintained between the various sections. Several of these sectional drives have been in use for nearly three years on high-speed news machines, and have no doubt been largely responsible for the high efficiency and safe running of these machines.

The modern high-speed paper machine is a most complicated and expensive piece of machinery, and it will no doubt be simplified and improved as time goes on, but up to the present, there have been few radical departures from the original fourdrinier, except in point of size and weight. So much has been done in the way of improvement in recent years however, that it is unsafe to predict what the future may hold in the matter of simplification of the paper machine.

HEARST PAYS $750,000 TO END SUIT

Campbell Brothers Retain Control of the Dexter Establishment

THE litigation between Campbell Brothers, owners of the Dexter Sulphite Pulp and Paper Company mill, and William Randolph Hearst, involving the sale of a paper mill for $3,500,000 in Dexter, N. Y., has been settled through a substantial money settlement by Hearst. Campbell Brothers retain the mill.

The publisher sought to have set aside a contract whereby he agreed to purchase the paper mill for $3,500,000. Appearing in court Mr. Hearst alleged that he was induced to agree to pay a sum far in excess of the value of the mill and without knowledge that a $500,000 commission was to be split among Charles F. Zittel, his agent and also publisher of a theatrical magazine, and others.

It was said that Mr. Hearst had paid the Campbell Brothers in the neighborhood of $750,000. This was said to represent only a bill he owed for paper stock and for six months' use of the mill, an obligation he was said to have acknowledged from the start. The Campbell interests in turn rescinded the contract by which the publisher was to have purchased the mill property.

Assistant Paper Maker Wanted

Receipt of applications will close February 12. The examination is to fill vacancies in the Bureau of Standards, Department of Commerce, at entrance salaries ranging from $1,200 to $1,400 a year, plus the increase of $20 a month granted by Congress, and vacancies in positions requiring similar qualifications.

The duties are to assist in the operation and maintenance of the experimental paper mill of the Bureau of Standards.

Competitors will not be required to report for examination at any place, but will be rated on their physical ability, and education, training, experience, and fitness.

Granted Charter in Delaware

The Fibo Pak Company, manufacturers of fiber board boxes, has been incorporated in Delaware with $10,000 capital. It is located at Wilmington, Delaware.

The employee who isn't intelligent in his own interest won't be intelligent in his employer's interest.—*Tree to Trade.*

The son of the man who shined his shoes with water and stove polish blacking is now ashamed to tip a Greek bootblack less than a dime.—*Tree to Trade.*

Manufacture of Pulp and Paper

Volume IV Now Ready

Prepared by the Joint Committee on
Vocational Education of the Pulp and Paper Industry

Although it was promised as a Christmas present we have this much desired book for a New Year's gift. The fact that the date of publication on the title page is 1924 goes to show that the editor was promising more than he could perform. However, we have the book and will make a good start for the new year by reading it. Perhaps its advent will stimulate many of those who have the third volume in their bookcases to read it as well.

It is a book of 527 pages divided into six sections as follows:

Section 1. Preparation of Rags and Other Fibers, 62 pages, 19 illustrations, by E. C. Tucker.
Section 2. Treatment of Waste Papers, 72 pages, 21 illustrations, by E. T. A. Coughlin.
Section 3. Beating and Refining, 80 pages, 32 illustrations, by A. B. Green, with a Bibliography of 6 pages by C. J. West.
Section 4. Loading and Engine Sizing, 49 pages, 14 illustrations. Loading by Ross Campbell and Engine Sizing by J. A. DeCew.
Section 5. Coloring, 54 pages, 4 illustrations, by the Dyestuffs Committee of TAPPI in collaboration with Otto Kress.
Section 6. Papermaking machines, 210 pages, 83 illustrations, by J. W. Brassington.

In addition to the authors the editor and the committee in charge of the preparation of the work credit a long list of companies and individuals for helpful service and advice.

All that was said of the third volume covering the Preparation and Treatment of Wood Pulp may be repeated. Its successful accomplishment is unique as it represents the co-operative effort of the paper industry of a whole continent. Never have such care and expense been devoted to the preparation of an industrial work of instruction and reference.

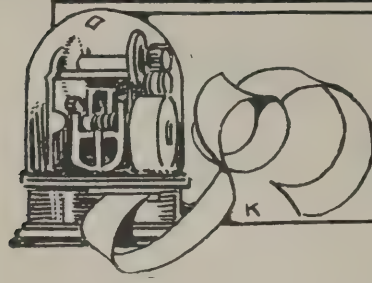
Each section after being written, was examined and criticized while in manuscript by several competent authorities. The book is in fact the work of more than one hundred men prominent in the industry.

When the final volume of the set, now well advanced, is completed it would be difficult to exaggerate the importance of the achievement to extend too much praise to the editor-in-chief, J. N. Stephenson.

The four volumes issued are on sale at $5 a volume and orders may be placed through

Hughes Publishing Co., Inc.

Suite 418,
1478 Broadway **New York**



LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS	
FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.75 @ .85
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	50.00 @ 55.00
Chip	45.00 @ 50.00

Paper and Board

New York, January 15—Moderate activity in the paper market in New York was reported last week. While business was principally of retail scope, there was improvement recorded in the demand for most kinds of paper, and the market exhibited more life than at any time since prior to the holidays, consumers coming into evidence as buyers in large number and showing greater interest in covering what appeared to be expanding requirements.

Reports continued to tell of a somewhat soft tone in prices of most kinds of paper. It was apparent that manufacturers were in want of business, that they lacked enough orders to warrant anything like full productive operations and that they were satisfied to grant some concession in prices when to do so resulted in buyers placing orders. At the same time there was no important fluctuation in quoted prices. Mills maintained their quotations, and nominal market levels therefore were unaltered, though it was no secret purchases were made at below the rates named by producers.

The national automobile show in New York occasioned a sharp increase in newsprint consumption in this city. Having a large volume of automobile advertising, all of the newspapers in the metropolis added pages to every issue they printed during the week, and probably a larger tonnage of print paper was used locally than in any week in a long time. This served to instill more strength into the newsprint situation, and prices ruled firmer than ever but of course there was no change in contract rates.

No less an authority than Philip T. Dodge, president of the International Paper Company, forecasts a prosperous and active year for the newsprint industry during 1924. In a statement Mr. Dodge said: "If I read the signs of the business sky aright the demand for newsprint will be strong throughout the greater part of the year. This should spell prosperity for the papermaking industry. It should also mean steady and profitable employment for all those who derive their living from this great industry.

"But risk is of the essence of business. It doesn't pay to be too sure. The unexpected so often happens. It is best to make allowance for the fact that the future may not be as bright as it looks and to so organize your affairs that even the shock of adverse conditions cannot disturb you greatly."

Demand for book paper continues rather limited, that is demand from transient sources. The contract movement of paper of this class is good, very nearly if not entirely normal, in fact, but mills require a broader demand from transient quarters to justify larger operations. Keen competition exists in the book paper trade. Manufacturers are shading prices to secure orders, and consumers, having found they can buy at reduced prices, are invariably looking to cover their wants at figures a little below recognized market levels. Machine finished paper is quoted at about 6.50 cents a pound f. o. b. New York, but sales at less are reported, down to 6 cents being mentioned in the trade.

Wrapping papers are also in anything but a firm price position. Some shading of prices of this kind of paper is being resorted to in an attempt to stimulate demand, and buyers are securing some supply of No. 1 domestic kraft wrapping down to 6 cents a pound f. o. b. New York. Other coarse papers, bag paper in particular, are fairly steady in price and marked by a moderate demand.

Box board demand is slow. Mills in the East are running on curtailed schedules and even so are experiencing trouble in finding an outlet for all of their production. Paper box manufacturers are not in a buying mood; the only time they purchase is when pressed by want of supplies, and then they limit orders to hand-to-mouth lots. Prices are slightly easier, plain chip board selling in at least some cases down to $45 per ton f. o. b New York and news board at $50. Single manila lined chip board is quoted at around $67.50 a ton New York.

Quotations are as follows:

Bond	.09 @ .40
Ledger	.10 @ .35
Writing—	
Ex-superfine	.15 @ .35
Superfine	.13 @ .30
Tub size	.10 @ .20
Engine size	.09 @ .14
News—f. o. b. Mills—	
Rolls, contract	3.50 @ 3.75
Rolls, tranient	4.00 @ 4.25
Sheets, contract	4.00 @ 4.25
Sheets, transient	4.25 @ 4.50
Side runs	3.25 @ 3.50
Kraft—f. o. b. N. Y.—	
No. 1 Domestic	6.00 @ 6.50
No. 2 Domestic	5.00 @ 5.25
Manila—	
No. 1 Jute	8.00 @ 8.50
No. 2 Jute	7.00 @ 7.50
No. 1 Wood	4.50 @ 5.00
No. 2 Wood	4.25 @ 4.50

Book—f. o. b. N. Y.—	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Lithograph	8.25 @ 14.00
Coated & Enameled	8.00 @ 12.00
Tissue—f. o. b. N. Y.—	
White No. 1	.90 @ 1.00
Manila No. 1	.80 @ .90
White No. 2	.80 @ .90
Colored	.90 @ 2.00
Kraft	1.00 @ 1.25
Fiber Papers—	
No. 1 Fiber	6.00 @ 6.50
No. 2 Fiber	5.00 @ 5.50
Card Middles	4.00 @ 4.50
Common Bogus	2.00 @ 2.50
Boards, per ton, f. o. b. N. Y.—	
News	50.00 @ 55.00
Straw, in sheets	55.00 @ 60.00
Binder Boards	@ 80.00 @ 85.00
Chip	45.00 @ 50.00
Manila Lined Chip	65.00 @ 70.00
Woodpulp	75.00 @ 80.00

SCANDINAVIAN PULP AGENCY, INC.

342 Madison Avenue
New York. N. Y.

WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS
for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement & Manufacturing Co.
ATHENS, Wis.

Mechanical Pulp

In some quarters lower prices are reported ruling on ground wood. Foreign pulp on the spot at New York and other American Atlantic ports is said to have sold at as low as $31 a ton ex dock though this price is regarded generally as a little under the market level, around $33 being viewed as a more representative value of imported ground wood. Domestic mechanical pulp is holding at about $40 a ton, or slightly less depending on the freight to consuming points, f. o. b. grinding mills. There is a fairly good demand for ground wood. Newsprint manufacturers are not only using most of the pulp they produce themselves but are frequently coming into the market to acquire additional supplies. It is felt moreover that as the weather becomes colder and grinders are handicapped in their operations prices will stiffen, if not show a considerable advance.

Foreign and Domestic Chemical Pulp

Sales of chemical pulp have been reported indicating that prices are hardening and that market levels are gradually, though surely, moving upward. Demand continues of limited scope. Papermakers are buying chiefly to cover direct and actually known requirements, and most of the transactions involve comparatively small amounts of pulp, yet there is decided improvement in the market undertone and everything would seem to point to prices having started on the upgrade after having moved in the other direction for a prolonged period.

Foreign unbleached sulphite has sold as 2.65 and up to 2.75 cents per pound ex dock New York though some supply is reported still available at lower prices than these. Importers quote No. 1. foreign kraft pulp at around 2.65 cents ex dock New York, with very little or no supply any longer to be had at the bottom level of 2.50 cents reached by the market thus far. Domestic pulps tend to strengthen in value and the entire complexion of the market is improved. Quotations ex dock New York and f o b. pulp mills are:

Sulphite foreign—			
Bleached No. 1..	4.00	@	4.50
Unbleached No. 1.	2.65	@	2.80
Unbleached No. 2	2.50	@	2.75
Easy Bleaching	3.00	@	3.25
Sulphite, domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No. 1	2.70	@	2.90
Unbleached news grade	2.50	@	2.70
Easy Bleaching	3.00	@	3.25
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.75	@	4.00
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.75	@	3.00
Sulphite, screenings, refined	1.75	@	2.00

Domestic Rags

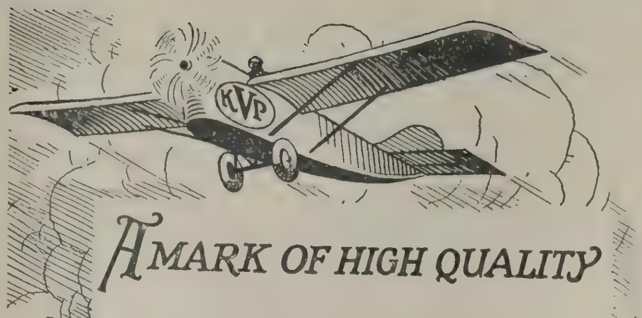
Papermaking rags are in a firm market position and prices are on the rise. Demand is unusually good for this period of the year, and dealers put much stress on the small amounts of rags coming in form collecting sources, and use this as an argument for higher prices. Low grades as consumed by roofing paper mills are especially strong, with sales of No. 1 roofing stock reported at 2 cents a pound or very close to that figure f. o. b. New York, and of No. 2 grade at 1.70 cents New York. New cuttings are tending upward , particularly certain grades which are in small supply. Blue overall cuttings are bringing 9 cents a pound f. o. b. New York, No. 1 white shirt cuttings 13.50 cents, unbleached muslins 11.75 cents, and washables 5.50 cents. Old thirds and blues are firm and in steady demand at 3 to 3.25 cents a pound at shipping points for repacked and around 2.50 cents for miscellaneous packing. F. o. b. New York quotations follow:

New Shirt Cuttings,			
No. 1	13.50	@	14.00
No. 2	6.00	@	6.25
Fancy Shirt Cuttings	6.25	@	6.50
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.50
White Lawns	11.00	@	11.25
New Muslins, unbleached	11.50	@	11.75
Light Silesias	8.25	@	8.50
Black Silesias	5.50	@	5.75
Overall Cuttings, Blue	8.75	@	9.00
Washables	5.25	@	5.50
New Black Mixed .	5.00	@	5.25
Soiled Whites, house	2.90	@	3.15
Soiled Whites, street	2.75	@	2.90
Thirds & Blues, repacked	2.85	@	3.00
Thirds & Blues, misc.	2.40	@	2.60
Black Cotton Stockings	3.75	@	4.00
Roofing Rags, No. 1	1.90	@	2.00
Roofing Rags, No. 2	1.70	@	1.80

Imported Rags

Practically all grades of foreign rags are in good demand and strong in price. Dark colored cottons are fetching 1.75 cents per pound ex dock New York, and are selling in good-sized quantities to numerous roofing paper mills. Old blue cottons are firm at 3.25 cents ex dock New York for German rags and higher for blues from other European countries. New light prints are quoted at 7 to 7.50 cents a pound on the dock. Quotations on ex dock New York basis are:

Lins., White, No. 1	13.00	@	14.00
Ger. Blue Cottons..	3.00	@	4.25
French Light Blues	3.25	@	3.50
New Light Prints..	7.00	@	7.50
New Unbleached ..	10.00	@	10.50
German Linen, blue	4.75	@	5.00
German Linen, grey	6.50	@	7.00
German S. P. F.'s.	6.00	@	9.00
German Light Prints	4.00	@	4.25
Dk. Colored Cottons	1.70	@	1.85



A MARK OF HIGH QUALITY

Useful as well as ornamental—the KVP trade mark signifies consumer satisfaction in K-V-P products:

Genuine Vegetable Parchment
White Waxed papers
Bond and Ledgers
Household Specialties.

Kalamazoo Vegetable Parchment Co.
Kalamazoo, Mich.

Daily Capacity of 600 Air-Dry Tons

The extent of our production of High Grade BLEACHED Sulphite Fibre insures uniform quality, prompt shipments and market prices

BROWN COMPANY
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BACO Aniline Colors for PAPER

BACO—Paper Yellow GN Conc
BACO—Paper Red
BACO—Paper Violet
BACO—Paper Blue
BACO—Paper Brown

VATAMINE BLUE RS TRIPLE POWDER

Auramine OO Conc
Rhodamine B Ex
Victoria Blue B
Safranine Y Ex
Soluble Blue B

Send for trial tins or Kegs of these splendid paper products

Imported and Domestic Dyes for Paper

BACHMEIER & COMPANY, INC.
438 West 37th St., New York.

WANTED

We are in the market for Kidder or Meisel Three Color Rotary Wrapping Paper Presses with automatic re-wind, sizes 36" x 48" and 40" x 48".

SANIWAX PAPER CO.,
Kalamazoo Mich.

DRYER FELTS
STANDARD and MULTIPLE PLY

ENGLISH WEAVE

In Two, Three, Four, Five and Six Ply, 60 inches to 176 inches in width.

BY ACTUAL TEST this felt will dry 33 per cent more paper, with ABSOLUTELY NO FELT MARKS IN THE PAPER.

TRIUNE
THREE PLY FELT for other paper.

FITCHBURG DUCK MILLS
FITCHBURG · MASSACHUSETTS

Bagging, Rope, Etc.

Prices of old rope and bagging are more or less stationary with very little change noted. No. 1. domestic manila rope is selling to paper mills at around 6.50 cents a pound f. o. b. New York, while foreign manila rope is fetching 6.25 cents or slightly less. No. 1. scrap bagging is quoted at 1.25 to 1.50 cents a pound New York, and roofing bagging at 95 cents to $1 a hundred pounds. Prices f. o. b. this city follow:

Gunny No. 1	1.30	@	1.40	Wool Tares, heavy .	1.40	@	1.60
Foreign	1.20	@	1.30	For. Manila Rope .	6.00	@	6.25
Wool Tares, light ..	1.20	@	1.40	Domestic Rope	6.50	@	6.75
Scrap Bagg., No. 1.	1.25	@	1.55	Mixed Strings	1.00	@	1.25
Roofing Bagging ..	.95	@	1.00				

Old Paper

After ruling quiet and easy over the holiday period, the old paper market has started to show more life and there has been a stiffening process in prices of some grades, notably the low qualities used by board mills. Folded news is selling at 85 to 90 cents a hundred pounds f. o. b. New York, and some dealers are hesitant to do business at less than the higher figure, while No. 1. mixed papers are slightly higher in price at 65 to 70 cents a hundred New York. Old kraft is firm at 2.15 to 2.25 cents per pound f. o. b. New York, and while blank news is selling at 2.25 to 2.35 cents. Old magazines are relatively quiet but are holding in price at 1.50 to 1.75 cents, depending on the quality of packing, f. o. b. New York. Shavings are also quiet but no change has developed in quoted prices. Quotations on a f. o. b. New York basis are:

No. 1 Hard White Shavings	3.80	@	4.00	Kraft No. 1	2.15	@	2.25
No. 2 Hard White Shavings	3.25	@	3.50	New Manila Cuttings	2.00	@	2.25
No. 1 Soft White Shavings	3.00	@	3.25	New Manila Env. Cuttings	2.75	@	3.00
Box Boards Chips .	.70	@	.80	Bogus and Mill Wrappers	.85	@	.95
No. 1 Colored Shavings	2.00	@	2.25	News, strictly overissue	1.10	@	1.15
Magazine flat stock.	1.50	@	1.75	Folded News	.85	@	.95
No. 1 Crumpled ...	1.25	@	1.35	No. 1 Mixed Papers	.65	@	.70
Solid Ledger Books	2.15	@	2.25	White Blank News.	2.25	@	2.35
Ledger Stocks	1.00	@	2.10	Common Paper	.40	@	.45

Twines

There is a firm tone to twine prices, due more to the strength in raw material than to any unusual demand from consuming quarters. Fibers of all descriptions are gradually rising in cost, and manufacturers, while endeavoring to keep quotations on their product stabilized, say prices must advance if raw stock continues to soar. Quotations are approximately as follows:

Sisal Hay, pure ...	12.25	@	13.25	Jute Wrapping twine, A grade	19.00	@	
Manila Hay, pure..	16.25	@	17.25	Papermakers Twine.	10.50	@	
Sisal Lath Yarn ..	11.25	@	12.25	B. C. Hemp, 18 ...	.39	@	.40
Manila Rope, pure, ¾ inch diameter.	14.25	@	15.25	B. C. Hemp, 24 ...	.38	@	.39
Hardware Rope	11.25	@	12.25	B. C. Hemp, 36 ...	.37	@	.38
Jute rope, ¼ diam. and over, coils ..	12.00	@	14.00	America Light India— No. 6	14.50	@	
Sail twine, A grade.	19.00	@		No. 7	13.50	@	

Chemicals

The contract movement of papermaking chemicals keeps up in good volume but fresh demand is slow to develop. Quoted prices are maintained at last reported ranges without any changes of consequence.

Charles M. Dennison Dead

Charles Melville Dennison, Jr., head of Dennison and Sons, Inc., manufatcuring stationers of New York and the organizer of the Rocky Mountain Bank Note Company, doing business at Denver, Elpaso, Pueblo and Salt Lake, died at his Denver residence December 31 after a long illness.

Mr. Dennison, who was born in Brooklyn, N. Y., July 3, 1873, started his business career with Dennison & Brown, manufacturing stationers of New York, the firm started by his father in 1869, and now known as Dennison and Sons, Inc. He was a member of many clubs in Denver and Colorado Springs, and is survived by his widow who was Miss Helen I. Stuart of Bangor, Maine, the couple marrying thirty years ago, have four children. His mother, two brothers and sister also survive.

William H. Lowe, general manager of a number of divisions of the Paraffine Companies, Inc., San Francisco, Cal., has returned from a three months' trip abroad, the majority of time being spent in England and France.

IMPORTS AT NEW YORK

Week of January 7-12

Paper

Str. Canada, Lisbon—Zorro Tobacco Company, 12 cs. cigarette.

Str. President Wilson, Trieste—Publicity Paper Corporation, 32 bls. printing; J. P. Heffernan Paper Company, 69 bls. wrapping; New York Trust Company, 108 bls. and 269 rolls wrapping; Order, 12 cs. cigarette and 637 rolls and 15 bls. wrapping.

Str. Hague Maru, Kobe—H. C. Davidson & Co., 8 cs.; Order, 3 cs.

Str. Tarantia, Glasgow—P. D. Winter, 42 bls.; Blauvelt-Wiley Paper Mfg. Company, 63 bls. wrapping; R. Wilson Paper Corporation, 10 cs.

Str. Alberta, Trieste—C. W. Williams & Co., 145 bls.

Str. Drottningholm, Gothenburg—Japan Paper Company, 3 cs.; D. S. Walton & Co., 818 rolls wrapping; National City Bank, 8 bls. wrapping; M. Gottesman & Co., 132 rolls newsprint; Newsprint Paper Corporation, 142 rolls newsprint; Wilkinson Bros. & Co., 22 bls. wrapping; Central Union Trust Company, 62 rolls newsprint; O. M. Baxter, 73 cs. wall board; J. P. Heffernan Paper Company, 360 bls. wrapping; Bernard, Judae & Co., 5 bls.; Federal Commission Company, 1 cse. hanging; Arkwell Safety Bag Company, 194 rolls wrapping; Order, 83 rolls newsprint.

Str. George Washington, Bremen—A. Frankan & Co., 5 cs.; Perkins-Goodwin Company, 23 rolls printing; Miller, Likeritz & Co., 4 cs.

Str. Laconia, Liverpool—F. J. Emmerich & Co., 4 bls. hanging; F. C. Strype, 16 cs. tissue.

Str. Lapland, Antwerp—C. W. Williams & Co., 15 cs.; A. C. Dodman, Jr. & Co., 6 bls. hanging; P. C. Zuhlke, 83 cs. printing; Irving Bank-Columbia Trust Company, 12 cs. parchment; Bernard, Judae & Co., 1 cse. wrapping; from Rotterdam—Japan Paper Company, 7 cs.; Republic Bag & Paper Company, 2,071 rolls wrapping; Publicity Paper Corporation, 807 bls. and 2,173 rolls wrapping; Steiner Paper Corporation, 24 bls. wrapping; Wilkinson Bros. & Co., 14 bls. wrapping; Irving Bank-Columbia Trust Company, 30 bls. and 8 rolls wrapping; National Paper and Type Company, 19 cs.; American Exchange National Bank, 591 rolls hanging; International Mercantile Marine Company, 7 cs.; Safran & Co., 24 bls. wrapping.

Str. Pipestone County, Havre—Standard Products Corporation, 102 cs. cigarette; F. P. Gaskell & Co., 30 cs. cigarette.

Str. Majestic, Southampton—F. J. Emmerich & Co., 13 bls. hanging; A. C. Dodmon, Jr. & Co., 10 bls. hanging.

Str. Mississippi, London—H. Reeve Angel & Co., 3 cs. drawing and 3 cs. filter; W. H. S. Lloyd & Co., 59 bls. hanging; F. J. Emmerich & Co., 6 bls. hanging; Order, 2 cs. drawing.

Str. Meuchen, Bremen—A. Frankan & Co., 4 cs.; Globe Shipping Company, 154 cs. photo.

Str. Suffren, Havre—Standard Products Corporation, 26 cs. cigarette; Judson Freight Forwarding Company, 1 cse.; Globe Shipping Company, 1 cse.; American Express Company, 4 cs.; Dupont Cellophane Company, 18 cs.; Gluckman & Starich, 4 cs.; Whiting-Patterson Company, 8 cs. hanging; Japan Paper Company, 2 cs.; Order, 4 cs.

Wood Pulp

Str. President Wilson, Trieste—E. Neumberg & Co., 2,218 bls.

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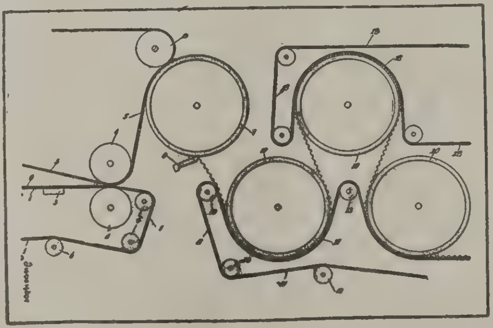

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CARTHAGE SULPHITE HAS LOST NEARLY $300,000

Claims Against Company Total $1,000,000 According to Statement

IN the last two years the Carthage Sulphite Pulp & Paper Company of Carthage, N. Y., has lost nearly $300,000, it was learned from a reliable source following the creditors' meeting at Carthage last week, when it was decided to ask Judge Frank Cooper in Federal Court at Albany to name a receiver in equity for the company.

The names of Attorney Charles E. Norris of Carthage and J. Victor Baron, president of the Sulphite company for the past year, will be suggested to Judge Cooper. Prospects now are, in the opinion of paper mill men, that the receiver will be Mr. Norris.

The actual request for a receiver will be made in court by attorneys for R. F. Hammond, Inc., New York importers of pulpwood, and by counsel for other creditors.

Since the receivership is to be in equity there is a slight legal distinction between the present state of the Sulphite Company and actual bankruptcy. Creditors, however, will be paid pro rata on their claims, as in a bankruptcy case. Just how much on the dollar the company can pay is not known, but an unofficial estimate placed the amount at 30 cents.

Local creditors of the company include prominently the Northern New York Utilities, Inc., and Mark S. Wilder, president of the Diana Paper Company.

It has been known among paper mill owners for some time past that the Carthage Sulphite was in financial straits.

Retained by Railroad

Julius H. Patrick, for four years past employed as office manager of the Hinde and Dauch Paper Company has just been retained as auditor for the Norwood and St. Lawrence Railroad Company. The work is handled at the offices of the St. Regis Paper Company in the Trust Company building.

Mr. Patrick has devoted practically his entire life to office work in paper manufacturing companies. He was formerly 12 years with the Dexter Sulphite Pulp and Paper Company, then six years with the Malone Paper Company, six years with the Island Paper Company at Carthage, before coming to the position with Hinde and Dauch Paper Company. He is regarded as an expert at his profession.

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LORD BEAVERBROOK MAY BUY PAPER MILL

Ostensible Came to Canada to Purchase String of Newspapers

WHEN Lord Beaverbroog stated to Canadian correspondents that he was not here to purchase a string of Canadian papers, he did not deny that the purpose of his mission was to purchase, if possible, a series of Ontario pulp and paper mills. It is current report in Toronto that Beaverbrook has been negotiating with the Spanish River Pulp and Paper Mills, Limited, for their purchase of their plant and limits, and learning this other pulp and paper concerns are reported to have entered into negotiations with Beaverbrook to protect their interests against a possible merger. Last week E. W. Backus, the millionaire pulp and paper operator of Minneapolis and Fort Frances, Ont., was in Toronto, and it is stated that he carried on telegraphic conversations with Lord Beaverbrook in New York. Beaverbrook's major pulp holdings are in Quebec. The head office in Toronto of the Spanish River Pulp and Paper Mills denies all knowledge of the negotiations.

ST. REGIS BUILDING IS DEFINITE

Floyd L. Carlisle Makes Definite Announcement in Matter

THE St. Regis Paper Company, within the next twelve months, or as soon as plans now being worked out can be mrought to completion, will build a newsprint paper mill in Canada.

This announcement was made definitely by Floyd L. Carlisle, president of the St. Regis and head of the affiliated power, paper and financial interests commonly called the Carlisle group. His statement followed unofficial publication, under a Quebec date line, of a despatch saying that the St. Regis proposed to put up a $4,000,000 mill near that city.

"The new mill," said Mr. Carlisle, "will in all probability be built on the St. Lawrence in the parish of St. Augustin, about eight miles from Quebec. Its initial capacity will be 100 tons, but as time goes on and the necessity for greater production increases, the capacity will be enlarged until eventually we may be operating a plant turning out 1,000 tons of newsprint every 24 hours.

Pulpwood for the mill will be transported by water from the timber tract on the Godbout River now owned by the St. Regis, which has a 200,000 acre tract in that section. This tract lies a 24-hour trip by water away from Quebec. The St. Regis holdings in Canada, which include some 50,000 acres aside from its Godbout land, are feehold.

Power to operate the Canadian mill of the St. Regis will have to be purchased, since none is available from the St. Lawrence. Mr. Carlisle said negotiations for this power are now in progress, but would not indicate from what source the power would actually come.

The -4,000,000 set in the despatch at the cost of the mill, he said, was not exact.

Control of the mill will be in the hands of the St. Regis Paper Company of Canada, which has the same officers as the American concern, but which heretofore has been only a lumbering firm, cutting and shipping to St. Regis mills here pulpwood from the company's Canadian tracts.

Establishment of a mill by the St. Regis in Canada, Mr. Carlisle made plain, will in no way affect the plants now operated in the United States.

"We shall continue to make paper at our mills on this side of the border as long as is practicable," he declared. "By that I mean that so long as we can get pulpwood here and sell newsprint at a reasonable profit the American mills will be run as they are at present."

News that the St. Regis had finally concluded to enter the Canadian field in the manufacture of newsprint did not come as an altogether complete surprise to paper circles here. For years it has been an open secret that eventually the St. Regis would build a news mill across the border. In Canada lies the great areas of timber which may be converted readily into pulp, and the cost of transporting this pulp to the United States has mounted steadily. Also, the rate of pulp has gone up in the same ratio.

The St. Regis now owns and operates mills at Deferiet, Herrings and Black River. At Norwood, Norfolk and Raymondville are the mills of the Hanna Paper Corporation, which for all practical purposes is identical with the St. Regis. The powers at these mills are owned by the Power Corporation of New York, one of the Carlisle companies. The purpose of forming the power company was to convert mechanical power at mills into hydro-electric powers, selling surplus current to the Northern New York Utilities, Inc. Such conversion is now going on at Herrings.

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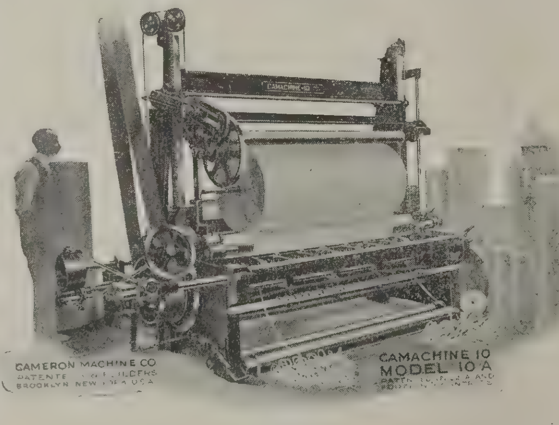

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PAPER
1478 Broadway
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Volume XXXIII, No. 14

PAPER

January 24, 1924

The Magazine for the Paper Industry

THOMAS J. KEENAN, F.C.S., Technical Editor RUSSELL C. HUGHES, Publisher ISMAR GINSBERG, B.S., Contributing Editor

What PAPER Must Be To Succeed

WHAT should a trade paper be? What should it consist of, what should it seek, what should its ideals be?

It causes a publisher to ponder seriously. What should PAPER be?

We would like your ideas. Ours is that it should be a literal reflection of the industry it represents. Besides it must have the personal tone and intimate touch.

Any successful trade paper must be broad-minded and free from subservience to any particular interest within the industry. It must view the industry as a whole and hence it cannot seek the level of personal interests and biased opinions.

A successful trade paper must be non-political as to parties but the strongest partisan it possibly can be as to its industry. It must be free to exert its influence in favor of those things which work for the industry's advancement and against those which would injure it. It should be impersonal and unfettered and should be free from all entanglements with personal interests, petty bickering and internal strife. Its axiom must be "All for the industry and the industry for all."

Moreover, a successful trade paper must be more than a chronicle of passing events, although these should be a large part of it. It should write "service" in every page it prints and in its heart. It must be both an encyclopedia and an inspiration to its readers. It must be both a leader and a servant.

A successful trade paper must be fair in its criticisms, constructive and not destructive, free from malice and personal abuse. But it must be fearless, unafraid to speak that in which it has faith, but always willing to meet any opponent in a fair field of open discussion. It must admit its errors and always keep in mind that there are two sides to every opinion and to every problem.

A successful trade paper must consider its advertisers, but it must not be swayed from the paths of its duties to the industry by those advertisers, large or small, who seek to capitalize its columns. For it must remember that the biggest rock it can stand on is character. It cannot trifle with its prestige.

And a successful trade paper must be original. Too much rehashed food is palling. It must seek progress for itself through progress for the industry. It should seek contributors of all kinds in its trade. It must have something to interest every worker in that trade. It must attract attention.

Above all, accuracy must be the prime requisite. Every line in it must be authoritative. The words "I saw it in PAPER," must mean that that one thing is an established fact.

Moreover, a successful trade publication will be practical. It cannot enter too much into pure experiments. It cannot soar too high into the ethereal. It must be of the earth, earthy. The reader must know not simply what the other fellow did, but why and how he did it.

A trade paper must inform. Its readers take other periodicals for most of their entertainment. They take their trade paper to learn. Its presentation must be attractive but it should not aim for beauty at the expense of information. Its columns should be concise, condensed, tabloid. They should serve much in little.

A successful trade paper must be for both sides, regarding employer and employee. It should be more interested in collective usefulness and against collective bargaining. It should treat both fairly and honestly. It must always maintain its equilibrium.

A successful trade paper must look ahead. It must peer into tomorrow, so that its readers may glean an idea of what is coming. Yesterday's events are of no value unless they can be applied to tomorrow's needs. A trade paper must keep abreast with science or it may as well die.

These are what we think PAPER should be.

What do you think?

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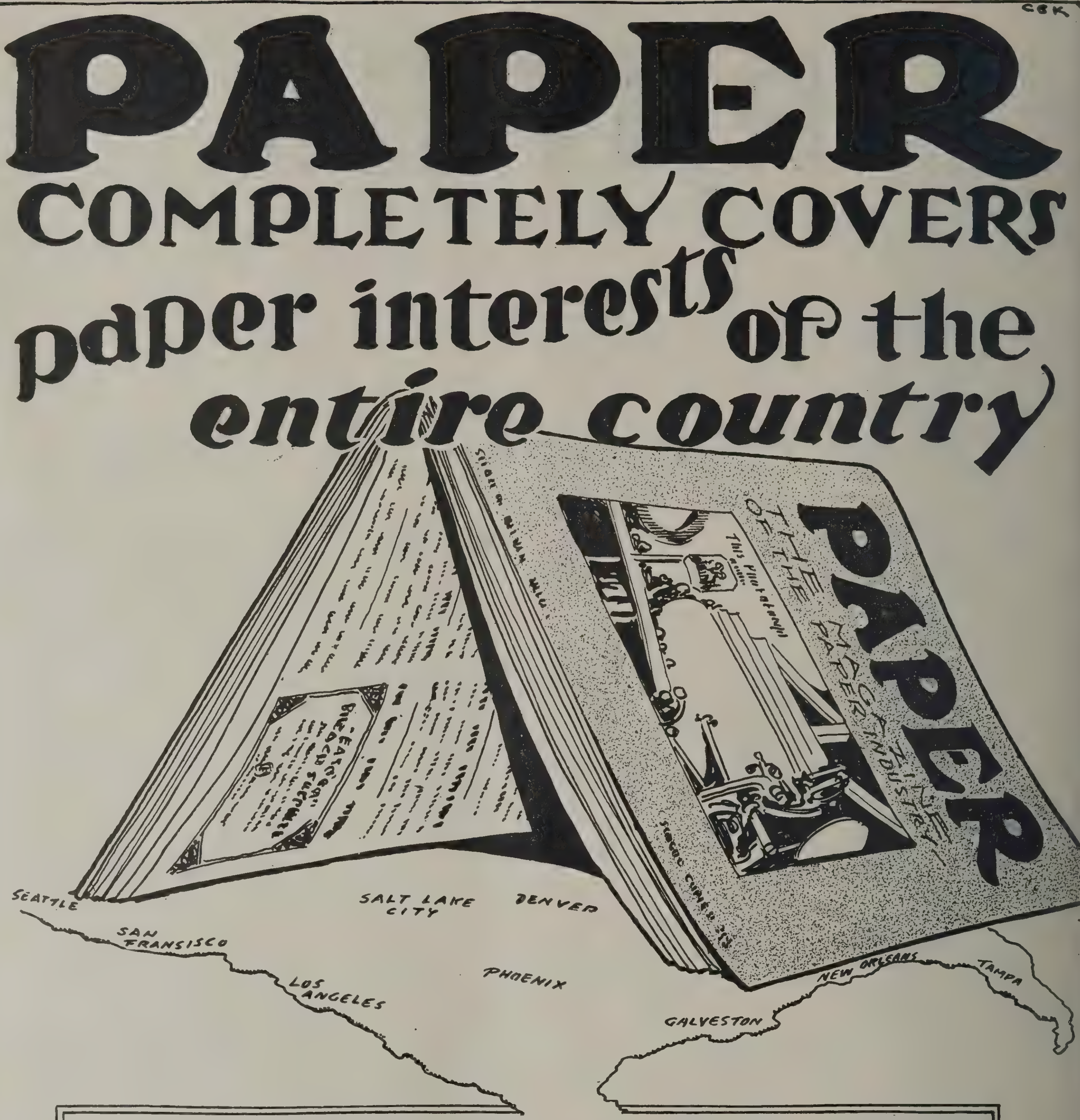

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The Magazine of the Paper Industry

The De Vains Process In Detail

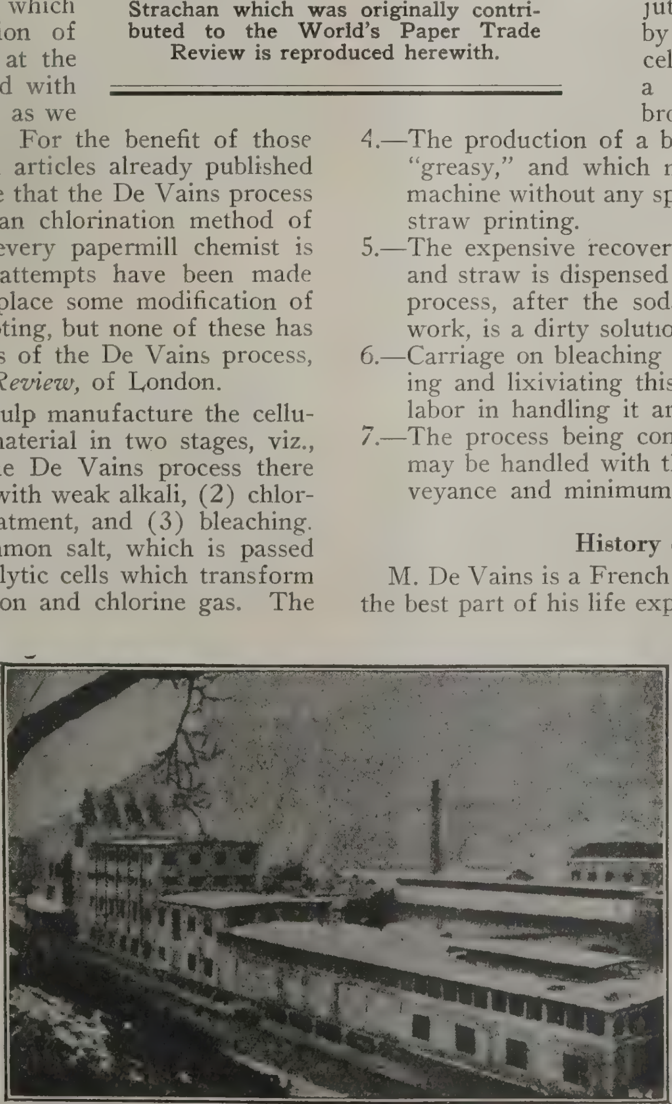
New Method of Isolating Pure Cellulose from any Fibrous Raw Material Is Explained In Detail By An Authority

By JAMES STRACHAN,
Donside Paper Mills, Aberdeen, Scotland

The De Vains process for the manufacture of bleached pulp is attracting great attention. Its development is being watched with intense interest by pulp manufacturers everywhere. PAPER has already received a number of inquiries concerning the future possibilities of the process and the technical editor of this journal is keeping in close touch with the backers of the De Vains process in Europe. A communication on the subject by James Strachan which was originally contributed to the World's Paper Trade Review is reproduced herewith.

SEVERAL articles have already appeared dealing with the De Vains process for the manufacture of bleached pulp or the commercial isolation of pure cellulose for papermaking purposes. From some conversation I have had with papermakers in this country the general impression created by these publications is, firstly, that there is nothing new in the process, and, secondly, that the whole thing is extremely theoretical and of a laboratory nature. My intention in the present article is to dispel these fancies and to draw attention to some facts which require the serious consideration of British papermakers, especially at the present time, when we are faced with competition in our industry such as we have never before experienced. For the benefit of those readers who may not have read articles already published on the subject I may briefly state that the De Vains process is based on the Cross and Bevan chlorination method of isolating cellulose with which every papermill chemist is familiar. Several commercial attempts have been made during the past forty years to place some modification of this process on a commercial footing, but none of these has met with the commercial success of the De Vains process, says the *World's Paper Trade Review*, of London.

In the ordinary methods of pulp manufacture the cellulose is isolated from the raw material in two stages, viz., digestion and bleaching. In the De Vains process there are three stages: (1) Digestion with weak alkali, (2) chlorination followed by alkaline treatment, and (3) bleaching. The only chemical used is common salt, which is passed in solution to a series of electrolytic cells which transform the salt into caustic soda solution and chlorine gas. The former is used for digestion and subsequent treatment of the pulp after chlorination. The chlorine is dissolved in water for chlorination, and in milk of lime to produce calcium hypochlorite for bleaching. The electrolytic cell used is designed by M. De Vains and has a very high efficiency, which I have personally checked for current consumption. The most important part of the process covered by De Vains patents lies in the plant used for chlorination, whereby this process is under perfect control without waste of gas and unpleasant consequences which have followed other attempts to control this reaction. The advantages of the process apart from any consideration in economy of power and steam consumption are as follows:—


STRAW PULP MILL, BUSSI, ITALY

1.—Universal application to the isolation of pure cellulose from any fibrous raw material.

2.—The production of cellulose suitable for the artificial silk and other cellulose industries without further treatment.

3.—The production of snow-white pulp from such fibers as esparto grass, jute, hemp, flax, straw, etc., which by ordinary practice yield impure celluloses of a color ranging from a creamy white in esparto to a brown in flax straw.

4.—The production of a bleached straw pulp which is not "greasy," and which may be run on the papermaking machine without any special precautions, to make a pure straw printing.

5.—The expensive recovery process in the case of esparto and straw is dispensed with, as the final product of the process, after the soda and chlorine have done their work, is a dirty solution of salt water, very dilute.

6.—Carriage on bleaching powder, loss of chlorine in storing and lixiviating this commodity and all the difficult labor in handling it are dispensed with completely.

7.—The process being continuous, plant of large capacity may be handled with the maximum of mechanical conveyance and minimum labor.

History of the Process

M. De Vains is a French chemical engineer who has spent the best part of his life experimenting with paper processes. Before the war he was convinced that the chlorination process could be made a commercial success. He put all the money he possessed into carrying out the experiments on which his patents are based, so that the experiments might be done on a practical scale. The next step was to get some papermaker to take the matter up. But papermakers are conservative where a new process is concerned, and the war years caused some delay.

Great credit, therefore, accrues to M. Biclet, a director of the Papeteries Berges, who, after careful consideration, decided to put the De Vains process to a practical test at their Lancey Mills, near Grenoble. These mills are very extensive, producing about 150 tons of paper and boards a day. They prepare their own sulphite and mechanical pulps, while other materials used include rags, straw and esparto grass. The De Vains plant was installed at these mills under the personal supervision of the inventor and with the capable assistance of the mill manager, M. Manificat, who is an enthusiastic type of papermaker; practical difficulties were studied and gradually overcome. This plant has now been running on straw and esparto during the past two years to the entire satisfaction of everyone concerned.

BLEACHING POTCHERS, BUSSI MILL, ITALY

Once the practical success of the process was established French papermaking interests was aroused, as is evidenced by the critical articles that appeared from time to time in the French trade press. Only after the adoption of the process in Belgium (Godin), in Italy (Bussi) and in Spain (Benalua) were French papermakers convinced that there was something in the process. Financial assistance was soon forthcoming for the exploitation of the process in three directions: First, for French pulp factories; second, for French paper mills; and, lastly, for places abroad. Pulp mills for the production of esparto and straw pulp at Venette, near Paris, and St. Rivalain, in Brittany, are in process of erection, while plans have been projected for others and the necessary capital raised. Another pulp mill is being erected at Lille to make linen pulp from flax waste.

BENALUA ESPARTO PULP MILL, SPAIN

The paper mill at Aussedat was one of the first French mills to adopt the process, and others are anxious to follow. Abroad, a mill has been erected in Java, and is now working on local raw material, viz., rice straw. A large straw pulp mill is projected for Canada. In the near future, and certainly before the end of 1924, the total daily production of cellulose in various mills will be between 150-200 tons of bleached pulp.

The Future of the Process

The development of the De Vains process is being watched with intense interest, not only by French papermakers, but also in Germany and on the Continent generally. Much of the woodpulp imported into France is of the highest bleached quality. Hitherto, attempts to make esparto paper in France have been regarded by British papermakers with amused disdain. Times are changing. The French papermaker wants to make his own pulp, and he has determined to make his own esparto papers. From what I have seen I am quite sure he will eventually succeed. The De Vains process has given him a pulp which has two advantages over esparto and straw pulps as prepared by the British soda-process, viz., a brightness of color and purity unattainable by the latter (with equal yield), and a freedom from greasiness and softness that makes the pulp almost as easy to handle on the machine as woodpulp. France has been and still is one of our best customers for fine esparto papers, but I am afraid that in the future we will lose this trade. It may take longer than I reckon, but it is coming. Certainly at the moment we cannot hope to regain any trade already lost in that direction, and we would do well to consider extension of our Colonial export trade for esparto papers.

BATTERY OF ELECTROLYTIC CELLS, BENALUA MILL, SPAIN

PRESS PLATE, BENALUA MILL, SPAIN

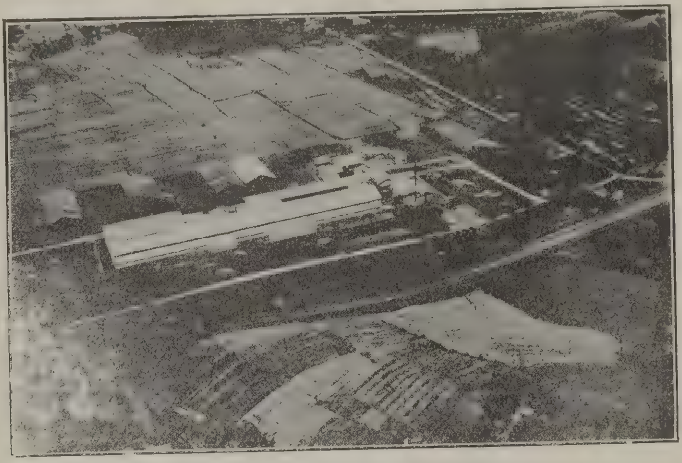
Following on two visits to France for the express purpose of studying the De Vains process, I have been frequently asked to give my opinions on French papermakin generally, and on the De Vains process in particular. Wit regard to French papermaking, I have been strongly impressed by the fact that the French papermaker realize that he has been playing second fiddle too long in this industry, and that he is determined to make good in th future. Great interest is being taken in technical education, and economy in the use of power and production of raw materials are being closely studied.

With reference to the De Vains process, I am quite satisfied that the practical solution of the difficulties arising from the chlorination process by M. De Vains and his staff mark a distinct advance in the practical technique of pulp manufacture, the most important advance in my opinion since the invention of the sulphite process.

I foresee possible developments, principally in two directions. First, in the production of pure cellulose from waste fibrous materials, such as flax, jute and manila that are at present being used for the manufacture of brown paper and which materials do not lend themselves to the production of pure bleached pulps by other existing processes without great loss of yield and deterioration of the fiber. In the second place, the process is peculiarly suited for the working up of the waste straw from crop plants in regions where fuel is scarce and waterpower available. Such circumstances also apply to the tapping of the inexhaustible growth of vegetable matter in tropical regions, and is the first practical proposition for tackling this long-discussed problem, so long as waterpower is available. The only other materials required, salt and limestone, may be obtained almost anywhere.

STRAINERS AND BLEACHING POTCHERS
BENALUA MILL, SPAIN

With regard to the application of the De Vains process to straw and esparto in this country, I am not satisfied that, with cheap fuel and rigid economy in every direction applied to British practice, the latter could not hold its own for cost of production against the De Vains process. I do know, however, that there are esparto mills in this country whose present costs of production are greater than those of the De Vains process. The De Vains process has a marked advantage in the production of purer pulp with such a look-through that once a customer had received a supply of such paper he would, as we all know from experience, keep that as a standard and demand it. There is no doubt that the chief hope of the fine paper trade in this country at the present time is in increased and cheaper production, larger plant, less labor and faster machines; and also in the expansion of export trade where we must give the finest papers at the keenest prices. It would be a hopeless proposition to consider the scrapping of expensive recovery plant, etc., without a very considerable advantage in exchange, but, in the erection of new mills or new plant, very careful consideration should be given to the possibilities of new processes. The De Vains process certainly yields the finest esparto and straw cellulose the writer has ever seen, and, what is more important is that the physical condition of the stock is such that, with normal treatment, it may be run with less trouble and at higher speeds than is the case with such pulps as the British papermaker knows them.



RICE STRAW PAPER MILL, PADALARANG, JAVA

It may appear to the reader that I am a trifle enthusiastic in my opinions of the De Vains process. I write thus purposely to draw your attention to what is undoubtedly an important invention in the history of pulp manufacture and worthy of your serious interest. Its practical development in France has been rapid, but slow in comparison to what such a process might become in the hands of our fine papermakers.

Receivers Named for American Woodpulp Corporation

Following the filing of a petition in bankruptcy by three small creditors, Judge Winslow appointed David Steinhardt and Byrne Budd receivers for the American Woodpulp Corporation, importers of wood pulp of 347 Madison avenue, New York, on January 16. This action, which was taken with the consent of the company, was occasioned by the company's financial embarrassment resulting from the suspension of the Durham Paper and Pulp Company. A statement issued by the American Woodpulp Corporation said that that company had, at the instance of the Durham Paper and Pulp Company, engaged in the Spring of 1923 in transactions for the purchase and sale of wood pulp in conjunction with the Durham company under arrangements whereby the Durham company, then considered a very substantial concern, assumed substantially all the risk and the American Woodpulp Corporation stood to make a fair profit by way of commissions.

The statement went on to say that the American Woodpulp Corporation had made advances to the Durham company on consigned goods in the form of trade acceptances to a large amount which were discounted by the Durham company with banks. Unforeseen financial difficulties which came upon the Durham Paper and Pulp Company in a falling pulp market prevented the expected realization on the goods and caused the Durham company to suspend payments, leaving the American Woodpulp Corporation holding a considerable amount of trade acceptances of the Durham company discounted at banks and upon which it was liable as endorser in addition to the acceptances which it had given to the Durham company.

As a result of the failure of the Durham company, coming on top of a poor business season in the summer of 1923, the American Woodpulp Corporation found it impossible to meet its obligations as they matured. The appointment of receivers was consented to for the purpose of avoiding suits and attachments or preferences, and of conserving the property for the benefit of all creditors.

Recent New Dyestuffs for Paper Tinting

Some Valuable Notes on Dyestuffs in Paper Tinting That Will Interest Every Papermaker

> **What do you think of it?**
>
> **Here is an article by an authority on dyestuffs for paper who will not permit the use of his name owing to his firm connection.**
>
> **Perhaps this fact is a good thing as it permits him to speak right out in the open frankly and plainly. What is said here will interest everyone in the trade, even though he is not the man who is in charge of the tinting or coloring of the paper.**
>
> **Read this article and then tell us what you think of it. You need not agree with all it says.**

THE list of desirable new dyestuffs for use in paper tinting is very small. The list of alleged useful and new dyestuffs would be quite large, even if the meaning of the word tinting was confined to tinting to White. A list of alleged useful and new dyestuffs, tinting to all light shades, would fill several pages of meaningless words, as any coloring matter will produce a tint, but the usefulness of the tint would be in question. The new fast colors coming into use, will not end the usefulness of any of the old line colors, they are simply valuable additions, but must be used in the right place, where they will produce improved results.

Ultramarine Blue DT is a wonder product, the most brilliant blue coloring matter known, fast to alkali, sunlight and alum, removing the last objection to the older brands of Ultramarine Blue, that of being decomposed, or destroyed in the stuff chest over Sunday, due to contact with the weakly acid alum for 24 hours.

Phospho-Tungstic and Phospho-Molybdic Acids have been found to combine with suitable anilines and increasing their fastness to light, 3 to 400%, but such combinations can only be produced in reduced strengths. However, the blues are very desirable products for tinting to white and as the most important are on the red shade blue, they can be combined with ultramarine blue, which increases the fastness of the blend. They are on the market under various trade names, their merit depending entirely on the care used in their manufacture. Dependable products are supplied by reliable and well known manufacturers of colors for the paper trade. All colors, or shades are possible, but are not yet being produced, as their field of usefulness is in doubt.

To explain the usefulness of the new colors, it is necessary to refer to the old line for specific purposes, for comparison, and should probably be done under another heading, but as their purpose is tinting to White, almost entirely, we will explain how the various white papers have been and are tinted and it can then readily be seen how the new colors fit in and their value calculated for use in various mills.

During the war, Paris Black, a cleaned lamp black, was used by News Print mills in Canada, at least in several of them, to neutralize the natural yellow shade of the ground wood, and it gave the sheet a fairly good white appearance.

Here in the States, improved results were obtained by the use of Liquid Mauve, made from accumulated Fuchsine residue, and Hematine Crystals, a highly oxidized solid extract of Logwood, in granular form. Each shade of course with a small quantity of Sol. American Blue, the production of which was started on a large scale. The same colors were also necessary to makers of magazine, book, bond, blotting, etc., but sparingly and were quickly dropped by the fine paper makers, when the first small lots of anilines were manufactured.

For News Print, Basic Blue, a blend of Methylene Blue and Methyl, is now the most satisfactory coloring for tinting to White, producing the brightest White shades possible. Fastness to light is not a requirement, as the wood itself quickly changes shade on exposure and any fastness to light feature of the coloring matter, Basic Blue, would be lost, so it can be readily seen, the new colors for tinting will have no useful application in the news print mills.

Bag and wrapping paper mills, users of Sulphite and Sulphate pulps, also use Basic Blue for tinting to White. Not much of a White can be made of Sulphate, or Kraft pulp, but never the less, a small quantity of Blue is added in an effort to brighten the sheet. Fastness to light is not a feature of White bag or wrapping paper and would be impossible, as the unbleached stock becomes yellow and brown on exposure to light and would overcome the fastness to light of a very small quantity of coloring matter.

Bleached Soda pulp also contains a little natural coloring, that readily turns a little yellow on exposure to light, and very fast White shades cannot be expected of paper containing Bl. Soda pulp. The most suitable tinting colors being Acid Aniline Blue, shaded with Fast Acid Violets, or Fast Acid Scarlets. Acid Blue B, Fast Acid Violet B and Fast Acid Carminette are ideal tinting colors for White papers, containing Bl. Soda Pulp, as a fastness to light feature of a dyestuff would again be lost.

Bleached Sulphite stock also changes a little on exposure, but not to the extent noticed in Bl. Soda Pulp, but enough to be troublesome and if an all Bleached Sulphite sheet is made, Acid Blue B, or R and Fast Acid Violet B or Fast Acid Carminette, are no doubt the most suitable tinting colors, but as Bl. Cotton Rag is added, the mixed stock becomes less sensitive to light, according to the percentage of Bl. Cotton Rag added. Now White shades can be produced, very fast to light, requiring the use of the brilliant Ultra-marine Blue DT, shading with the next in fastness, a Phospho-Tungstic, or a Phospho-Molybdic product. To make the matter clear to our readers, permission was asked and granted by The Heller & Merz Co., to specify Helmerco Blue 4/R Conc. as representative of the Phospho-Tungstic-Molybdic group. Bleached Cotton Rag stock changes very slightly, even often prolonged exposure to sunlight and when tinted to a White shade with Ultramarine Blue DT and Helmerco Blue 4/R Conc., the most permanent possible result is obtained. Clay, for White Coated papers, should be carefully selected, rejecting those that have already been tinted White, unless they remain practically unchanged on exposure to sunlight, as much of the handsome White Clay offered, has been tinted to a White with a fugitive aniline color.

Natural Clay should be used and tinted with any of the well known brands of Ultramarine Blue.

Drastic Report by Foresters

A special committee of the Quebec provincial foresters on the problems of fire prevention, regulation of operations of loggers and permanent forest preserves has reported, making drastic recommendations, such as holding down of the cut to the annual growth and prevention of fires to conserve reproduction. An inventory of resources, to be followed by a license system for the cutting of all land is proposed, in addition to the establishment of experimen stations. Pointing out that 60 percent of the forests in the Lake St. John and North Shore districts have been destroyed by fire in the last 40 years, a non-political fire fighting force is proposed, to be maintained at a cost of $750,000 a year.

At a conference of Ontario foresters the high cost of aeroplanes fo fire spotting was discussed, although the value of the service wa not questioned. A fire fighting air force under provincial control was the prevention method most favored.

Action of Rosin and Alum in Sizing Paper

Scientific Speculations Concerning the True Sizing Factor in the Rosin Size—Aluminum Process

By DR. CARL G. SCHWALBE

EVER since rosin was first used as a paper size, the question which has apparently remained unanswered in terms acceptable to all, is whether aluminum resinate or free rosin was the active agent in sizing the paper. The originator and champion of the free rosin theory, Dr. Wurster, was confronted with the fact that satisfactory rosin sizing could not be obtained with rosin size precipitated by sulphuric acid, but only with rosin size which was precipitated with alum, or aluminum sulphate. No permanent sizing effect could be obtained without the use of this aluminum salt. Hence this investigator explained the mechanism of the sizing process as being one of flocculation of the particles of rosin which are thrown down in the free condition on the fibers of the pulp and which are primarily responsible for the sizing quality of the paper. In other words the size of the particles of rosin are the determinant factor in the degree of sizing that is produced in the paper fibers.

Aluminum Hydroxide Necessary in Rosin Sizing

The author published a critical consideration of rosin sizing speculations in the year 1912, in which he came to the conclusion that the essential factor in rosin sizing was the formation of aluminum hydroxide, which coats the small particles of rosin with a protective envelope. In this communication he said, "As, nevertheless, practically the whole of the alumina from the aluminum sulphate used in the sizing process is precipitated on the paper fibers, the sizing agent in the paper must be considered to be the mixture of aluminum hydroxide and free rosin."

The assumption that the presence of aluminum hydroxide is essential in the attainment of sizing quality in the paper is fraught with many advantages in clearing up the speculative aspect of the rosin sizing process. This is particularly so when consideration is taken of the fact that rosin and resins in general are so easily oxidized to give products which do not possess sizing properties. The function of aluminum hydroxide seems to be to protect the finely divided rosin particles from being oxidized in this manner. The aluminum hydroxide covers the individual rosin particles with a coating of glutinous material; it shuts them off from contact with the air and at the same time it fills the interstices between the separate particles, very much in the manner that the grains of sand are held together in a sandstone by means of the calcareous binder. Furthermore the coating of aluminum hydroxide prevents the flowing together of the particles of rosin when the paper is being dried on the drying cylinders of the papermaking machine.

The objection that aluminum hydroxide must be dissolved by the acid inks that are used in printing and in writing on rosin sized papers is not tenable, for during the drying process certain forms of the hydroxide are produced which cannot be dissolved even in rather strong acids. Furthermore this view of rosin sizing stands in a very good relation to the results that are obtained when paper is sized with rosin size precipitated by means of sulphuric acid. The sizing quality of such paper undergoes diminution as the paper gets older, for the simple reason that the particles of rosin are not covered with a protective film of aluminum hydroxide. This means that the rosin is easily oxidized with the formation of brittle, no longer crystalline but amorphous, particles. Fine fissures form in the coating of size through which water penetrates into the fiber of the paper. The fact that the addition of gelatin and starch pastes to the rosin size gives a mixture which enhances the sizing quality of the paper only strengthens this assumption, for they also protect the particles of rosin against the oxidizing action of the atmosphere.

Rosin sizing is one of the most important operations in the manufacture of paper. While the practice of rosin sizing has been worked out rather closely along certain lines, the theoretical consideration of the process is still in the state of discussion. There is no positive agreement yet as to what exactly happens when a paper is sized with rosin. There is still no universally accepted theory of rosin sizing. While it may not be apparent to many paper men that it makes any difference to them whether or not the correct explanation of the chemistry of rosin sizing is ever ascertained, nevertheless it must always be remembered that the best piece of practical knowledge is a well formulated theory. If it is known exactly what takes place in a process, it is comparatively easy to regulate the conditions so that the best results are obtained with the least expenditure of time and money. It is almost impossible to get satisfactory results from a process the operation of which is not understood. Hence the accompanying article by Dr. Schwalbe, translated from Papierfabrikant, is of considerable interest, even though it deals with the theoretical aspect of rosin sizing.

Wurster himself showed that rosin powder, when it is subjected to the action of acids and bleaching agents, by the drying out of the acid, such as sulphuric acid, nitric acid, hydrochloric acid, oxalic acid, or the bleaching agent (sodium hypochlorite) on the size, renders it pervious to water.

The author goes on to say that he did not submit his speculations to any experimental substantiation as time was lacking. He reviews some of the work of other investigators but concludes that but scant attention has been given his views by other workers in this field. However, only recently he had the opportunity of attempting to prove his ideas by setting one of his students to work on the problem. A number of conclusive experiments were carried out.

The Aluminum Hydroxide Coating Affords Protection Against Light

If the particles of rosin are actually covered with a skin of aluminum hydroxide in the colloidal state, this coating will protect them against the action of air and light. It is known that air and light, particularly light, has an apparent physical action on the rosin. Ordinary or normal rosin is amorphous and shows a conchoidal fracture when broken, while rosin which has been exposed to the action of light has a crystalline structure. While the normal rosin is almost completely soluble in petroleum ether, the rosin which has been subjected to light is only slightly soluble in this solvent. The solubility of the rosin decreases as its exposure to light is prolonged and also as the intensity of the light to which it is subjected is increased. The determination of the solubility conditions affords a means of proving whether or not the rosin particles have actually been covered with the protective coating of aluminum hydroxide.

If the particles of rosin lie between the fibers of the paper without any covering of aluminum hydroxide, then they will be strongly affected by the light and hence their solubility in petroleum ether must greatly reduced. On the other hand if they are actually provided with such a protective coating, then they must resist the influence of light much more effectively. It is a comparatively easy matter to prepare a paper sample in which the rosin particles are directly exposed to the action of light by merely sizing the paper with rosin size precipitated by sulphuric acid. In this condition the paper contains only free rosin.

This method of sizing paper has been investigated as it afforded a much cheaper method of sizing the paper than by the use of aluminum sulphate as the precipitating agent. While the paper may first possess high sizing quality when it is made in this manner, it soon loses this after being stored for some time or on exposure to light. Samples of paper which are sized by both methods and subjected to the same exposure to light will therefore show different degrees of sizing quality at the completion of the experiment. Then when the papers are extracted with ether, it should be expected that the rosin in the paper sized with aluminum sulphate will be entirely soluble in petroleum ether while that in the other paper will not be completely soluble.

Practical Tests Made

Tests were accordingly made to determine the correctness of these assumptions. Two samples of pulp, each weighing 100 grams, were mixed with five liters of water and were beaten in an experimental beater until the pulp showed a degree of beating equivalent to 40 on the Schopper-Riegler scale.

Three grams of rosin were saponified with 0.386 Gm. of caustic soda; the mixture was stirred into 120 Cc. of water and a solution of 0.2 Gm. of oxalic acid in 800 Cc. was added to this suspension. This rosin size was then added to the pulp in the beater. In the first test the rosin was precipitated with a solution of 3 Gm. of aluminum sulphate in 1 liter of water. In the second test an equivalent quantity of sulphuric acid in a 0.25 per cent concentration was added as the precipitating agent. A number of paper sheets, in as uniform a condition as possible, were made from these two samples of pulp. The sheets were made on a hand mould and were carefully dried under tension at a temperature of 80° C. The dried paper samples were then subjected to the action of sunlight for a period of five days.

Then approximately 30 Gm. of the paper was extracted with ether. The ether was distilled off and the residue taken up in petroleum ether and filtered. The undissolved mass was carefully washed with petroleum ether and then dried and finally weighed.

Results

The paper that had been sized with aluminum sulphate showed a content of only 0.005 Gm. of substances insoluble in petroleum ether. On the other hand the paper that had been sized with the aid of sulphuric acid as the precipitating agent showed a content of 0.043 Gm. of insoluble material.

It follows from the foregoing that the presence of aluminum hydroxide mina has actually a protective action on the particles of rosin size in preventing them from being adversely affected by light. Hence the fact that paper sized with rosin which has been precipitated by sulphuric acid loses its sizing quality may be explained by the absence of aluminum hydroxide to protect the particle of free rosin against the action of light.

It is possible to take an additional step and come to another conclusion. When paper is sized with rosin size and aluminum sulphate a reduction in the sizing quality of the paper can take place if the rosin particles are not completely surrounded with a coating of aluminum hydroxide, and so are not protected against the influence of light and air. There are to be sure numberless variations in carrying out the sizing process. Furthermore there are quite a number of factors, which affect the precipitation of the rosin size by means of sulphate of alumina, so that it is very possible that the protection afforded the particles of precipitated rosin size by the coating of aluminum hydroxide is not sufficient, with the result that the sizing quality of the paper is liable to rapid deterioration.

The Coating of Aluminum Hydroxide

It is possible to consider that the complete encompassing of the particles of rosin with a coating of colloidal aluminum is accomplished only with the greatest difficulty, as the particles of rosin, which adhere to the cellulose fibers, possess a protective action only on one surface, the one exposed to light and air. It is necessary, however, to realize that the cellulose fibers are able to adsorb only a very small proportion of sodium resinate or the emulsion of free rosin in a solution of caustic soda, so that the coating with the protective aluminum hydroxide, according to the same reason, must make place in the aqueous liquid between the fibers. It is then that for the first time that the particles of rosin which have become coated with the protective aluminum hydroxide are adsorbed by the cellulose fibers.

Importance of Correctness of This Assumption

If this hypothesis is correct, then it would be advantageous under certain conditions to carry out the coating of the particles of rosin with aluminum hydroxide in absence of the pulp and then to add the so-called "prepared" particles of rosin to the pulp in the beater. From a practical standpoint the carrying out of the separate precipitation can scarcely be permissible in the beater, because the great dilution of the solutions that must be used in the precipitating process requires quantities of liquid which have a too strong diluting effect on the stock in the same. It is only after the stock has been allowed to flow out of the beaters into the agitating tanks that the possibility is presented of adding very dilute emulsions of prepared rosin to the fibers. Experiments to explain the mechanism of the sizing process should be carried out along these lines.

EMPSALL RECEIVES FINE PROMOTION

Is Elevated From Treasurer to Vice President—Carl B. Martin Is New Secretary

ELEVATION of Frank A. Empsall, formerly treasurer of the St. Regis Paper Company, to a vice-presidency, and the election of Carl B. Martin, secretary to fill the treasureship were the two principal changes made at the annual meeting of the St. Regis Paper Company held recently. The vice presidents of the company now number five, and are, besides Mr. Empsall, Alvah Miller, David M. Anderson, John J. Warren and R. B. Maltby.

Floyd L. Carlisle of New York City was again elected president of the St. Regis, and the old directors were all retained, as follows: D. M. Anderson, Jonathan Bulkley, C. C. Burns, F. L. Carlisle, W. K. Dick, F. A. Empsall, J. J. Warren, Alvah Miller, J. A. Mollenhauer, H. E. Machold, R. B. Maltby, J. N. Carlisle and D. G. Middleton.

Corwin T. Jewell, assistant general manager, was made asisstant treasurer of the St. Regis, and R. J. Parham of the New York office was again elected assistant secretary. Celestin C. Burns was continued as general manager.

Immediately after the St. Regis meeting the Hanna Paper Corporation held its annual meeting and retained its old slate of officers and directors. F. L. Carlisle is also president of this corporation; the vice presidents are R. B. Maltby, D. M. Anderson and H. E. Machold; Mr. Maltby is secretary and treasurer, and Carl B. Martin is assistant secretary and treasurer. The Hanna directors are the same as the St. Regis's, with the exception of M. A. Hanna III.

* * *

Du Pont to Make New Dyestuff

The production of a new dyestuff known as Lithosol Scarlet 3B is announced by E. I. du Pont de Nemours & Company. It is stated to be especially adapted for use in lakes for printing and lithographic inks. The lakes can be used for obtaining pink tints which are quite fast to light in lithographic inks and paint.

It is soluble in water and is used only in the form of its barium lake, which is bluish red in shade. This lake is remarkable for its good covering power and extreme fastness to light. On exposure it turns somewhat bluer but does not fade. In fastness it approaches nearer to Madder Lake than any other lakes of its approximate color. It does not bleed in oil or in cold water and is unchanged at 175 degrees Fahrenheit.

* * *

Joins Perkins-Goodwin Force

Robert R. Reed, for 13 years Ohio representative of American Wood Pulp Corporation, has joined the Sales Force of the Pulp Department of Perkins-Goodwin Co.

* * *

The fellow who used to kick about a one-cent advance in car fare now pays 75 cents a day for a place to park his automobile.—*Tree to Trade.*

IROQUOIS COMPANY TAKES NEURA COMPANY

Seizes Manufacturing Plant at Hadley on Breach of Contract Charge

THE Iroquois Pulp and Paper Company, of Thomson, N. Y., has seized the paper manufacturing plant at Hadley, formerly known as the Neura Paper Company. The Iroquois company claims the recent owner, the Durham Paper Company, has breached a contract entered into by the two concerns.

Sheridan P. Wait, of Saratoga Springs, as attorney for the Iroquois Paper Company, and B. W. Wilson, deputy sheriff, have taken possesion of the paper mill.

It is stated that the Adirondack Trust Company, as trustee, sold the property to the Durham Paper Company, subject to contract. The contract itself was subsequently sold by the Adirondack Trust Company as trustee for the Neura Paper Company to the Iroquois Paper Company.

The mill has been closed temporarily. It is expected that the matter will be taken to supreme court.

* * *

Pulpwood Stocks Are Low

Stocks are relatively low in most of the regions reporting in the December pulpwood report issued by the Woodlands Section of the American Paper and Pulp Association. The 1924 contract prices are generally higher than those of 1923.

New England and the Lake States show some increase in the ratio of contracts to annual consumption for December as against September 1923 and 1922.

With 92 companies reporting the annual consumption of the country was 3,388,860 cords, with stocks on hand of 2,101,766 cords and 1924 contracts of 1,950,757 cords.

New England prices for December were: rough, $13.75; peeled, $16.96; rossed, $23.00. This is a slight decrease from March and September reports and approximately the same as in December, 1921. In New York the prices were for December, rough, $15.25; peeled, $19.33; rossed, $24.52. Lake rough was $15.96.

* * *

Bullock Is Made a Major

Warren B. Bullock, Director of the Information Service of the American Paper and Pulp Association has been promoted to Major in the Quartermaster Officers Reserve Corps of the Army, and has been made a member of the advisory board of the New York Quartermaster Officers Conference, which is popularly known as the New York Winter Plattsburg. Having been senior instructor of the Motor Transport School of the Army during the war, Major Bullock has been assigned to duty with the National Motor Transport Service, commanding the sub-center at Poughkeepsie, in case war or other national emergency might force the resort to highway transport for the feeding of New York City. He would in such an emergency be responsible for motor operation on the highways between Albany and the New York City line.

* * *

Keller Opens Office in Sweden

The E. J. Keller Company, among the livest dealers in papermakers' supplies, chemical and mechanical pulps, etc., announce in this issue of PAPER that it will open an office in Sweden. This office will be located a Malmtorsgatan 3, Stockholm, and will be managed by C. R. Saabye Christiansen, who has been connected with the woodpulp trade for many years and is well known in al parts where Scandinavian woodpulp is sold

The opening of the new office was necessitated by the steadily and consistently growing business of the company.

The Well Water System in the Mill

An Informative Dissertation on How a Well Water System Works Out in Practice in the Paper Mill

By T. H. HAMMOND
President, Hammond Bag and Paper Co.

THE new plant of the Hammond Bag and Paper Co., Wellsburg, West Virginia, which was completed October 1, 1923, is one of the most completely equipped and modern paper mills in the country. In the construction and design of the plant particular attention was given to the efficiency of production; labor saving devices, conveyors, electric drives and all facilities necessary to expedite the manufacture of paper and paper bags for flour, cement and cereal products were installed.

In the development stage of this plant the most difficult problem which we had to solve was our water supply. Five hundred gallons of water per minute were needed to supply our demands; it was essential that this water be pure, colorless, free from acid and constant temperature if possible. The Ohio River water was easily accessible, but the filtration and purifying processes which would have been necessary, the warm temperature of the river water in the summer time, the discoloring effect and high acidity prompted us to make other investigations. We realized that if an adequate supply of well water were obtainable it would be very desirable as the temperature is practically constant and the color and acid are entirely eliminated. Not knowing the geological formation underlying our property we did not care to take a chance on drilling wells and then perhaps not procuring the water or did we want to pay a well driller so much per foot to experiment. We wanted the well water but wished to be relieved of the responsibility.

The Layne Ohio Co., an associate company of the Layne and Bowler Co., Memphis, Tennessee, had installed well water systems for other paper companies in the Ohio valley and in hopes they could assist us in this problem we arranged an interview with one of their engineers. After a thorough investigation and study of the strata underlying our property the Layne and Bowler Co., agreed to install a complete well water system and guarantee a production of 500 gallons per minute. They assumed complete responsibility—if upon test the well and vertical pump failed to produce this amount we would be under no expense or obligation to them.

T. H. HAMMOND

An Engineering Feat

The construction of our well which is known as the gravel well type was most interesting from an engineering standpoint. A temporary wooden derrick was built over the well site and then with the various drilling tools a 30 inch hole was drilled through the top soil and to the bottom of the water bearing formation. The hole was lined with a steel casing from the surface to the sand formation. A 24 inch casing and shutter screen were set concentric to the larger casing; the smaller casing extended from the ground level to the sand stratum while the shutter screen extended from the lower end of this casing to the bottom of the well. Between the two casings was an intervening annular pace into which was fed a predetermined size of gravel. The gravel was carefully selected so that the voids or openings were smaller than the sand grains. The openings in the shutter screen were of a size that restrained the gravel but allowed the water to enter freely.

Separates Water From Sand

By this method the gravel not only served to separate the water from the sand with minimum resistance, but formed a very large separation area. It is evident that the water will flow more readily through a large area than a small one and require less external pressure. This is the reason that in our gravel wall well the draw-down was only four feet while in a six or eight inch well it would be thirty or forty

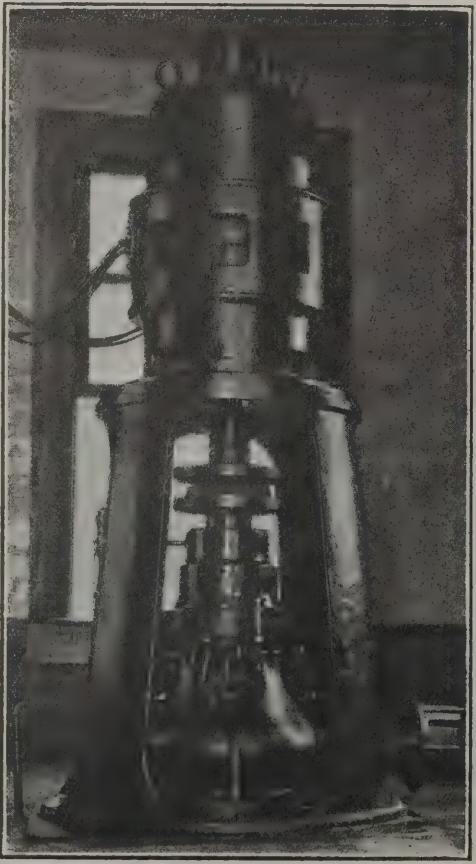
Plant of the Hammond Bag and Paper Company Nestled in the Hills of West Virginia feet to give the same capacity. When the pump is not operating the water stands at the highest point in the well; this is called the "static level." When the pump is operating the water lowers to the "pumping level." The difference between the two levels is the draw-down. As the power required to pump the water is proportional to the level of the water in the well, it is apparent that the less the draw-down the more efficient and economical is the pumping unit.

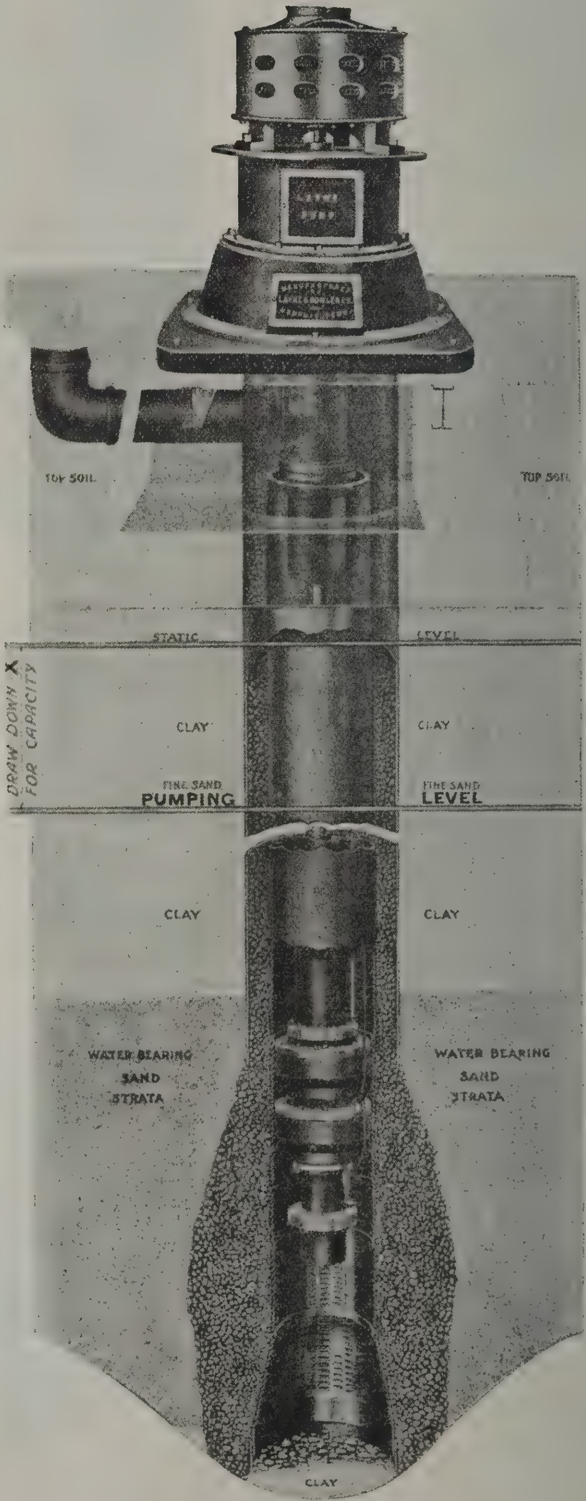
After the casings and screen were in place a temporary pump was set in the well and the sand and water drawn in through the large shutter screen openings with a high velocity. Tons of gravel fed in from the surface gradually replaced the sand and after several hours of pumping the gravel entirely surrounded the shutter screen. When the well had been pumped free of sand and would take no more gravel the well was tested for capacity. It was found that this well which was guaranteed to produce 500 gallons per minute, was good for 2000 gallons per minute. On official test 850 gallons p minute flowed over the weir while t water level in the well receded onl four feet.

How It Was Built

The permanent pump was set on concrete foundation at the surfac 25 horse power vertical motor and th thrust bearing of the pump were su ported by the pump head. The di charge column bolted to the base pla extended 60 feet below; the pum bowls which housed the impellers we

TYPES of pumps used, with larger photograph showing a cross section, with the various elevations marked off. The compact, powerful pump emanating strength and capability is shown in the smaller picture.





securely fastened to the lower end of the discharge column; the vertical shaft to which were keyed the impellers revolved in an enclosed oil tubing and connected to the motor shaft through a flexible coupling. The impellers revolving at a high speed forced the water upward through the discharge column and into the mill mains at a pressure of 40 lbs. In one operation the water is pumped from the wells and into the mains.

The pump consumes approximately 21 horse power or 15.5 Kilowatts when pumping 850 gallons per minute. In one hour at that rate 15.5 Kilowatt hours are used to pump 51,000 gallons or .3 KWH per 1000 gallons. Electric power cost 1½ per KWH, which means a pumping cost of less than ½c per 1000 gallons. The cost of pumping is very economical compared with other methods and the quality of the water is far superior to the river water. The pump requires very little attention, and is practically noiseless in operation.

On page 11 can be seen the new mill and the Pennsylvania Railroad siding; page 12 the Layne vertical pump and on page 13 the capacity test of the well.

Our well water system is a decided asset to the mill as a plentiful supply of clean, cold well water is available twenty-four hours a day.

WELL WATER SUPPLY

LAYNE WELL WATER SYSTEM

at the RICHARDSON COMPANY

Water or No Pay

What would it mean to your plant to have a plentiful supply of pure well water—pumped from scientifically constructed Layne Gravel Wall Wells by the Layne Vertical turbine pumps into surface reservoirs, elevated tanks, or directly into the mains.

So efficient is this method of procuring a water supply that hundreds of industrial plants are saving thousands of dollars a year by adopting the Layne System.

You will be interested

to know our water supply contracts are made on a guaranteed basis. You either obtain the amount of water agreed upon, or it does not cost you a cent. *Water or No Pay.*

Our associate companies have been organized to give you prompt and efficient engineering services; write to the one nearest you.

LAYNE & BOWLER CO., Memphis, Tenn.

Factories: MEMPHIS, TENN.; LOS ANGELES, CAL.; HOUSTON, TEXAS

ASSOCIATE COMPANIES

Layne New York Co., Room 1871, 50 Church St., N. Y. City
Layne & Bowler Chicago Co., 860 Old Colony Building, Chicago, Ill.
Layne Arkansas Co., Stuttgart, Ark.
Layne Ohio Co., Wyoming Station, Cincinnati, Ohio
Layne Southeastern Co., 1st Nat'l Bk. Bldg., St. Petersburg, Fla.
Layne Central Co., Memphis, Tenn.
Branch Office, Crowley, La.

United States Paper and Pulp Statistics

Paper Production for 1923†

GRADES	No. MILLS	TONS	No. MILLS	TONS	No. MILLS	TON
	November 1923		October 1923		Sept. 1923	
Newsprint	66	119,720	67	122,073	67	110,20
Book	69	62,904	63	52,480	64	51,20
Paperboard	113	99,351	112	113,624	112	96,47
Wrapping	89	50,917	87	52,458	91	49,67
Bag	31	8,073	30	9,609	29	6,23
Fine	86	22,940	86	25,312	86	23,39
Tissue	45	9,703	50	11,052	48	9,45
Hanging	10	4,876	10	6,745	10	5,51
Felts and Buildings	15	8,463	16	13,142	16	12,07
Other Grades	62	15,845	61	16,012	65	14,46
TOTAL	——	402,792	——	422,507	——	378,70

Imports of Pulp Wood and Wood Pulp for 1922-1923

(Bureau of Foreign & Domestic Commerce)

Pulp Wood—Cords

	October	September	August	July	June	May	April	March	February	January
Rough	29,341	40,168	60,012	73,564	30,528	13,004	22.581	29,578	27,311	34,47
Peeled	71,399	84,349	83,128	92,651	89,793	76,310	68,612	52,748	64,013	82,712
Rossed	14,600	8,283	13,454	18,240	11,337	12,136	7,525	5,046	4,413	7,203
TOTAL	115,340	132,800	156,594	184,455	131,658	101,450	98,718	87,372	95,737	124,39

Wood Pulp—Tons

By Countries for Oct. 1923

Country	Mechanical	Chemical Bleached	Chemical Unbleached
Canada	23,699	11,752	34,678
Finland	.....	392	7,312
Germany	31	1,669	2,880
Norway	2,231	4,762	3,818
Sweden	324	4,593	15,191
Others	.....	932	3,211

Totals for 1923

	Mechanical	Chemical Bleached	Chemical Unbleache
October	26,285	22,100	67,09
September	25,538	21,094	63,07
August	25,155	18,770	81,29
July	17,376	26,236	53,98
June	18,806	27,177	73,58
May	17,368	25,967	46,96

Imports of Printing and Wrapping Paper—Pounds

(Bureau of Foreign & Domestic Commerce)

By Countries for Oct. 1923

Countries	News Print	Book	Wrapping
Canada	195,629,463	373	56
Finland	7,069,052	....	6,890
Germany	9,772,544	29,788	3,560,311
Norway	2,138,319	....	110,636
Sweden	13,129,959	....	4,988,595
Others	1,108,108	98,882	446,342

Totals for 1923

	News Print	Book	Wrappin
October	228,847,445	129,043	9,112,83
September	220,267,839	95,150	5,759,65
August	231,818,743	99,676	7,952,65
July	206,260,451	64,720	9,147,27
June	211,059,152	78,426	6,986,47
May	230,285,232	89,876	9,050,41

Values of Paper Imports and Exports

(Bureau of Foreign & Domestic Commerce)

Grades	Imports 1923 November	Imports 1923 October	Imports 1923 September	1922 November
Newsprint	$8,157,923	$8,580,090	$9,288,882	$6,941,615
Book Paper	94,364	107,214	108,480	79,366
Board	164,514	198,282	255,528	102,409
Wrapping	303,956	430,757	285,065	413,153
Fine	43,543	52,508	54,405	35,888
Tissue	201,950	54,429	74,478	335,135
Hanging	61,255	40,889	45,283	24,031
All other grades	383,237	662,027	552,708	282,959
Total Imports	$9,410,742	$10,126,196	$9,664,829	$8,214,556

	Exports 1923 November	Exports 1923 October	Exports 1923 September	1922 Novembe
Newsprint	$129,383	$109,884	$112,953	$125,32
Book Paper	249,376	257,459	262,095	310,20
Paper Board	153,665	217,936	236,015	180,01
Wrapping	190,245	163,124	189,417	157,12
Bag	62,246	93,910	72,682	83,27
Fine	151,627	122,027	148,519	142,53
Tissue	135,870	158,084	175,249	140,44
Hanging	35,162	52,030	29,200	38,34
All other grades	819,033	944,387	788,704	835,41
Total Exports	$1,929,607	$2,118,884	$2,014,834	$2,012,68

Canadian Exports of Pulp and Paper

Canadian Pulp & Paper Association

October, 1923 Paper	Pulp	Total	November, 1923 Paper	Pulp	Total
$8,171,485	$4,118,467	$12,289,952	$8,373,679	$3,823,898	$12,197,577

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†Figures collected by American Paper and Pulp Association in cooperation with its affiliated associations and the Newsprint Service Bureau.

NEW DEVELOPMENTS IN PAPERMAKING

The Use of Glue in Coating Paper

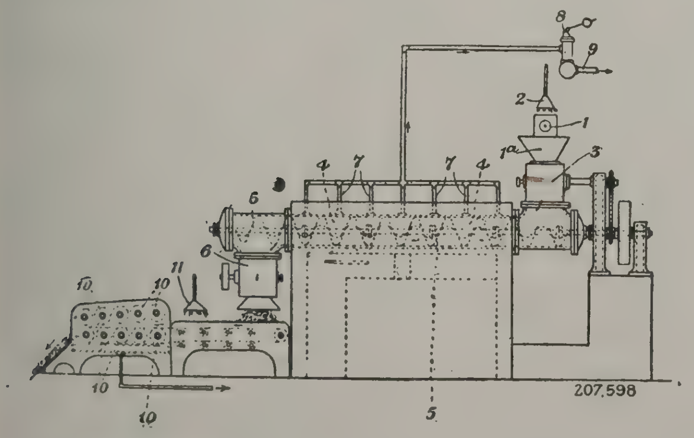
The Bureau of Standards is carrying out some experiments which deal with the use of glue in coating paper. Nine runs have been made on the experimental coating machine. In these investigations two makes of bone glue were used in eight of the runs and a French casein glue in one of the experiments. A good grade of English coating clay (Lee Moor) was used for all runs, and the results indicate the water resistance of the coated paper which was made with the glue samples in which the glue was treated with chorme alum, compared favorably with that of the paper in which casein preparations were used in coating the same. In this case no formaldehyde was employed in making the casein mixture. It is believed that the degree of waterproofing that was obtained in this manner would be sufficient for most of the papers that are used in halftone printing. Difficulties have been experienced in obtaining a uniform coating, because of the variation of the fluidity of the coating mixture and mechanical defects in the machine, so that additional work will be necessary before paper suitable for printing tests can be produced. For further details see Chemical and Metallurgical Engineering Oct. 22, 1923.

Paper from Peat

Freshly cut peat is disintegrated and then boiled with milk of lime and sodium sulphate, sodium sulphite or sodium carbonate, or other substances which yield these products by reaction. The cellulose material obtained in this manner is bleached and neutralized, and may then be used as a material for the production of paper. A superior product may be obtained by boiling with large quantities of milk of lime under increased pressure in an autoclave. In an example one hundred parts of the peat are treated with milk of lime containing ten parts of calcium hydroxide and five parts of sodium sulphate are then added, the mixture being heated by superheated steam. Bleaching is effected by chlorine, the lye is removed and the cellulose is washed with water and neutralized with ammonia washed and dried. For further details see British Patent No. 207,337.

Treating Cellulose Materials

Cellulose material, for example wood, peat or the like, is treated without pulping by spraying with a catalyst, such as a mineral acid and passing it through a tube containing a conveyor, during which it is subjected to steam pressure to hydrolyze the material and recover certain by-products. The residue is then pressed to remove saccharine liquor and then distilled by means of hot gas.



The material is supplied by a conveyor 1 to a hopper la, where it is treated with the acid from a sprayer 2. The material then passes through a gas-tight valve 3 to a hydrolyzer 4 containing a screw conveyor 5. The tube is heated externally, so that the steam generated passes through the material. The action of the catalyst and the steam liberates furfural, guaiasol, and methyl alcohol, which passes off with the steam through the pipe 7, the valve 8 and the pipe 9 to the recovery plant. The continual removal of the furfural and other anti-ferments facilitates the ultimate fermentation of the sachharine liquor for ethyl alcohol. The residue passes through a gas-tight valve 6 to a conveyor which is sprayed with a neutralizing agent by a device 11 and thence through a series of pressing rolls 10. The material is then conveyed to a distilling produced where it is distilled by contact with hot producer gas.

This process is patented in British Patent No. 207,598.

Waterproof Paper Board

Paper pulp is beaten with water at a temperature of approximately 45 degrees C, with the addition of a small quantity of lime, and when disintegration is employed, finely divided montan wax is shaken in and beaten continually until thorough mixing is obtained. Small quantities of aodium silicate and sodium resinate are added, and after mixing, sufficient alum to precipitate the lime and the montan wax. From the stock that is prepared in this manner a sheet is formed in the usual manner, the drying rolls being heated to a temperature sufficient to cause the montan wax to melt and permeate the whole mass of the paper. Perferably composite sheets are made by the use of a multi-cylinder machine, the additional layers being formed by any suitable fibrous stock. The finished sheet is preferably calendered. In place of montan wax other hard gums or bitumens may be used. The waterproofing effect of montan wax is so great that the sheets in the composite product can be made very thin. For further details see United State Patent No. 1,468,959.

Paper for Music Rolls

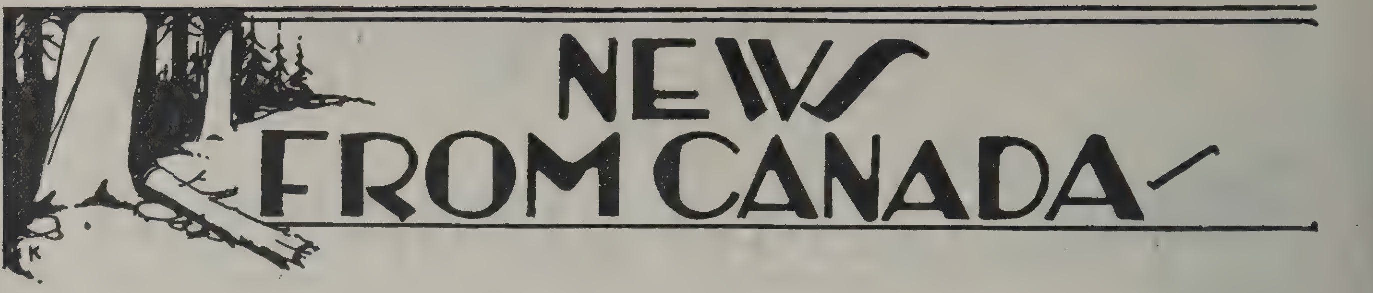
In the production of this kind of paper and other similar makes which are suitable for making the cards used in weaving machines and in sorting and classifying machines, the paper is preferably treated before perforation. This treatment consists in sizing the paper with an animal size, casein or albumen and squeezing it between pressure rolls, either during or after the sizing operation, and then hardening with alum, chrome salts, formalin, etc. After treatment the paper is rolled up wet and allowed to stand for twenty-four hours and is then dried on skeleton drums through which warm air is blown. The absorption of the size is improved and the duration of the sizing is reduced by the addition of latic acid or an alkali such as caustic soda to the sizing material.

By blowing cold air on to the paper before it is dried pores and hair cracks are avoided. After hardening the paper may be softened and rendered tough like leather by treatment with glycerine, soap, castor oil or the like. A coating of varnish applied after the treatment with glycerine prevents the glycerine from absorbing moisture and renders permanent the flexibility and tenacity of the material. For music rolls intended for tropical countries the paper may be finally treated with molten or emulsified wax.

Use of Malt Extract in Paper Industry

IN a paper read before the Montreal Section of the Societyof Chemica Industry at Guelph, November 30, 1923, A. Linton Davidson, spoke of the singular influence of malt diastase upon starch, which has pressed malt extract into service in the paper industry, where it has been used as a substitute for boiling with soda or milk of lime to remove starch and encrusting matter from rags and jute, because alkali residues, which occur chiefly in coated papers, destroy Prussian blue and react instantly with acid colors. How much more perfect is Nature's way of bringing about such changes than man's less refined procedure with strong soda or burning acid to produce the same result. Malt extract is also used in this industry as a dextrinizing agent for starch, which then serves to increase the strength and improve the finish of the paper into which it is introduced. As a result of the same dextrinizing quality, it sometimes enters into the composition of adhesive pastes.

Turn to the Clearing House and Read Every Line—It Will Pay You



NEW ADDITION TO THE PLATTSBURGH CO.

Capacity of Plant Increased Many Millions Rolls Per Year

THE Tait Paper and Color Industries has completed a large addition to the plant of the Plattsburgh Wall Paper Company, which increases the capacity of that plant from 9,000,000 to 20,000,000 rolls a year and makes the industry the most important in the city of Plattsburgh. A new building 334 by 60 feet has been constructed since June 1 and modern machinery is now being installed.

The paper used in the mill is made at the Underwood Mills on the Saranac River which was acquired some years ago by the corporation. The color is manufactured by the Imperial Color Works, another branch of the Tait Industries, and is a product of the Imperial laboratories, developed during the war. The fourteen printing plants in the Plattsburgh mill will be operated by electricity and all belting and shafting have been eliminated.

It is estimated that the corporation has an investment of over a million dollars in Plattsburgh and the annual pay roll is over $250,000. Plattsburgh people attested their faith in the enlargement of the plant last spring by subscribing $75,000 bonds of the company.

* * *

More Pulp Being Cut

According to Hon. T. W. Lyons, Minister of Lands and Forests for Ontario, more pulp is being cut by settlers off their homesteads and by operators and paper companies off their limits in Ontario, than has been the case in some years. "Reports coming to us are that individual workers are turning out a greater cordage per week than in any former years," said the Minister, "and an extra half cord per day means a big increase in the total production. There is still room for more men and in no place in the north is there a labor shortage." It is stated that the increase per capita production of pulpwood is due to this year's substitution of English-speaking labor for the foreigners who formerly filled the field.

* * *

Daniel McLarty Dies

The death took place in Ottawa a few days ago of Daniel McLarty, aged 53 years. The late Mr. McLarty was well known in pulp and paper circles in Canada and of recent years had been associated with J. R. Booth, the veteran lumber king at Ottawa and Hull.

* * *

Now Sales Manager

E. C. Martin, who has been connected with the sales end of the Interlake Tissue Mills, Limited, at Toronto for some time, has been appointed specialty sales manager of the company and will have charge of advertising. Mr. Martin is widely and favorably known in paper trade circles in Ontario and has spent most of his business career in the tissue specialty field.

CANADA MILLS GETTING ENGLISH ORDERS

Much Pulpwood Being Shipped Abroad—O. J. Klein Company Gets Handsome Order

ACCORDING to Charles Maurice, analyst in the employ of the Chicoutini Pulp and Paper Company, Canadian pulp is held in high favor in Great Britain. Mr. Maurice was sent to England by his company, to make some tests of pulp manufactured at the Chicoutini mills, and interest English paper men in the company's product. He said, Canadian pulp is enhancing its prestige in England among newsprint manufacturers. The Chicoutini Pulp and Paper Company is making a drive to increase sales in England, of the company's pulp.

The O. J. Klein Company of Campbellton, N. B., announces having secured contracts for supplying 360,000 cords of pulpwood, to be shipped thirty-six thousand cords yearly. The shipments will be made to pulp and paper mills in central New York state. The wood will be purchased from farmers in New Brunswick and Quebec, and also on pulpwood lands recently purchased by the company. O. J. Klein of the company recently returned from a tour of New England and New York state, and it was on this trip he obtained the pulpwood contracts. The fulfilment of these contracts will result in much benefit to the settlers of New Brunswick and Quebec, particularly to the farmers who depend on their pulpwood sales to tide them over the lean sections of each year. The prices obtained by the farmers on these contracts are much higher than the prices offered by Canadian pulp and paper companies. Many of the farmers have absolutely refused to sell pulpwood to Canadian firms because of the important difference in price. In some instances, United States buyers are offering one hundred per cent more than Canadian buyers. Naturally, the Canadian buyers are disgruntled, and in favor of the embargo. However, there will be no embargo, as the farmers are ninety per cent in vigorous opposition to such a measure. As a matter of fact at least fifty per cent of the farmers would leave their farms if the American pulpwood market were closed to them. Their pulpwod sales have brought more revenue than their farming operations. Advocates of the embargo apparently, overlook the strength of the agricultural element. If fifty per cent of the farmers should leave their farms Canada would be in a sorry predicament indeed.

* * *

Hackson Very Confident

According to A. H. Hackson, Crown Timber Agent at Saulte Ste. Marie, Ont., the timber and pulpwood prospects in that locality are for a slightly larger cut than usual during the present season. Most of the companies are quite busy and the weather has been favorable for woods operations, while there is no shortage of competent scalers.

COMPENSATION BOARD MEETS MILL MEN

Rates Have Grown So Exorbitant That Some Action Was Deemed Necessary

THE Workman's Compensation Board of New Brunswick was the subject of a conference held in St. John, N. B., recently betwen pulp and paper executives of New Brunswick, and representatives of the provincial government including the premier. For the past two years, the pulp and paper men, in conjunction with the lumbermen of New Brunswick have been requesting just such a conference. The rates of the compensation board have grown so exorbitant and the attitude of the politicians comprising the board and their employees have become so obnoxious, that the pulp and paper men have been unable to compose themselves.

A request was made at the conference that the rates to pulp and paper manufacturers for factory and woods operations be substantially reduced. It was pointed out that the pulp and paper industry, which is one of the essential industries of the provinces in the east, was being discriminated against in the province of New Brunswick by the hostile bearing of the New Brunswick Workmen's Compensation Board. Not content with continuing the rates in effect last year, the board increased the rates. The pulp and paper men and the lumbermen have decided to merge with the employers in general and demand improved relations with the compensation body. There are many among the pulp and paper executives who believe the principle of compensation as adopted by the New Brunswick Workmen's Compensation Board is beyond all reason and should be attacked openly by employers.

Among the pulp and paper men attending the conference were: Angus McLean, president and general manager of the Bathurst Company, operating pulp and paper mills at Bathurst; Donald Fraser, vice president of Fraser Companies, operating pulp mills at Edmunston and Chatham; J. W. Brankley, president of the Miramichi Lumber Company of Chatham; H. E. Beedy, vice president and general manager of the Nashwaak Pulp and Paper Company of St. John; W. H. Priest of Dalhousie; J. S. Scott of Fredericton; D. A. Stewart of Campbellton; W. R. Snowball of Chatham; Arthur Culligan of Culligan; D. P. Sullivan of Renous; W. E. Golding of St. John; W. H. Miller of Campbellton. In attendance at the conference were also the members of the compensation board and representatives of labor unions. Amendments to the act have been asked by pulp and paper men.

* * *

New Company Formed

A new company has been formed in Toronto to handle waste paper and rag stocks. It will trade under the name of the Union Waste Paper Company, Limited. An Ontario charter has been secured and it authorizes the company also to engage in paper and pulpwood operations. The authorized capital is $40,000.

To Make Artificial Silk

The announcement that Messrs. Courtaulds, Ltd., of London, England, one of the largest manufacturers of artificial silk in the world, have purchased 240 acres of land near Cornwall, Ont., where they will build a plant for the manufacture of artificial silk, is of interest to the pulp and paper and allied industries. Canada possesses large quantities of the raw material, cellulose, in the form of pulp wood, which is the basis of the vicose method of treatment, the development of which in Europe, has resulted in appreciable quantities of Canadian wood pulp being imported in to France and Italy for use in their factories. The great advantages that Canada holds out for this industry have long been recognized, and it is believed that the handicaps have now been pretty well overcome. The establishment of this industry in Canada would add another to her growing list of manufacturing enterprises, which have done so much to build up her export trade, especially since the War.

* * *

Gets $750,000 for Rights

The Finch Pruyn Company of Glens Falls has been awarded $750,000 for the timber rights on the property around Lake Colden, which has been taken over by the State for the Adirondack Park. The Finch Pruyn Company purchased the timber from the McIntyre Iron Company, and when the State took over the property settlement had to be made in regard to the contract existing between the two concerns. Finch Pruyn Company claimed for $960,000. George S. Ostrander of Saratoga Springs appeared for the above named company and Deputy Attorney General Benjamin McClung represented the State.

* * *

Fort Francis Company in Suit

The Fort Francis Pulp and Paper Co., has entered suit to recover from 14 other pulp and paper companies the difference between the Canadian fixed price for all newsprint supplied to Canadian publishers, in excess of the due proportion of the plaintiff during 1918 and 1919, when the price of newsprint was under Government control; Spanish River, Abitibi, Brompton and Laurentide are among the companies sued.

* * *

400,000 Cords of Pulpwood

The pulpwood cut of Ontario in 1923 was 400,000 cords, as against 300,000 in 1922, according to the report of the provincial minister of lands and forests. In addition, 200,000 cords were cut from settlers' lands. The 400,000 cords cut was from crown lands. The work of estimating the forest wealth of the province by detailing cruises is being continued.

* * *

To Study Yields

The Southern Forest Experiment Station has arranged with the Great Southern Lumber Company for a cooperative study of yields from southern pine for pulp. A block of 200 acres has been set aside for various methods of cutting, and trees on adjacent land have been tagged for observation on the increased growth following cutting operations near at hand.

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

H. E. FULLER,
Holyoke, Massachucetts

The late Moses Newton of the famous family of Newtons who built Holyoke paper mills and operated many of them had a dry humor that appealed to his many friends. When the Crocker-McElwain company first started it was reported to Moses that it cost a big sum for them to "break" into the paper market.

"H—ow— much did it c-o-s-t?" drawled Mr. Newton.

"About $60,000," answered his informant.

"Wh-ee-w," ejaculated Mr. Newton. "We-el-l," he drawled, "you know we all have to pay our initiation fee."

Fire at Kapuskasing

The town of Kapuskasing, Ont., was badly swept by fire a few days ago and damage done to the extent of $100,000. Owing to the distance it was some time before the Spruce Falls paper mill could be reached to sumon aid. The Spruce Falls Company immediately rushed their locomotive and hose to be connected to the C. N. R. water tank, but by the time they had reached the scene of the fire eleven buildings had been burnt to the ground.

Kapuskasing is some little distance from the town site being constructed by the Spruce Falls Company in connection with their pulp industry there.

* * *

New Bleached Sulphite Plant

Plans have been prepared and equipment ordered for a ninety-ton bleached sulphite plant, the building and machinery for which will cost from $800,000 to $1,000,000. This plant will be erected at Prince Rupert, B. C., by the Prince Rupert Sulphite Fiber Company, Limited, which recently purchased the Emerson mill and timber limits. The proposal is to erect at Prince Rupert eight concrete buildings, the plant to be just twice the size of that at Swanson Bay and the whole to employ about 700 men. It will take seven or eight months to get the equipment, some of which has been ordered in Europe. In the meantime the site will be prepared and the buildings erected.

* * *

A lot of us are still thinking in the horse and buggy age. —*Tree to Trade.*

Ontario Company Busy

Production at the plant of the Ontario Paper Company at Thorold, Ont., which supplies paper to the Chicago Tribune, has been slightly over that of 1922, according to a statement by Warren Curtis, the manager. Prices are the same, all of the plant's production having been sold. "We think there will be a slight falling off in consumption in 1924 and possibly some reduction in newsprint prices," said Mr. Curtis. "The cost of raw material during the year, consisting of wood sulphur and limestone, has been practically the same as last year and coal has been somewhat less than last year. The labor situation is easy, there being lots of applications. Efficiency is better and wages are up ten per cent from last year."

* * *

Fire Caused Damage

Fire, which broke out in building on Jarvis Street, Toronto, a few days ago, occasioned damage to the extent of under $500 to the J. H. Mann Wax Paper Company. The company occupied two floors of the building and considerable damage was done by smoke and water before the flames were extinguished.

* * *

Fox Valley Men Optimistic

The papermaking industry of the Fox River Valley, now emerged from the usual seasonal dull period, has a bright future for 1924, according to leaders in the industry. The season just past was the first in recent years to show a continual shipment of pulpwood to the mills. There was no interruption in spite of handicaps. The mills found it necessary during part of the season to use auxiliary steam power because of low water, permitting only a 39 per cent normal draw in September and October.

* * *

Speaks on Forest Conservation

Addressing a public meeting in Toronto on the subject of forest conservation, Hon. Clifford Sifton, Chairman of the Conservation Commission, said: "Forty years ago any one who suggested that the supply of white pine would give out would have been hooted at, but today there is practically no white pine remaining, and what has happened to white pine will happen to pulpwood if no effort is made at conservation. The forests have been a great source of wealth to Canada but since the supply of trees was considered inexhaustible no effort has been made to conserve them.'

* * *

Woods Operations Proceeding

J. P. V. Fagan, superintendent of the Spruce Falls Company's paper plant at Kapuskasing, Ont., has been in Toronto for a few days, having reached the city after a visit to a number of the western and Ontario pulp and paper mills. Mr. Fagan says that the woods operations of the company are going along nicely and already a good start has been made in getting out the 50,000 cords of wood which is the objective this year. About forty per cent of the wood is being taken out by settlers.

W. A. Munro

Washington Pulp & Paper Corporation,
Port Angeles, Washington

Says:

DEAR MR. KEENAN:

Received the copies of "PAPER" and thank you very much for sending them. I was very much surprised at the improvement in the general make-up of "PAPER" and wish to congratulate you upon the same.

Very truly yours,

W. A. MUNRO.

FORESTRY in the PAPER INDUSTRY

PULPWOOD REGIONS OF UNITED STATES

Senators Urge More Protection of Timber for Pulpwood Purposes

IN addition to the presentation of a bill providing in specific terms for a national forestry policy, the Senate Select Committee on Reforestation has filed a report going into some detail as to the results of its nation-wide investigation of the forestry situation. The report is unanimous, but Senators Moses and Couzens united in a special recommendation that the federal government should make such modifications in its income taxes as will encourage the protection and growing of timber on private lands. They favor the deduction from taxable income of all expenditures for fire prevention and reforestation. The present laws limit such deductions to outlays for the conservation of timber, but not for forest nurseries and replanting.

The bulk of the report is devoted to a review of the present forest and timber supply situation. The original reports involving important pulpwood regions are summarized below.

Northeastern States

Original forest acreage, 108,000,000 acres. Now produces only 30 percent of its lumber consumption and pays $65,000,000 annually in transportation charges. The original pine is nearly gone, little hemlock remains, and accesible spruce is largely depleted. The paper industry of these states utilizes 60 percent of all the nation's pulpwood, and draws from Canada one third of its supply. This is one of the most critical problems in the entire country, as the paper industry in these states has a capitalization of $565,000,000 and is responsible for 53 percent of the United States paper production. There are now 19,000,000 acres of second growth, and about the same amount of young forests, with 12,000,000 acres of denuded and unproductive land. This region has more reforestation and better fire prevention than any other.

Lake States

Original forest area, 103,000,000 acres. Only 8 billion feet or the original stand of 350 billion remain. These states are dependent for 47 percent of their lumber on outside sources, and pay $30,000,000 annually in transportation charges. These states produce 22 percent of the paper made in the country, and only 5 percent of the pulwood is imported. Fire damage has been heavy, with the result that second growth is poor. Present forest area, 57,000,000 acres, of which 10,000,000 acres are virgin and one third is barren, with 26,000,000 acres bearing second growth. Very little land is being reclaimed through reforestation.

Southern States

Original forest area, 130,000,000 acres. Lumber production declined 30 percent since its peak in 1909. Large opportunity for reforestation on commercial scale.

Central and Southern Hardwood Region

Original acreage of 339,000,000 reduced to 124,000,000. Produces 40 percent of its lumber consumption, and pays a freight bill of $120,000 annually.

Rocky Mountain Region

Still in the pioneer stage, containing 38,000,000 of its original 64,000,000 acres of virgin forests.

Pacific Coast States

These states contain 60 percent of the virgin softwod timber yet uncut. The federal government owns about 54 per cent of the forest area. Fire prevention is well organized. There is little reforestation, but physical condition favor commercial timber growing.

National Summary

Original forest area, 822,000,000 acres; remaining virgin forests, 131,000,000 acres; second growth, 250,000,000 acres; burnt off and barren, 81,000,000 acres; natural forest or potential forest area, 469,000,000 acres. Forest fires in 1922 burned 8,000,000 acres, with loss of $17,000,000. Land ownership of the 469,000,000 acres is as follows: Federal, 89,000,000 acres; States, 8,700,000 acres; Cities, 400,000 acres; Private owners, 371,000,000 acres, including 150,000,000 acres in private woodlots. Total planted growth, 1,500,000 acres.

* * *

A Jack Pine Query

"Have we come to the point where there is a sufficient differential between the price of good woods and jack pine to overcome the general prejudice of the manufacturer or pulp maker and warrant his undertaking the extra trouble which its use would necessitate?" is the question asked of the Woodlands Section of the American Paper and Pulp Association by John D. Rue, of the Forest Products Laboratory at Madison, Wis., and he adds the further question:

"Even though that differential has been reached, have you arrived at a point technically, where it could be handled in the mills?"

He believes that such a study should be conducted co-operatively by the mills to determine the suitability of this species for the manufacture of pulp.

* * *

Cordage Company Men Visit Nepco

Ten representatives of the General Paper and Cordage Company of Pittsburg, Pensylvania visited the plants of the Nekoosa Edwards Paper Company at Port Edwards and Nekoosa, Wisconsin, on Wednesday, January 8th, 1924, arriving from Wisconsin Rapids early in the day and after inspecting the Nekoosa Mill had a luncheon at Port Edwards Hotel taking in the Port Edwards Mills in the afternoon.

The party was headed by Laird Warner a former Wisconsin Rapids boy. They had a great time renewing acquaintances among the superintendents, foremen and workmen of the two plants, many of whom attended the grade and high schools the time he was a scholar.

APPLYING FORESTRY METHODS NOW

Philip T. Coolige Writes Interestingly on Using Forestry in the Pulp Industry

AN interesting review of the application of forestry methods to pulpwood operations has been prepared by Philip T. Coolige and has been distributed to members of the Woodlands Section of the American Paper and Pulp Association. Mr. Coolige says:

"In paper or pulpwood companies which have established a forestry department, the work of this department is co-ordinated directly with the logging operations. The work of the forestry department is to determine the quantities and character of the timber, and the character of the topography and streams, in reference to the bearing of these matters upon logging operations. This information makes possible estimating the cost of operations from year to year. The quantity of timber available in any logging unit or watershed, the length and character of the main roads necessary, the methods of yarding, location of camp, and other details of the operations are determined by the forestry department. The information is comprised in reports and maps, so that it is possible to plan the operations from year to year with a view to practical economy. The forester would also determine what stands are most in need of cutting, and in what stands cutting can be postponed, without chance of loss through windfall, insects, or on account of an overmature condtion of the timber. This information facilitates full utilization of the timber available, and eliminates the waste of the raw material of the woods through natural causes.

Now Make Clean Cut

"The greater part of the pulpwood operations now make a clean cut of the timber on any area. This secures complete utilization, and eliminates loss by windfall of trees left standing after logging. In the spruce region, good reproduction generally follows clean cutting, so that a future cut of timber assured if adequate fire protection is maintained.

"Where pulpwood species occur in mixture with hardwoods, and are well rooted, the chance of loss by windfall is slight. A number of companies cut spruce to a diameter limit, generally ten or twelve inches, on such lands, so that in the long run the yield is increased. Moderate cuts of pulpwood can be secured every twenty or thirty years, whereas on lands which are clean cut, it would be necessary to wait fifty or eighty years for a second cut. A forester would determine on what areas diameter limit cutting, if practical for economic logging, would be advantageous as a means of increasing the supply of pulpwood.

"Many companies are buying additional lands from time to time. It is the work of their forestry departments to estimate the timber on lands offered for purchase, and to determine its value.

Head of Fire Protection

"The work of forestry in making provision for a permanent supply of timber for any manufacturing company consists primarily in fire protection. Many companies already know definitely the amount of timber available either on their own lands, or available for purchase from other lands accessibly located. All general information at the present time indicates a limited supply of pulpwood available in the North-eastern United States and Canada, so that practical measures for the conservation of this timber are necessary for the permanence of manufacturing enterprises. Dollar for dollar, more timber can be produced in the woods by fire protection, than in any other way. All other phases of forest conservation will be subordinate for an indefinite period. The success of reforestation, for example, depends absolutely on maintenance of adequate fire protection. More timber can be produced by complete protection of the natural growth, than by reforestation with insufficient protection.

"Fire protection is a broad subject, and require different measures in different places. It may require more or less publicity work, it may require legislation and law enforcement, in reference to railroad companies, campers, and others. Fire protection requires adequate measures for discovering forest fires, effective organization to get fire fighting crews on the ground as quickly as possible, adequate supplies of tools, etc. Fire protection is ordinarily an important phase of the forester's work."

Count Working in Paper Mill

Found—a count working in a Fitchburg, Mass., paper mill as a mill hand.

He's Count von der Weide.

Baron Jean de Montenach, secretary of the League of Nations; is a cousin to the count. He recently married Helen Gould, daughter of Frank Gould.

His ancestry in the Swiss nobility can be traced back to the days six years after Columbus discovered America. At the outbreak of the French Revolution his family dropped the use of the title. The World War and consequent financial reverses brought young Jean to this country.

Two years ago the youth bade good-by to his aged mother and father and sailed for this country. He spent his first six months in New York and in the Western States. He then came to Fitchburg, where he was employed by the Fitchburg Paper Company as a mill hand. Jean can be found any day at the mill learning every detail of the paper business.

"America is the greatest country in the world," he says.

His reason, he says, for learning every detail of the business is because some day he may return to his own country and, with a financial backing, may establish himself in the paper business there.

Advertiser Predicts Big Expansion in 1924

An optimistic view of the coming year from the viewpoint of advertisers is expressed in a forecast issued by William M. Rankin, president of the William H. Rankin Company, of 1 West Thirty-seventh Street, with branches in Chicago, San Francisco, Akron, Toronto and London.

Mr. Rankin calls attention to the lessening of unemployment, higher prices for crops, lower production costs and the general tendency toward business expansion as an indication of unusual prosperity during 1924. He points out to advertising men that their field of sale is 110,000,000 persons in the United States who occupy 3,700,000 miles of territory and possess wealth estimated at $300,000,000,000.

BASIC REGULATIONS IN LAKE STATES

Summary of Various State Laws Made by Woodlands Section of Association

IN making a summary of laws regarding the cutting of state owned timber in the Lake States, the Woodlands Section of the American Paper and Pulp Association reports the following basic regulations for such cutting.

Wisconsin: There are no particular regulations at the present time, and there have been no sales of state-owned timber for about ten years. Prior to that time the timber lands were sold outright to be exploited at the best advantage by the purchaser.

Michigan: The only specific laws that have been enacted in this connection are such that permit of cutting only dead and down timber with provision for brush disposal as directed. In the latter case all that is required is lopping and scattering. All the lands composing the state forests have been acquired through non-payment of taxes. It naturally follows that practically all such lands bear no merchantable timber, and as consequence there is com paratively little material of merchantable size.

Minnesota: No timber shall be cut on state lands which is less than 8 inches in diameter at a point on the tree 24 feet from the ground. No trees shall be cut which have the letter "S" stamped thereon. In many sales that have been made there is a considerable amount of young, thrifty timber of a larger size than the above described diameter. In these cases the trees are reserved by stamping them with the letter "S." Tamarack timber suitable for ties shall be cut into ties to a point where the tree is 8 inches in diameter. All tamarack is to be utilized to 6 inches in diameter. Cedar ties shall be cut to 8 inches in diameter at the small end. Cedar posts sholl be cut in 7 foot lengths. Any cedar timber cut into lengths between 8 feet and 18 feet inclusive shall be sold at a price based upon the market value of the timber when cut. Cedar sold as cedar poles and not sold at a graduated price per pole shall be cut as follows:—Trees 5 inches in diameter at 2 feet from the ground may be cut into 20 foot poles or posts 7 feet to 10 feet inclusive. Cedar timber of a longer length as far as practical shall be cut into cedar poles. In the cutting of spruce timber, all spruce trees 10 inche sor over in diameter 2 feet from the ground shall be cut as log timber to a point where the trees are 8 inches in diameter. The balance of the tree shall be cut into pulpwood. All timber that is sold shall be cut clean, acre by acre, without damage to other timber. All slashings resulting from the cutting of said timber shall be disposed of in the manner and within the time prescribed by the State Forester or District Forest Ranger.

* * *

New Record Established

A new production record for the plant of the Western Board and Paper Company in Kalamazoo was established Thursday, January 10, when the various divisions turned out 79 tons of board during a twenty-four run. The company reopened December 19 after having been shut down almost three months for extensive improvements and additions. The average production per day in recent years had been 50 tons. The company confidently expects that during the spring and summer runs of from 85 to 100 tons will be common.

* * *

Don't spend so much for the diamond that you can't afford a manicure.—*Tree to Trade.*

FINNISH PAPER DULL

Prices Obtained on Many Classes of Paper Claimed Not to Cover Production Costs

THE situation in the Finnish paper industry has been becoming more and more difficult each month during this year, owing it is said, no so much to the lack of demand as to the fact that prices are so low on many classes of paper that they do not cover production costs, according to a report from Consul Leslie A. Davis, Helsingfors. Manufacturing for stock has practically ceased. Many mills have consequently diminished production and one or two have discontinued operations.

The basic cause for this depression is said to be the close conception on the part of Canadian, Norwegian, Swedish, Austrian, Czechoslovak, and German mills, whose production costs are said to be lower. Manufacturers report poor markets for all kinds of paper—kraft and wrapping, for which until recently there has been some demand, as well as for high-grade paper and newsprint, for which the market has been dull a long time. Increased sales, however, have been made in China and some recent inquiries have been received from Japan.

According to official statistics, the total amount of paper shipped from Finland during October amounted to 15,064 tons, compared with 13,634 tons during September and 17,098 tons in October, 1922. The total exports of paper during the first ten months of this year has amounted to only 144,932 tons, compared with 160,892 tons during the corresponding period last year.

Exports of mechanical ground wood in October showed a considerable increase, although the market is still said to be dull. The total exports of mechanical ground wood during October according to official statistics amounted to 11,582 tons and those of cardboard to 2,058 tons. During September, 1923, exports amounted to 4,138 tons of pulp and 1,952 tons of cardboard.

The prospects for chemical wood pulp are thought to be better, although there has been no change in the situation yet. The exports of the Finnish Cellulose Association in October were reported as 14,208 tons, of which 9,953 tons were sulphite and 4,255 tons were sulphate. This is somewhat greater than the figure given in the official statistics which report the total exports for October to be only 13,003 tons, of which 9,119 tons were sulphite and 3,884 tons sulphate. According to the Finnish Cellulose Association more than half of the exports during October went to the United States and England.

PAPER MEN ACTIVE IN SOLVING PROBLEM

Association Appoints Number of Leaders on Advisory Board

SEVERAL of the best known traffic officials in the paper industry were present at the organization conference of the Atlantic States Regional Advisory Board on Thursday, January 3, when steps were taken for the organization of various industries to aid in the solution of the transportation problem. The meeting, organized through the efforts of Donald D. Conn of the American Railway Association, was largely attended by representative business men. The American Paper and Pulp Association was asked to select representatives of the paper industry, and the following were invited to attend the conference: H. B. Mills, Oxford Paper Company; C. C. Furguson, West Virginia Pulp and Paper Company; J. R. Williams, Claremont Paper Company; E. R. Leonhard, Paterson Parchment Paper Company; A. H. Campbell, International Paper Company; G. W. Schnell, Union Bag & Paper Corp.; and C. L. Whittemore, secretary of the New England Pulp and Paper Traffic Association.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Wells River, Vt.—The Adams Paper Co., manufacturer of kraft and manila tissues, has work under way on an addition to its plant, including improvements in the present mill. The new structure will be one-story, estimated to cost approximately $75,000, and will provide for considerable increase in current output, now averaging 10,000 pounds per day.

Watertown, Wis.—The Rock River Paper Co., is considering the erection of a new plant, to be one-story, 80x190 ft., estimated to cost close to $50,000. It is purposed to select an architect to prepare detailed plans at an early date. W. C. Stone, Bank of Watertown Building, heads the company.

Indianapolis, Ind.—The C. P. Lesh Paper Co., 121-25 Kentucky Avenue, paper merchant and jobber, has acquired property at Senate Avenue and New York Street, aggregating about one-fourth of a block, as a site for a new plant. Plans will be prepared for the structure in the near future, to be from four to six-story high, estimated to cost in excess of $100,000. It is purposed to more than double the present floor area. The existing works will be removed to the new location. C. P. Lesh is president.

Moss Point, Miss.—The Southern Paper Co., has commenced extensions and improvements in its local mill to provide for considerable increase in output. Additional equipment will be installed. The company has also arranged for the complete electrification of its plant, replacing all former steam-operated machinery.

Fort William, Ont.—The Fort William Paper Co., has preliminary plans for the construction of a new mill, to consist of pulp and paper units, power house, machine shop and other structures, estimated to cost in excess of $2,000,000, including equipment. It is purposed to commence work in the near future.

Moss Point, Miss.—The Southern Paper Co., is enlarging its plant, and will electrify the entire factory.

Chicago, Ill.—The Great Lakes Wallpaper Mills, Inc., Foster Avenue, has leased space in one of the buildings of the Central Manufacturing District, totaling about 15,360 sq. ft. of space, at an annual rental stated at $5,376. The extension will be used for warehouse service for the time being.

Portland, Ore.—The Portland Pulp & Paper Co., 815 Broadway Building, Roy H. Mills, president, is perfecting plans to commence construction of its proposed new pulp and paper mills on site selected on the North Portland harbor, late in March or early in April. The initial plant will consist of ten buildings, with equipment to provide for the handling of about 50 tons of material per day. A power house will be built. The new mill is estimated to cost approximately $1,200,000 with machinery, and is expected to be ready for service by the close of the year. The company was organized recently with a capital of $1,500,000.

Port Arthur, Ont.—The Provincial Paper Mills, Ltd., 56 University Avenue, Toronto, has tentative plans under advisement for extensions in its local mill. It is proposed to erect new buildings to double, approximately the present output, averaging 20 to 22 tons per day. The expansion, with machinery, is estimated to cost close to $200,000.

Monroe, La.—The Brown Paper Mill Co., Inc., Orange Tex., now building a local mill, has awarded a general contract to the Morton C. Tuttle Co., Park Square Building, Boston, Mass., for the erection of an administration building at the plant, for which foundations will be laid at once. James Gamble Rogers, 367 Lexington Avenue, New York, is architect.

Roaring Springs, Pa.—The D. M. Bare Paper Mill Co., plans for extensions in its plant, including the installation of considerable equipment, estimated to cost close to $115,000. Operations will be commenced at an early date. E. G. Bobb is general manager.

Dallas, Texas—The plant of the E. C. Palmer Paper Co., has been damaged by fire to the extent of $150,000.

St. Augustin, Que.—The St. Regis Paper Co., Watertown, N. Y., is perfecting plans for the construction of a new pulp and paper mill on local site. The plant will consist of a number of buildings, with power house and machine shop, estimated to cots close to $3,500,000, with equipment.

Chicoutimi, Que.—The Chicoutimi Pulp & Paper Co., Ltd., has plans for a new mill for the production of pulp fiber for newsprint production and is said to be arranging for equipment purchases in the near future. The estimated cost of the project has not been announced.

Philadelphia, Pa.—The George W. Plumly Co., 213 North Fourth Street, manufacturer of paper boxes for druggists' service and other purposes, has had plans prepared for the construction of a new addition for general increase in output, including alterations and improvements in the present structure. Bunting & Shrigley, 603 Chestnut Street, are architects.

Antioch, Cal.—Fire, Jan. 1, destroyed stock and material at the local plant of the Paraffine Companies, Inc., manufacturer of paper products, with loss estimated at close to $30,000. The company's plant, it is understood, was not materially affected, and operations will proceed on a regular basis.

New Companies

Syracuse, N. Y.—The Arcadia Safety Carrier Co., has been incorporated with a capital of 600 shares of stock, no par value, to manufacture paper cartons, boxes, etc. The incorporators are W. B. McCowen, M. Koppelman and J. P. Goettel. The company is represented by E. F. Fox, Newark, N. Y.

Roanoke, Va.—The Universal Envelope & Printing Co., has been incorporated with a capital of $25,000, to deal in paper products. L. W. Harvey is president, and T. S. Wright, secretary, both of Roanoke.

Brooklyn, N. Y.—The Pak-It-Rite Paper Box Co., Inc., has been incorporated with a capital of $100,000, to manufacture paper boxes and containers. H. M. Levy, 41 Porter Avenue, Brooklyn, is the principal incorporator.

Louisville, Ky.—The Shawnee Wall Paper Co., has been organized to manufacture and deal in wall papers and other paper products. The company is headed by H. L. Potts and L. D. Greene, both of Louisville.

New York, N. Y.—Cymrot & Cymrot, Inc., has been incorporated with a nominal capital of $5,000, to manufacture paper boxes and containers. The incorporators are J. and S. Cymrot, and S. I. Sklar. The company is represented by M. Cymrot, 593 Barbey Street, Brooklyn.

Financial

Carthage, N. Y.—Creditors of the Carthage Sulphite Pulp & Paper Co., have made application for a receiver for the company, naming J. Victor Baron, Watertown, N. Y., and Charles E. Norris, Carthage, attorney, as desirable parties to engage in such capacity. Claims against the company are said to aggregate $100,000.

St. Maurice, Que.—The St. Maurice Paper Co., is arranging for a sale of capital stock to increase its gross capitalization to $10,000,000. The total amount of the present issue approximates $2,000,000.

Chicago, Ill.—A petition in bankruptcy has been filed against the Midland Paper Box Co., West Lake Street.

New York, N. Y.—Gerald Jackson is said to have been appointed receiver for the Bauer Paper Box Co., 440 Lafayette Street.

Plant Operations

Norwood, Me.—Bird & Son, Inc., East Walpole, Mass., manufacturer of roofing paper, etc., has commenced operations at its new local mill addition and plans to develop maximum output at an early date, giving employment to a full working force. The extension is expected to provide for about double the former capacity.

Kalamazoo, Mich.—Paper mills in this section are running close to normal and the majority of the plants are giving employment to full working forces. Expansion is under way in a number of instances, with construction being pushed on new mills and extensions to present plants to allow for spring operations. Incoming orders are said to insure the present working basis for a number of months to come, with anticipation of advanced output with the turn of the spring season.

Philadelphia, Pa.—The Globe Ticket Co., is commencing operations at its new local plant, recently completed, and will develop maximum production at an early date. The plant has a rated normal output of 30,000,000 tickets per day, and will permit necessary facilities for company expansion, with business showing an increase of 35 per cent during the year just closed, as compared with operations in 1922.

Dundas, Ont.—The town has secured an interim injunction against the Adams Wallboard Co., Ltd., from discharging injurious chemicals and other materials into the stream above the filtering basin, from which the municipality secures its water supply. A supreme court writ for damages for polluting the water has also been issued against the company.

Business Opportunities

The Purchasing Agent, Government Printing Office, Washington, D. C., is taking bids until Jan. 30, for one single paper ruling machine, and one double paper ruling machine.

The General Purchasing Officer, Panama Canal, Washington, D. C., will receive bids until Feb. 1, for a quantity of cardboard and bond paper, in connection with other miscellaneous materials, as set forth in Circular 1584.

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Rajkot, India, in the market for a quantity of American paper and stationery, Reference No. 8769. Also, of a concern at Para, Brazil, for American machinery for the manufacture of cardboard, Reference No. 8775. Full information on request.

To Hear Paper Rate Contention

The State Railroad Commission, Austin, Tex., has announced a public hearing, Feb. 12, on the petition of the Southwestern Tablet Manufacturing Co., Dallas, for a readjustment of the freight rates applying on paper and various paper articles between different points in the state. It is alleged that certain divisions of the present schedule are unreasonable and discriminatory, and in violation of law.

Quarters for Rangers

The New York State Ranger School at Wanakena, N. Y., because of its limited capacity, has had no increase in its student body since March, 1920, but has grown steadily in public interest. Inquiries from prospective students have increased several hundred percent. within the last few years and a steady increase in the number of applications for admission is noted each year.

In addition to an increasing interest on the part of the general public there is evidence that the Ranger School is becoming better known among the employers who have occasion to hire men of the kind that the Ranger School turns out. Ranger School graduates have often found it somewhat easier to procure employment because of the favorable impression left by men from earlier classes. In a number of cases Ranger School alumni have written asking that one or more men be recommended for work which they had in charge.

Under an act of the last Legislature $200,000 was appropriated for the construction and equipment of a new building which will be large enough to house all the activities of the school. This building will not only take care of all the needs of the School for the present but, as far as can be forseen, will be of sufficient size and so equipped that it ought to satisfy requirements for an indefinite period. It can be expected that the students will be greatly benefitted and that the administration of the School and the State College Forest will be more efficient.

CONVENTION COMMITTEE OF MILL SUPERINTENDENTS MEET

Plans Are Made for a Bumper Meet in Dayton, O., in May This Year

THE Convention Committee of the American Paper and Pulp Mill Superintendents Association met at 11 A. M. Sunday, January 13th, 1924, in the English Room of the Congress Hotel in Chicago.

Peter J. Massey, general Secretary of the Association called the meeting to order and in addition there were the following members present.

H. W. Server, 5th Vice President of the Association from the Miami Valley Division.

Lloyd T. Murphy of the Miami Valley Division.

E. T. A. Coughlin, 1st Vice President of the Association from the Michigan Division.

E. H. Gilman of the Michigan Division.

L. E. Smith, Chairman of the Northwest Division.

B. T. McBain, Third Vice President of the Association from the Northwest Division.

A dinner was served in the Committee Room at 1:30 and the business of the Convention took up the entire day, adjournment being taken at 6 P. M.

The program for the National Convention to be held in Dayton, Ohio, May 22, 23 and 24, 1924, was arranged for, and all the different committees on transportation, entertainment and finances made satisfactory reports.

A large number of subscribers have already sent in their requests for advertising space in the Annual Program known as the Year Book, thus showing the value of this publication as an advertising medium, and it is expected that this program will not only be the largest but the best ever presented by the Paper & Pulp Mill Superintendents' Association.

The Dayton Automobile Club, as well as the Chamber of Commerce, Engineers Club and other public spirited organizations of the cities of Dayton and Middleton, Ohio, have expressed their willingness to aid the committee in its work and General Chairman H. W. Server is very well pleased with the way everyone is knuckling down to business to make the Dayton Convention the best yet held.

Promise of a large delegation of Technical Association members at this Convention was received from W. G. MacNaughton, Secretary of that Association and also the promise of a valuable paper by H. S. Taylor, President of the Technical Association, on steam and power matters shows that these two Associations of the Pulp & Paper Industry are more and more becoming the co-operating twin brothers that they should be and that the Pulp & Paper Industry so badly needs in times of stress.

GOVERNMENT CALLS MEETING OF PULP AND PAPER MEN

Secretary Wallace Will Meet Committee of Pulp and Paper Industry February 7

A MEETING of the committee representing the pulp and paper industry of the country has been called by Secretary of Agriculture Wallace for February 7, according to an announcement issued by the United States Department of Agriculture. Notice of the meeting, which will be held in Washington was sent to Hugh P. Baker, secretary of the American Paper and Pulp Association, New York City, and to seventeen other representatives of the industry.

This meeting is considered by forestry officials of the Department of Agriculture to be important from the standpoint of attempting to solve the timber supply and other problems now confronting American pulp and paper manufacturers and consumers.

The program of the February 7 meeting includes an address by Secretary Wallace on "The Paper Industry and National Forest Policy," an address by George W. Sisson, Jr., president of the Racquet River Paper Co., on "Co-operation Between the Industry and the Department of Agriculture," and an address by Norman W. Wilson, vice-president of the Hammermill Paper Co., on "The Future Development of the Paper Industry."

In addition, Carlile P. Winslow, director of the Forest Products Laboratory, Samuel T. Dana, director of the New England Forest Experiment Station, Raphael Zon, director of the Lake States Experiment Station, and Charles W. Boyce, forest economist, will speak on the Department of Agriculture's program of investigations concerning the growing of future crops of timber for pulpwood and processes of pulp making.

The discussions will be led by W. E. Haskell, vice-president of the International Paper Co., D. C. Everest, secretary and general-manager of the Marathon Paper Mills Co., F. C. Clark, vice-president of the Pejepscot Paper Co., and Hugh P. Baker, secretary of the American Pulp and Paper Association.

* * *

Wilbur F. Denious, receiver for the Meyer Pulp and Paper company, Denver, Colorado, has been elected a director of the Civitan club.

The Editorial Page

Cheering Up

WHAT the tumult and the shouting largely subsided, nevertheless, the farcial opinion of Attorney General Daugherty regarding trade associations and their work has been mulled and mulled in the minds of the members of those associations. They have not forgotten, although little has been said to the public.

As you know the Attorney General, in a letter to Secretary of Commerce Hoover, said all information gathered by trade associations covering production, consumption, surplus stocks and other information "may be gathered by an association provided it be strictly guarded and the association be prohibited from distributing it among its membership."

Executives of some of the local trade associations are in a quandary as to what action to take in regard to the Attorney General's opinion, and many are wondering what the next move will be on the part of Mr. Daugherty, or on the part of Secretary Hoover, who appears to take the stand in favor of the associations.

Attorneys for some of the trade organizations expressed the opinion that "Mr. Daugherty himself is making law as neither the Government nor the Supreme Court has even gone so drastically on record as did the Attorney General. Mr. Daugherty takes the stand that the trade association may make public all data collected, but only through a Government agency such as the Department of Commerce or other governmental bureaus.

"To carry out the opinion of the Attorney General would bring about demoralization in the business world, especially in small industries which rely for information upon the data collected by trade associations" according to statements. "It would put out of business entirely the 3,000 or more trade associations now operating for the benefit of the various businesses which they represent," said the attorney for one organization. "If the Attorney General carries out his plan, and the courts sustain him," it was added, "it would result in most serious consequences to thousands of business organizations in the country."

"Business needs statistics and other data concerning the various lines of enterprise in which it might be interested. The only way the average, or small company, can obtain the necessary information is through the trade association. If this is abolished then business will itself be groping blindly down dark alleys. It will have to speculate as to the current position of business and will have to gamble as to the future, which, as everyone familiar with business knows, is generally a costly undertaking."

And so it stands. All the associations in the paper industry upon the advice of counsel are going ahead with their usual procedure, uninfluenced by the ruling.

The Attorney General is saying nothing. It is well. He has said quite sufficient to last him till Gabriel bugles ecstatically.

Editorial Squibs

Pulp and paper continue to pour in from abroad. Isn't it about time for the rainbow to appear during the deluge?

—O—

Emmett J. Carey, of the Nekoosa-Edwards Company, at Port Edwards, Wis., writes that it is 45 degrees below, there. Then why should we complain?

—O—

Can it be possible that there is no tariff on paper and pulp from abroad because the powers that be are afraid of the powerful newspapers of the country?

—O—

Read that article on the opposite page headed "The War on Waste," by Tom Keenan. It isn't just a page of bromide platitudes, but real horse-sense for the paper industry.

—O—

Athur C. Hastings has promised to write an article on reminiscences in the paper trade. He hasn't a chance to escape from that promise. So you might as well begin to whet your appetite.

—O—

The Canadian Paper and Pulp Association is meeting in Montreal this week. May it learn much and profit tremendously. Many prominent people in the paper industry of the United States are attending.

—O—

A Prohibition navy to war on the rum fleet is a splendid thing. But PAPER would personally be much more elated if there was some kind of a prohibition navy to war on and prohibit these ships bringing in dirt-cheap pulp and paper from abroad.

—O—

So many kind words are filtering in from the nation about the improvement in PAPER that we are awed. We pause for breath, while we tighten our belt and roll up our sleeves one more notch to keep on building a real, representative "Magazine of the Paper Industry." Will you stick with us on the job?

—O—

Don't forget for a minute the big convention of the year, that of the American Paper and Pulp Association with its attendant Paper Industries Exposition in the Grand Central Palace, in April. Let that gathering at Montreal be a reminder to plan now to be in New York for the convention and the exposition.

The War on Waste

THERE was a time in the history of our pulp and paper industry when waste of efficient matter and of by-products was regarded as unavoidable and an accepted thing. No so now. In nearly every issue of PAPER in recent months and years preachments against waste and counsels of economy in production have appeared at regular intervals. One phase of waste prevention after another has been studied and we are now at a point where waste of men and materials also receives consideration in the study of safety appliances.

As has been pointed out by B. T. McBain, of the Nekoosa-Edwards Paper Company, in PAPER for January 17, the placing of safety attachments on machinery does not mean more than one-quarter of safety achievement because the workers are not sufficiently organized and taught to be careful; that is, instructed to cultivate the feeling for safety practices and to think safety. Careful workmen use care in the making and finishing of the products and so avoid that form of waste which means loss of men, of effort, of materials as well as the thing produced.

In the new passion for avoidance of waste of the kind discussed by Mr. McBain in his more recent contributions there is some likelihood of the larger aspects of waste being neglected. Great savings have unquestionably been effected in paper mill work through improvments in methods of reclaiming fibers and other material from white waters that were permitted to be washed away with other effluents to find a destination in running streams or waterways, before the day of save-alls and special chemical precipitants and coagulants.

Foremost among the great single losses of material stands the waste of substances contained in the liquors that have been used to extract the resins, juices and lignin that encrust the cellulose fibers, the setting free of which is the aim of the pulp manufacturer, whether he uses the sulphite, the sulphate or the soda process. The greatest apparent losses are with the sulphite process as presently operated. It has been figured out by Klason, a Swedish authority, that the spent liquors of this process contain in a metric ton of 1,000 kilos, 644 kilos of lignin, 311 kilos of carbohydrates, 15.5 kilos of proteins and 73 kilos of rosin and fats. The carbohydrates consist of sugars: pentose (xylose), 0.41 per cent; mannoe, 0.48 per cent; galactose, 0.01 per cent and fructose, 0.25 per cent. The last named are capable of being fermented with yeast, and the waste liquors can in this way be turned into a source of alcohol, as is done in a limited way by a few sulphite mills in this country and by a larger number in Sweden. Alcohol recovery from waste sulphite liquors has, however, not proved commercially profitable in the United States and it does not appear to be a paying enterprise in Sweden, as reports have come from that country of the shutting down of alcohol recovery plants that were started with very sanguine expectations.

The saving of waste by the utilization of the spent liquors of sulphite mills is a problem which is still unsolved, despite the many experiments that have been made with it for a period of more than thirty years. Spent sulphite liquor is still regarded as a useless and inconvenient waste. It has been used for the after-dressing of hides, in the manufacture of fuel briquettes, as an adhesive for binding foundry cores, as a road binder for settling dust, and as a soil fertilizer, besides being a source of ethyl alcohol.

German scientists are now studying as a new development the conversion of the waste liquor by neutralization with lime into a product which can be used as an agricultural fertilizer or manure. But twelve or thirteen years ago, when Justus A. B. Cowles was president of the Pejepscot Paper Company, he called at the office of PAPER to consult me on the possibilities of sulphite waste liquor as a fertilizing agent for increasing the growth of plants. Authorities were looked up at this time and the advice was given that waste sulphite liquor that had been previously neutralized with lime might be used with great advantage as a fertilizer of the soil. The subject has since been allowed to rest and unless our Depatment of Agriculture can be induced to do some research work for the benefit of the farmer, and incidentally the sulphite pulp mills, there is little hope of a demand being created which will relieve the mills of an ever growing source of worry.

As most of our readers know recovery processes are made use of quite generally and as a matter of routine work in soda and sulphate mills. The lime sludge of the soda process can be recovered by burning and that of the sulphate process is used to good advantage as a soil dressing by Western farmers, Carl Moe having told all about this in an illustrated article contributed to PAPER a few years ago.

Notes of the New York Trade

Edmund E. Keough has resigned as advertising manager of the American Writing Paper Company to become sales promotion manager of the Paper Utilities Company, of New York City, manufacturers of Tulip drinking cups and a wide range of paper specialties.

* * *

Announcement is made that William A. Castle has been elected president and treasurer of the recently incorporated firm of Castle & Overton, dealers in and importers of wood pulp, rag stock and other papermakers' supplies of 200 Fifth avenue, New York. Frank C. Overton has been elected vice president of the new corporation, and Carleton B. Overton secretary. The partnership of Castle, Gottheil & Overton was formed in 1901, and changed about a year ago to Castle & Overton upon the death of Leon Gottheil.

* * *

The New York Mill Supply Company, dealer in papermaking materials, has moved from 83 Mercer street to larger quarters at 151 Spring street, New York.

* * *

A. A. Silverton & Company, Inc., dealers in paper mill supplies, announce that their offices have been removed from 200 Fifth avenue, to 55-57 Mercer street, New York, telephone Canal 7381.

* * *

Jacob Erichsen, who for the last two years has served as secretary of several of the smaller associations in the paper industry affiliated with the American Paper and Pulp Association, including the Gummed, Glazed and Fancy Paper and Binders Board Manufacurers' Associations, resigned on January 15 to join the organization of Atterbury & McKelvey, Inc., of 145 Nassau street, New York, wood pulp importers. The several associations of which Mr. Erichsen was secretary have decided not to name a successor at once but have requested the American Paper and Pulp Association to handle the work for them until the annual convention of paper manufacturers in April.

* * *

A. H. Campbell, traffic manager of the International Paper Company and one of the traffic men who requested the American Paper and Pulp Association at the organization meeting on January 3 of a Shippers Regional Advisory Board for the Middle Atlantic States, has been asked to serve as chairman of the paper and pulp committee of the new organization. Leslie B. Palmer, of the American Newspaper Publishers' Association, has been named vice chairman of the committee. The function of the board will be to supply the railroads with accurate information concerning carload requirements of the shippers in the district and to co-operate with the railroads to secure adequate service. It will also endeavor to adjust difficulties between shippers and the carriers, without resort to the Interstate Commerce Commission, but will not handle rate problems.

* * *

A meeting of creditors of Chase & Norton, Inc., dealers in paper stock of 275 Water street, New York, has been called, at which it is proposed to present a plan for the satisfactory liquidation of the business of that concern. Liabilities are said to be about $10,000 and assets about $2,500. The firm is one of the oldest in the waste paper trade in New York, having been in existence for 26 years. Frederick H. Chase is president.

* * *

The investment firm of Stewart, Tuttle & Company, composed of D. S. Tuttle, A. G. Wynkoop and R. B. Suckley, has been formed recently with offices in the Equitable Building, New York, to specialize in pulp and paper mill securities and to bring out new issues of established paper and pulp companies. The concern has the facilities and connection to market such issues and to locate and maintain broad and active markets for them.

* * *

The Michigan Alkali Company, which heretofore has distributed its products, including soda ash, caustic soda and other chemicals, through the firm of Edward Hills' Son & Company, of New York, has established an office at 21 East Fortieth street, New York, and in the future will market its products through its own sales organization. The same personnel which has been handling this business will continue under the new arrangement with E. W. Taylor as general sales manager.

92 PER CENT OF PEAK LOAD OF NEWSPRINT

December Report of Newsprint Production in United States and Canada Shows Well

That the average daily production of newsprint paper in December amounted to 92 per cent of the average daily output during the three months of greatest production in 1922 is the statement made in the January Bulletin of the News Print Service Bureau.

The 44 United States companies reporting produced 117,790 tons and shipped 116,826 tons, the 20 Canadian companies produced 95,726 tons and shipped 100,624 tons, making a total production of 213,516 tons and shipments of 217,450 tons in both countries. These companies also produced 2,111 tons of hanging, of which 765 tons were made in Canada. Production in United States exceeded shipments by 964 tons and shipments in Canada exceeded production by 4,898 tons. Stocks at the end of December totaled 23,669 tons in the United States and 15,123 tons in Canada, a combined total of 38,792 tons which is equivalent to 4.2 days' average production, the Bulletin says.

Comparing production of 51 identical companies during the twelve months of 1923 with that of the same period of 1922, the United States companies show an increase of 47,628 tons or 4 per cent., the Canadian companies an increase of 181,618 tons or 17 per cent. and the total of all these companies shows an increase of 229,246 tons or 10 per cent.

The average daily production of news print paper by these 51 companies reporting for December amounted to 92.0 per cent. of the average daily output during the three months of greatest production in 1922, with allowances for changes in machines.

SUMMARY FOR ALL REPORTING COMPANIES

	Companies	Production	Shipments	Stocks
United States	44	117,790	116,826	23,669
Canada	20	95,726	100,624	15,128
Total........	64	213,516	217,450	38,782

Ten New Machines Started

There were ten new newsprint paper making machines started in 1923, according to the January Bulletin of the News Print Service Bureau. Six machines are on record already to be started in this year.

Started in 1923

Company	No.	Make	Size	Tons	Month
Ft. William	1	P. & J.	196	80	January
Washington	1	B. & S.	164	60	January
St. Lawrence	1	D. E.	164	60	February
Belgo	1	Walms.	232	85	February
Ft. William	1	P. & J.	196	80	April
St. Lawrence	1	D. E.	164	60	May
Oswegatchie	1	B. & S.	164	50	July
Bathurst	1	Walms.	160	50	August
Algonquin	1	B. & S.	204	80	September
Consolidated	1	Beloit	160	65	December
Total............	10			670	

To Start in 1924

Company	No.	Make	Size	Tons	Month
Belgo	1	D. E.	232	85	January
Kenora	1	D. E.	234	100	January
Price	1	Wahms.	234	100	January
Donnacona	1	Wahms.	234	100	January
Price	1	Wahms.	234	100	(?)
Gt. Lakes	1			100	(?)

Salesmen Resume Weekly Meetings

Meetings of the New York and Chicago Divisions of the Salesmen's Association, held weekly on Mondays, at 12:30 P. M., at the Canadian Club, Belmont Hotel, New York City, and at the Old Colony Club, Hotel La Salle, Chicago, respectively, have been resumed after the holidays.

These meetings are usually attended by many of the prominent sales executives of the industry, and reports made of the existing market conditions. They provide an excellent medium for all salesmen in the industry to keep in close touch with conditions, and their usefulness is now generally recognized.

Salesmen not now members of the Association are invited to attend, as well as members located in other divisions, who may be visiting New York or Chicago at the time the meetings are held.

News from New England

GEORGE C. HENRY LEFT MUCH TO CHARITY

Well Known Pulp and Paper Man Gave Half Million Dollars to Various Charities

GEORGE E. HENRY, one of the best known paper and pulp manufacturers in New England whose death on Dec. 31 was recently announced in these columns, left bequests amounting to more than $500,000 to charity, according to his will just filed in Middlesex County, Mass. Mr. Henry was the son of James E. Henry, who founded the business of J. E. Henry & Sons Co. and founded the town of Lincoln, N. H., where the mills were for many years operated. George E. Henry succeeded to that business and also established the Henry Paper Company. These two companies operated mills for many years at Lincoln and Lisbon in New Hampshire and at Sheffield and Newark, Vermont. About six years ago Mr. Henry disposed of the mills to the Barker Young Company, which now operates them, and retired from active business life.

Hr. Henry resided in Winchester, Mass. Among the larger charitable bequests in his will are $100,000 to the Morgan Memorial, Boston, and a similar amount to be administered by the trustees of the Morgan Memorial, free from trust, to build and provide suitable homes for poor people at a cost within their reach, provided they are located in communities large enough to provide employment, culture and amusement for the people. He leaves $100,000 to the town of Lincoln, N. H., which he and his father founded, for such charitable purposes as his executors deem advisable. Bequests of $10,000 each are left to Bates College, Palmer Memorial Hospital and the National Training School at Durham, N. C.

Bequests of $5,000 each are left to Boston University, Boston Floating Hospital, Goodwill Home at Hinckley, Me.; New Hampshire Orphanage at Franklin, N. H.; American Board of Foreign Missions, American Missionary Society, Freewill Baptist Association at Littleton, N. H.; Boston Children's Aid Society; Visiting Nurses' Association; Winchester Hospital; Winchester Congregational Church; Congregational Church at Wells River, Vt.; Methodist Church and Congregational Church at Littleton, N. H.; New England Deaconess' hospital and Northfield Schools. He also makes some twenty other public bequests in sums ranging from $1,000 to $5,000. The will also provides for the payment of $6,000 annual income to his son, James E. Henry of Winchester with provision for more if required and the balance of the estate is left outright to his widow, Mrs. Bertha A. Henry. Mrs. Henry, Charles A. Dutch, town counsel of Winchester and John H. Henry, a brother, are executors. An inventory of the value of the estate has not yet been made.

* * *

Buys Northeastern Interests

The D. DeStefano Co., Damrell Street, South Boston, Mass., has purchased the assets of the Northeastern Paper Company of East Cambirdge, of which A. M. Sonnabend has been the general manager. The new owners have already taken possession and have started operating the Northeastern company's plant. The building which is acquired is five stories high with electric power, elevators, conveyor system and othe rmodern equipment. The DeStefano company is among the largest shippers of waste paper to the largest paper board mills in New England and its additional facilities now give it railroad sidings on the Boston & Maine and Boston & Albany railroads.

* * *

Francis Andrews Dies

Francis Loring Andrews, president of the Andrews Paper Company of Boston, Mass., since 1906 and active in the Boston Paper Trade for some years, died January 15 at his home, 81 Summer Street, Lynn, Mass., in which city he had resided for 35 years. He was born in Freedom, N. H. 65 years ago and 35 years ago, becoming identified with the paper business, removed to Lynn to reside. He was a member of many Masonic bodies, of the Methodist church and several trade organizations. He leaves a widow, Mrs. Lena F. Andrews.

* * *

I. P. C. Mills Closed

The mills owned and operated by the International Paper Company at Franklin, N. H., were closed for an indefinite period January 16. According to announcement made at the mills, they are closed because of orders to that effect from the New York offices of the company. About 150 employees are affected. It was also said that poor business conditions result in the closing. The Franklin plant manufactured news stock.

SAYS CANADA IS NOT TOGETHER ON EMBARGO

Forestry Engineer Says He Witnessed No Attempt for Concerted Action

MAINE pulp and paper interests are watching closely Canadian action in connection with the investigation by the Canadian parliament of the proposal to place an embargo on pulpwood. C. W. Eaton of Portland, a forestry engineer who has been a timber operator in Canada in speaking of the matter says that he saw no concerted action in Canada to press an embargo. Remarking that the proposal demonstrates the depletion of the timber resources of this country and that Canadian supplies are limited, Mr. Eaton points out that in 1919 and 1920 the pulpwood industry in Canada expanded greatly and both crown limits and freehold lands were acquired at high premiums. From the crown lands which comprise the bulk of Canada's forests, the exportation of manufacturers wood is already forbidden. The proposed embargo would affect the exportation of wood cut on the freehold lands. Many United States mills are dependent upon their freehold lands in Canada, while others look to obtain their future supply from that source. Freehold lands are today playing an important part in the paper industry on this side of the line; they have proven an ever present help in time of trouble and hold out hope for the future for those who have title. But if they should be placed on the same basis, regarding exportation, as the crown limits, they would be seriously affected.

Continuing Mr. Eaton says:

"It would work an almost prohibitive hardship on some concerns which would have to choose between the most favorable locations they could get away from the sources of raw material, or locate their mills in what are now inaccessible places, both of which possibilities put such concerns at more or less disadvantage in competition. It would profit Canada none if these incoming mills were not prosperous.

"But it is felt that a more far-reaching effect on the country as a whole would be the injury to the farmers in the timbered sections and to the land colonization plans of the government. East from Manitoba to the Atlantic the history of our own Eastern farms is repeating; the timber puts and often keeps the farm on its feet. Cutting pulpwood is one of the chief occupations of the farmer in this section of Canada. Pulpwood is the

ALVAH MILLER TOM T. WALLER ARTHUR C. HASTINGS EDWARD A. WESTFALL NATHANIEL L. MILLER

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standby product of many farms, and prosperity of the paper industry means farming prosperity.

"A very large percentage of the pulpwood from the farms is shipped to the United States. An embargo would subsidize Canadian pulpwood interests at the expense of the farms by taking American mills out of competition. And it is this competition that makes the price. In 1922, with the pulpwood market at a standstill and U. S. mills not competing, Canadian farmers were obliged to sell their pulpwood at a loss in order to get cash enough to live through the winter, and many could not find a market at any price. Yet Canadian mills in their locality cut wood from their own limits and paid more for it than they would have had to pay in the open farmer's market.

"One of the reasons for this was that these mills had their main timber supplies in their own crown limits, right to cut the timber from which has been leased them by the government under guarantee that a certain amount of work shall be done annually on these limits in the cutting of timber, and, in at least some cases, that the limits be cleared of timber in a definite number of years, after which the government opens the lands to settlement. The result is that in many sections the pulp mills can not handle the local production, yet a concern desirous of locating a mill can not do so in those sections, having no guarantee of continued wood supply even for a limited number of years.

"It is generally understood that the strides made in settling Northern Ontario in recent years, for example, are coincident with, and made possible by, the respective condition of the pulpwood market. Hundreds of thousands of cords of pulpwood have been shipped from this district to New York and Pennsylvania, from lots that have been settled on by farmers who went there to make their homes. An embargo on the remaining thousands of cords would slow up, and in many sections fully stop, the taking up of new lands by settlers, and impair the progress and prosperity of the farmers already on the ground. It is felt that the far reaching effort of this situation would go far toward balancing the conceived benefits from the embargo.

"It has been suggested that the subject of an embargo on pulpwood was brought up by public-spirited Canadians who wished to have the facts concerning Canada's timber resources given an airing after the recent boomtime slaughter of its forests, to bring emphasized attention to the fact that a decade has shown her forests are not unlimited nor inexhaustible, and, that on the contrary, cutting, fire, and insects have fast depleted them. Those vast areas of the north, which, when we look at the map we like to fancy as unbroken forests the final retreat of the wolves, bear no tree growth at all, or struggle with small stunted black spruce trees that refuse to grow. There are many square miles of burned land, on which there is no tree reproduction now ages after the fire went through, and similar extensive areas of muskeg. Closer at hand, yet inaccessible now for profitable exploitation lie the few remaining outposts of the original forests of Eastern America. In a short time economic adjustments will legislate an embargo of their own."

* * *

Trying to Make Deal

The Riordon Company, hard pressed for money, has been trying to make a deal with the Dominion Government for its income and business profits taxes that are much overdue, but without success. It has offered to turn over property formerly owned by the Edwards Company, of Ottawa; but the Government not only does not need the property, but dislikes to accept it on the ground that it might create an undesirable precedent.

ST. MAURICE COMPANY TO ISSUE STOCK

Almost Two Million Dollars Worth of Stock in New Extensions

THE directors of the St. Maurice Paper Co., have decided to make a new issue for the purpose of financing the costs of the extensions to the mill at Three Rivers, Que. This means an issue of 17,250 shares, or an addition of $1,725,000 to the stock outstanding bringing the total authorized up to about $10,000,000. The new issue will be on the basis of slightly over one to four. The Union Bag allotment of 2,500 in payment of timber limits they are transferring to the Canadian company is included in this amount. This will bring their share of the total up to about 65 per cent.

The exact terms of payment for the timber limits are not generally known. In addition to the 2,500 shares of stock, the St. Maurice Co. agrees to pay $100,000 a year for the next 10 years, or a total of $1,000-000. Taking the stock at its par value of $250,000, this would mean a total of $1,250,000, for the limits or $2,500 a mile. The addition gives the St. Maurice Paper Co. about 3,000 square miles and places it in a very strong position in so far as wood supplies are concerned.

The addition of two new machines for the manufacture of newsprint by the St. Maurice Co. will rather more than double the present production, bringing it up from 120 to about 250 tons daily. They will complete the present equipment of the Three Rivers plant. The new plants of the company have an important bearing on the Canadian newsprint situation. In some quarters there is an impression that the addition of these machines, together with others added last year, and the coming in of others in the near future, will meet all the demands of the market. It is true that practically all Canadian plants have contracts for their entire output covering the first half of the year, but there is no likelihood of either the demand or the price becoming any stronger than it now is.

* * *

Personal

James Brown, of the J. L. Morrison Co., Limited, King Street, Toronto, manufacturers of paper mill supplies, has returned from a business trip to Dover, New Hampshire, where he visited the Kidder Press Company in which he is interested. He reports the outlook for business in 1923 as good, both at the Toronto and the Dover plants.

George C. Winlow, Toronto, sales manager for the Lincoln Paper Mills Company, Limited, Thorold, Ont., was severely injured in a railway wreck at Belleville, Ont., a few days ago and will be confined to a hospital in Toronto for some days yet as the result of a number of broken ribs.

R. A. Garrett, formerly of the Denison Manufacturing Company, Toronto, has joined the selling staff of the Interlake Tissue Mills, Limited, head office Toronto, and will be engaged in selling the new Interlake line of superfine crepes.

The Government at Ottawa has turned down the proposal of the Riordon Company to take over extensive property formerly owned by the Edwards Company in Ottawa in lieu of taxes due by the Riordon concern to the Government. It is stated that the property is not needed and if it were, tax payments in the way would open up a questionable precedent.

* * *

Every man tries to give himself a square deal.—*Tree to Trade.*

STORAGE DAM WILL AID PAPER MILLS

Industries Along the Kennebec River Will Be Greatly Benefitted

THE announcement is made that work is be started immediately on the construction of a large storage dam on Moose River, a tributary of the Kennebec, below Brassua Lake in Maine. This is an important announcement for two reasons, one that it means that in the near future there will be a more adequate water supply for the industries along the Kennebec River, the other that it will put a stop to the endless discussion over the proposal for a storage dam in the Dead River section which caused such a sensation at the last session of the legislature. Because the state holds certain lands in trust at Dead River it became necessary to obtain legislative sanction for the storage project at that place. The legislature voted to grant the requested charter but the bill was vetoed by Governor Baxter. Some changes were made to suit the Governor and then the legislature refused its sanction and the matter was dropped much to the indignation of the Kennebec people.

Among the parties chiefly interested are the Great Northern Paper Co., with its mills at Madison, the Hollingsworth & Whitney Co., the Central Maine Power Co., and the Lockwood Mills. It is understood that these interests and others are jointly interested in the construction of the storage dam at Brassau. The Kennebec has been very low the past winter and the improvement is greatly needed by the industrial concerns.

A careful survey of the river valley has been made and it is estimated that as much water can be stored at Brassau as in the Dead River section and there will not be great difference in the expense of construction.

* * *

To Tap New Market

The Wayagamack Pulp and Paper Company, Limited, which already exports about seventy-four per cent. of its production from its mills in Quebec province, is now preparing to tap a great new market with kraft and wrapping papers. The company's sales manager sailed for France a few days ago to establish a sales agency in that country and will be followed in a couple of weeks time by F. I. Ritchie, the general manager. The move is significant because of the indication it gives of the high standing of Canadian papers in foreign markets. While price will be the factor in the selling of Canadian kraft in France, it is nevertheless true that the Canadian product can be sold at a higher price than many European krafts with which it will come into competition. At the Wayagamack's Three Rivers plant paper for export is packed under hydraulic pressure until the bundle is as practically as solid fibre and cannot be damaged by water or weather.

* * *

Expect Large Earnings

It is expected that Brompton Pulp and Paper Co. will show in its 1923 report earnings of about $7 a share on its common stock and about $3,000,000 net working capital. The company in its present form was organized in 1916, prior to that it had been operated as a private company. The change was made in order that its large Canadian properties might be fully developed. It is today the largest Canadian company with a diversified production. Its mills are located at East Angus and Bromptonville, Que., and Groveton, Clarement and Bellows Falls, N. H. The ownership of American mills enables Brompton to convert Canadian-made chemical pulp into wrapping paper in the United States and thus avoid customs duty on the finished product.

Waste in Pulp and Paper Industry

Beaters and Beating

By B. T. McBain,

Assistant General Manager, Nekoosa-Edwards Paper Co.

LIKE the paper machine, the beater is almost in exactly the same position today that it was 25 years ago, except that it has been made larger in capacity, has had more power applied to it, but still is simply like an enlargement of a photograph, like the paper machine of today as compared with the days of our childhood.

However, there have been a few minor changes in method as well as in the kinds of bars and bed plates, yet none of them different to any great extent from those in use for the past quarter of a century.

True, there have been some new ideas advanced as to furnish and treatment, and some of the later patents cover so-called novel features, chiefly as to backfall shape and speed of travel.

Of late, now types of beater bars have been offered, each new one having some claims of advantage and, no doubt, have for certain results.

However, as Dr. Smith says in his recent book, very little is known about what really happens between the beater bars and bed plates; but a number of theories have been advanced any or all of which may be true in part.

Yet, it is known that by handling certain stocks in certain ways, certain results have been gotten. So it is that with certain types of bars and bed plates, other certain results have been shown.

It is also a fact that some types of bars and plates will produce quicker and better hydration than other types—some will draw the fiber out and others will cut it short.

There is a new beater on the market handling stocks up to 12% density, claiming quicker and better hydration, less floor space and lower power consumption per ton of finished product. Other beaters using greater power per unit and handling stocks up to 8% density claim that the power usage per ton considering the results guaranteed are of little moment, yet as compared with the old 3% to 4% consistency and the time required for hydration, they are not power hogs as some claim.

If beaters with greater density produce hydration so much quicker than in the older types, and the power per ton of finished product is less while the equipment takes up less floor space, it will only be a matter of time before many papermakers will adopt the new machine and method.

However, papermakers are skeptical and want to follow in the footsteps of their forefathers rather than take the initiative and try something new and the pioneer who goes into the market with a new idea, or "fool ideas" as so many such are termed, must be well fixed financially to carry over the pioneering period.

If there is anything new under the sun that will make hydrating of paper stocks an exact science, it is to be hoped that someone will soon prove it and stop the present guess methods and waste.

* * *

Crown-Williamette Wants Refund

In a demand for refunds on overcharges of limestone from limestone to it Camas plant, the Crown-Williamette Paper Co. on Friday, January 16, had a hearing for reparations from the Milwaukee, the Spokane, Portland and Seattle, and the Northern Pacific Railroads, through the state department of public works. The results have not been determined at this writing.

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PAPER COMPANY
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Through the Middle West

NEW FUELING PROCESS IS INSTALLED

Thilmany Pulp and Paper Company Makes Innovation in Its Mill

THE Thilmany Pulp and Paper Co., of Kaukauma, Wis., last week completed installation of a new process of fueling its furnaces which is expected to bring about large savings in fuel and in labor. The installation is in the company's new powerhouse, recently completed.

Coal is fed to the furnaces in a pulverized form, eliminating waste from ashes and clinkers. The fuel first is reduced to small chunks and then conveyed to a pulverizer which crushes the coal to dust. This dust is blown into the furnace as it is needed and is instantly converted into a gas which gives terrific heat without waste.

C. C. Hockley, now connected with the American Lakes Paper Co. at Waukegan, Ill., a subsidiary company of the Thilmany Company, designed the new firing system after long study. He was present when the new process was given its first trial.

Mr. Hockley believes danger of explosion of coal dust is eliminated because the dust is blown through a pipe from the pulverizer to the furnace and the pulverizer is only eight feet from the furnace door.

Considerable saving in labor also is expected to result from the new installation inasmuch as nearly all coal shoveling can be dispensed with.

* * *

Fire Cause Loss

Several thousand dollars loss was caused to the Dells Pulp and Paper Co., Eau Claire, Wis., when fire destroyed a part of the wooden false work used in constructing a new dam across the Chippewa river. Construction work on the dam is delayed at least two weeks.

Three forms into which concrete for the dam was to be poured were destroyed and the others were threatened. The blaze started from open fires that were built to keep the fresh concrete from freezing.

The fire was in the middle of the river and firemen were hampered because of difficulty of getting water to the blaze.

* * *

Last Year a Good One

William M. Loveland of Kalamazoo was re-elected president of the Watervliet Paper Company at the annual meeting in this city. All other officials of the organization were also returned for another year Reports were submitted showing the last year was the best in the history of the company with the exception of 1920. Among the many improvements installed during the year was a 2,200 horsepower uniflow engine to permit a maximum output.

* * *

New Firm Organized

The Reliance Paper Co. has been organized in Marinette, Wis., as a paper jobbing concern. The company will deal in paper bags, wrapping paper and paper specialties.

Harry E. Munson, late of the Victory Bag and Paper Co., where he was office manager and in charge of production, is head of the new company.

Tom Harvey Speaks Plan

Kalamazoo, Mich., Jan. 19.—No man can succeed unless he loves his work; and no man has a right to take charge of a crew of men until he has himself worn overhalls, mixed with the working people, and learned the trials and troubles they face daily. These statements were made by Tom Harvey, general manager of the Gardner-Harvey Paper Company of Middleton, Ohio, in an address before the Michigan Division of the American Pulp and Paper Mill Superintendents' Association. Mr. Harvey began paper making in Connecticut when he was thirteen years old and he has continued in the industry for more than half a century.

"I formerly invested the captain of industry in my imagination with almost supernatural abilities and powers. I have since learned that nearly all of them became captains of industry, not because of superior abilities, but because their heart and soul were wrapped up in their work.

"Eliminate the grouch. He is the greatest hindrance to the progress and development of your industry. Put spirit into the industry if you would better your production. A increase of between 15 and 50 per cent in efficiency is possible in that way.

"There is nothing today which prevents the foreman from knowing every man in his crew. You should sell yourself to your men. The foreman of the future will be the man who can prevent a large turnover in labor. To do that, he must stand by his men and give all of them a square deal. Don't be afraid to assume responsibilities and take the blame yourselves. I have known executives and managers who did more harm in five minutes than could be remedied by a foreman in as many months. The man in your must appeal to the man in your employes. You cannot mix enthusiasm and suspicion, good will and indifference."

* * *

Left Million and Half

The late John Strange president of the John Strange Paper Co., Menasha, New Appleton, Wis., valued at about $1,500,000, it is indicated in the will which soon will be admitted to probate. Mr. Strange died suddenly at New London, Wis., while delivering an address before a Rotary club.

An allowance has been granted his widow while the estate is being settled.

An elaborate wedding took place at Marinette last week when Miss Helen Delbridge became the bride of Agner B. Hansen of Racine. Miss Delbridge's father, J. H. Delbridge, is president and general manager of the Marinette and Menominee Paper Co.

* * *

Hawthorne Going Fine

A satisfactory year's business with bright prospects for the next twelve months were reported at the annual meeting of the Hawthorne Paper Company here during the week. All officers and directors of the company were re-elected as follows:

President, A. H. Dwight; vice president and secretary, R. L. Pease; treasurer, S. B. Monroe; and directors, J. H. Dewing, S. B. Monroe, Hubbard Kleinstuck, E. W. Chase, A. H. Dwight, and A. G. Wightman.

NEKOOSA STOCKHOLDERS AND DIRECTORS MEET

Alexander Again Heads Big Wisconsin Company

THE Annual Stockholders meeting of the Nekoosa Edwards Paper Company was held at Port Edwards, Wisconsin, on Wednesday, January 16th.

The various reports made and the Treasurer's statement showed the Company in best financial position possible.

The Sales Manager reported orders coming in good shape and that all eight machines were running on orders.

The stockholders elected the following to act as directors for the New Year: L. M. Alexander, Judson G. Rosebush, L. M. Hanks, George W. Kibby, L. E. Nash, J. B. Nash, J. E. Alexander, C. A. Jasperson and F. J. Wood.

Following the adjournment of the stockholders meeting a dinner was served at the Company Hotel at Port Edwards, after which the stock holders inspected the various mills of the Company, including the new Alexander Mill which was completed the past year, and which has become known as the first "wasteless" mill in America.

In the afternoon the directors met and elected the following officers: Mr. L. M. Alexander, President and General Manager; Mr. J. G. Rosebush, Vice-president; Mr. L. E. Nash, Vice-president and Manager of Sales; Mr. J. E. Alexander, Treasurer; Mr. and C. A. Jasperson, Secretary.

* * *

Logging Operations Advancing

Logging operations which have been behld up in Wisconsin and Minnesota by the absence of snow prior to the first of the year are now booming. While there had been a considerable amount of wood cut it could not be transported because of the lack of snow.

What was fall weather with the temperature ranging to about 50 degrees above zero until January 1, 1924, has turned into real winter with the thermometer registering to 35 degrees below zero. There is now plenty of snow for any operations as over three feet of snow have fallen since the first of the year, making excellent sleighing and conditions for working in the woods. 12 of the first 15 days of January have been below zero days.

Shipments are arriving rapidly at the different mills, some of them receiving whole trainloads of logs at a time.

* * *

Do Not Pollute Streams

Protests that Wisconsin Paper Mills are polluting streams with the discharge of matter causing death to game fish have been found to have no basis in fact. Elmer S. Hall, in a recent communication to the Izaac Walton league, reported that the state conservation commission, of which he is chairman, has investigated reports, and found that the discharge from paper and pulp mills has had no injurious effect on fish. He also reports that the mills of Wisconsin are voluntarily co-operating in preventing injurious chemicals from polluting streams, most of them having installed save-alls which reduce the danger from this source to a minimum.

* * *

It certainly is fine, when you're so cold you can't sleep, to have someone get up and find an extra blanket for you.—*Tree to Trade.*

Through the Far West

To Start Work Soon

Within the next thirty days the recently announced Portland Pulp and Paper Company will have commenced the actual construction of its new $1,200,000 plant, which will consist of ten modern concrete buildings, of a size to accommodate the new foreseen great future needs of such a firm. By a special method the Portland Paper Pulp and Paper Company will be able to eliminate the pitch from fir lumber. Minimum cost of production will be possible owing to the consumption of all waste material from the nearby Monarch sawmill. The new concern, which will be the only one manufacturing kraft paper west of Wisconsin, has been capitalized for $1,500,000. In securing Joe Kaster for its vice-president the Portland Pulp and Paper Company have availed themselves of the services of a man with twenty-five years experience in the paper manuufacturing industry of the Northwest.

* * *

Institute Safety First Campaign

More than 500 employees of the Crown-Willamette Paper company mills at West Linn attended a meeting which was held to stir up enthusiasm among the men and to gain their co-operation in an intensive safety compaign. Mr. Coffin who is in charge of safety work in Portland, Oregon, gave an address on accident preventatives and Mr. Boynton also talked along the same line.

The 1100 employees of the West Linn Paper mills are laboring to have a No Accident Month. In 1923 the mills had 166 accidents with a loss of 2267 days.

Portland, Oregon, has a Safety First automobile drivers organization. Those who have joined the organization display large Safety First cards on their cars. The organization which was launched under the auspices of one of the leading dailies of the city is rapidly becoming popular.

* * *

Largest Year's Timber Cut

The nation's lumber cut for 1923 is the largest amount for any one year since 1916 acording to the estimates of the National Lumber Manufacturers Association. The prices for lumber have been good and this will have an influence on the prices asked for pulpwood timber.

* * *

Underwent Many Changes

The Crown-Williamette Paper Company mill at Floriston, California, underwent many changes during the past year, and there will be considerable more re-construction work done this year. New blow pits were built; the sulphite mill was renovated and some work started which will be completed in 1924.

* * *

Won $25. Prize

Jack Davis, a machine tender in the Crown-Williamette Company paper mill at Camas, Washington, won a $25 prize offered by the Alfelco people for an article on how to get the most efficient service out of a wet felt.

* * *

William A. Gavin, salesman employed by the Dixon Paper Company, Denver, Col., was arrested charged with embezzlement of approximately $1,300 of the paper company's money.

* * *

Governor Sweet, of Colorado, has appointed Clark B. Hicks, former president of the Typographical Union, to fill the vacancy of state printer, the position open, due to the recent death of Samuel J. Lewis. The appointment of Hicks is only temporary, civil service examination necessary for the permanent appointment.

* * *

By the way, have you noticed the NEW PAPER, the magazine of the paper industry?

If you have any suggestions how we can improve it, we want to hear them. We want to help our advertisers get business. PAPER wants to be an integral part of your business, for your success means our success.

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Association Activities of the Month

One of the most important association developments of the month is the conclusion of arrangements by which the newly organized Boxboard Manufacturers Association will cooperate with the American Paper and Pulp Association in the compilation of monthly production statistics. Under this arrangements the Boxboard Association will provide the American Paper and Pulp Association with total figures of its membership, and the central association will only attempt to secure board figures from those not members of this group. This is the same procedure now being followed with other group organizations in the industry, says the monthly Bulletin of the American Paper and Pulp Association.

Owing to the retirement of Jacob Erichsen, secretary of the Gummed, Glazed and Fancy and Binders Board Associations to enter into private business, the central organization will carry the work of these groups for the balance of the fiscal year.

In view of the Japanese earthquake the Bureau of Foreign and Domestic Commerce prepared a special bulletin on the possibilities of the Japanese market for building and roofing papers and wall boards for the reconstruction work. The industry was notified by the Association of this publication, and the interest evidenced was manifested in requests for the publication from the manufacturers of papers of other grades than those discussed.

The Association has been actively following up the developments in the Mellon tax plan, in view of the almost unanimous endorsement of the plan by the Association's referendum. The Association has been cooperating with other interested groups, such as the Merchants Association of New York, the Chamber of Commerce of the State of New York and has informed congressmen and senators from paper making states of the attitude of the industry.

The Census Bureau is endeavoring to complete the census of the paper industry for 1923 at the earliest possible date, and has asked the Association to assist by encouraging early reports from its members.

The joint committee of the American Paper and Pulp Association, Technical Association and Association of woodpulp importers has completed its program for listing the requirements for approved chemists to weigh, sample and test pulp, providing conditions for listing these chemists, and the methods they will pursue.

Through the Information Service, arrangements have been extended for the supplying to mills or others of films showing the manufacture of paper, or safety and other welfare films. Investigations of abuses of the tariff laws in importation of foreign papers are continuing.

Plans have been completed for the meeting at Washington, Feb. 7 of the newly organized Advisory Committee for the Department of Agriculture.

The Association assisted in selection of paper traffic men to participate in the organization of the Shippers Advisory Board for the Middle Atlantic States for the American Railway Association. The conference took steps to eliminate differences between shippers and carriers particularly on car service matters.

Hartness Heads Engineers

James Hartness, former governor of Vermont, and past president of the American Society of Mechanical Engineers, was elected president of the American Engineering Council to succeed Dean Mortimer E. Cooley of the University of Michigan, at the annual meeting of the Council, which was held in Washington January 10 and 11. Addressing the Council, President Harkness declared that his administration would be characterized by effort aiming to aid, through the engineering profession, the American people in making the best use of the nation's energies and resources.

Vice-presidents elected were L. P. Alford of New York and Charles R. Gow of Boston. Other vice-presidents are Calvert Townley of New York and Gardner S. Williams of Ann Arbor, Mich. Dr. H. E. Howe of Washington was re-elected treasurer, and L. W. Wallace of Washington was again chosen executive secretary.

An outstanding feature of the Washington assembly was the national Public Works Conference held on January 9, and attended by representatives of sixty-three engineering and allied organizations. The Conference adopted resolutions favoring a reorganization of Federal departments.

* * *

Favors An Embargo

Hon. Arthur Meighen, leader of the Conservative party in Parliament, speaking in Quebec recently, came out strongly in favor of an embargo on exports of pulpwood. He said: "We should be making paper of it in this country, and not allow our product to be shipped across the way as it is. Our own people should be afforded employment by this great industry, instead of exporting our fine pulp wood in the raw." At Grand Mere Mr. Meighen paid a nice compliment to the work of Mr. George Chahoon, president of the Laurentide Company, for his efforts in respect to the pulp and paper industry generally.

* * *

Sir Edmund Walker Speaks

In his annual address as President of the Canadian Bank of Commerce Sir Edmund Walker said: "In connection with the vitally important matters of saving our forest industries and of making a satisfactory profit from the use of forest products, we are again discussing the relative advisability of manufacturing the product in Canada, or of allowing the product to leave the country as raw material, with the aid of which foreign countries can compete with us or even undersell us. When this question arose in Ontario over the export of saw logs from Ontario to Michigan, I took an active part in the discussion and in the measures adopted to prevent such use of our raw material. There can be no reasonable doubt that to sell pulp logs to a foreign country, when we are ourselves highly expert in the art of paper-making, is a national folly of which our neighbors would certainly not be guilty, if the case were reversed. We recognize that in Ontario the saw-logs were being cut from Crown Lands, and that this principle is already in force in Quebec so far as pulp wood is concerned. Whether it is right ot interfere with private ownership in order to accomplish what is so advisable in the public interest, is a matter for legislators to decide, but that we should protect our forests, our paper manufacturers and our country generally by such a restriction is surely clear, if it is fairly possible. As an eminent Canadian said recently, 'We must either manufacture the raw material of Canada within the country...... or the sons of Canada will follow these raw materials out of the country.'"

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NEPCO EMPLOYEES MUTUAL ASSOCIATION ELECTS

Mutual Benefit Association Elects Officers for 1924 at Annual Meeting

MR. G. H. Suhs of Port Edwards was elected president of the Employees Mutual Benefit Association of the Nekoosa Edwards Paper Company of Port Edwards, Wiscounsin, at the annual meeting held on Thursday evening, January 17, at the Port Edwards Hotel. Other officers who will serve the association during the year 1924 are F. R. Goddard, vice-president; R. C. Peterson, secretary; and A. P. Mulroy, G. H. Suhs and F. H. Rosebush, executive committee.

Protects Employees

The Nepco Mutual Association was organized to provide protection to employees of the company and their families against sickness, accident or death. The plan of co-operative effort is one which has been generaly followed in American industry and there are now over 700 such associations in the country.

Membership of the Nepco association totals 868, which is 96% of the total number of men employed, and includes practically ever employee who is eligible to membership, these employees of all of the Company's mills at both Port Edwards and Nekoosa, as well as the Power Station as Wisconsin Rapids The receipts during the year of 1923 were $16,338, while $13,322 was paid out in benefits to members. The association now has a total of $11,305.20 cash on hand.

$12,874 For Accidents

The $13,322 which the association disbursed in benefits was not the only money received in that way by the Nekoosa-Edwards employees. The Employers Mutual Liability and Insurance Company of Wausau, Wisconsin, paid a total of $12,874.00 to Nekoosa-Edwards employees in 1923 under the provisions of the state workmen's compensation act under which all employees of industrial establishments are insured against accidents.

Purpose and Scope of Organization

The above mentioned association was started on March 1st 1921, and this is one of the most liberal associations.

Some of the features are as follows:

The dues are $1.00 per month or $12.00 per year.

$2.00 per day is paid for off duty accidents, sickness, etc.

Hospital allowance at rate of $2.50 per day.

$2.00 per day for on-duty accident not covered by Workmen's Compensation act.

$500 will be paid for off duty accident for irrecoverable loss of sight of eye or amputation of hand or foot.

$1000. is paid for off duty accident for total and irrecoverable loss of sight of both eyes; or the loss of both hands or both feet, or one hand and one foot.

Death in case of sickness or off duty accident $1000.

The object of the Association when it was formed was to provide its members with a definite income when sick and when disabled by accident, not covered by the Wisconsin Workmen's Compensation Act, and to pay their family a certain definite sum in case of death, at the least possible cost, considering the benefit.

Directors are chosen from the different departments in the mill and office there being a board of 12 directors.

Benefits paid from March 1, 1920, when the organization was started to January 1, 1924, are as follows:

896 Cases of Sickness	$28,942.00
86 Off Duty Accidents	1,789.80
208 Mill Accidents	2,174.00
10 Deaths	9,700.00
Medical Services	3,415.00
Hospital Allowance	2,814.25
Total Benefits Paid	$48,835.05

NORRIS APPOINTED RECEIVER

J. Victor Baron Leaves Position as President of Carthage Sulphite

THE appointment of Attorney Charles E. Norris of Carthage as receiver of the Carthage Sulphite Pulp & Paper Company last week meant the automatic vacation by J. Victor Baron of the office of president of the company. The other officers of the company also cease to function in their official capacities. They are: Lyman Rhoades, vice president, and Guy C. Jones, secretary and treasurer.

President Baron took over the management of the company about a year ago when difficulties developed. He is vice president and general manager of the Sherman Paper Company and one of the most astute and successful paper manufacturers in this section. He undertook the job of placing the Carthage concern on a paying footing, but shortage of Working capital thwarted his efforts with the receivership the inevitable climax.

There are those identified with the company who express the feeling that the mill will never be returned to the manufacture of paper and that ultimately its fine water power will find its way into the electric system of the Northern New York Utilities Inc., under the ownership of the Carlisle group.

The U. S. Gypsum Company is now admitted to have undertaken negotiations for the plant with a view to manufacturing its board supply there, but it is now claimed that this deal is all off.

Attorney Norris says that appraisers will be appointed by the court and these men would look over the property and obtain data on valuations.

Whether the mill would continue in operation while in receivership or whether the property would be sold is a matter to be decided later.

Asked regarding an Albany report that attorneys of unsecured creditors had asked for the appointment of a referee, he said that he knew nothing of this and that he was appointed receiver for all creditors and not for any special ones. He said that creditors having real preferred claims would of course receive prior payment.

The Albany report states that Attorney Francis E. Cullin of Watertown and Attorney W. B. Van Allen of Carthage represent unsecured creditors having claims of $219,000 out of $475,000 in unsecured claims.

The report further states that the business lost $150,000 the past year or about $12,500 a month. Sales for the five months up to December were cited as $387,000 but of this amount it is said that $64,000 was paid to the Finance and Guarantee Co., of Baltimore, to get immediate money on accounts receivable.

More Merger Reports

Montreal advices state that negotiations have been renewed for a merger of newsprint mills in St. Maurice valley on a larger scale. The companies included are Laurentide, St. Maurice, Belgo-Canadian and St. Lawrence Paper Mills. The latter is controlled by the same interests that control the Hollinger Gold Mines. Definite offers will be made in a few days for various properties. It is understood New York financial houses are working closely with the Canadians.

May Locate Paper Mill

Lately paper manufacturers have been looking over conditions in Albany, Linn county, Oregon, with a view to locating a plant at that place. It is stated that plenty of pulpwood timber can be obtained nearby, labor can be easily secured, and that market facilities are good. If a mill is located at Albany it will give two paper mills to the county. Lebanon mill is in Linn county and situated about fifteen miles east of Albany.

Erichsen with Atterbury & McKelvey

Jacob Erichsen, who for nearly two years has been serving as Secretary of several of the smaller associations in the paper industry, such as the Gummed, Glazed and Fancy and Binders Board Manufacturers Associations, has resigned to take effect January 15, when he goes with Atterbury & McKelvey, to engage in the sale of Scandinavian pulp. The various associations have decided not to name a successor at once, but have asked the American Paper and Pulp Association to handle the work for them until the general convention of the paper associations early in April. Mr. Erichsen has had offices with the American Paper and Pulp Association and has been successful in developing some valuable phases of cooperative activity on behalf of the groups which he has served.

Drake Process Explained

A late new invention, which required many years to accomplish and the expenditure of a vast amount of money, is now a reality and is known as the Drake Process, for producing all kinds of cartons, containers and milk bottles, of which the aggregate it is estimated One Hundred Millions are used daily in the United States; also dolls, toys, conduits, conveying pipe and hundreds of other articles, all of which are molded direct from the ground wood or waste paper pulp, into a seamless sanitary, one piece article at one operation automatically and in a few seconds time.

All of the containers made under the Drake Process are made with the use of SUPER-HEATED AIR OR STEAM at 600 DEGREES FAHRENHEIT, thus being enabled to sterilize all of the products to TWICE the amount OF HEAT used to sterilize doctors' instruments. This is the only known process where sterilization at such a degree of heat is possible in the manufacture of any dry container.

Among the articles made are: Liquid containers, semi-liquid containers, dry containers, shipping cases, baking powder cans, smoking tobacco cans, milk bottles, breakfast food cans, dolls and toys, kegs and barrels, talcum powder cans, show window forms, coffee cans, gold dust cans, salt and oat cans.

New Color on Market

The Dyestuffs Department of E. I. du Pont de Nemours & Company, in response to a demand from the paper and cotton trades for a very green shade of direct yellow, has just placed on the market a new yellow, known as Pontamine Yellow SXG, which produces dyeings greener and brighter than Pontamine Yellow SX, but possessing the same good properties.

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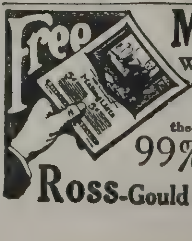

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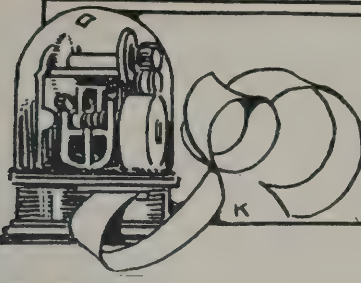

LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.75 @ .85
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	50.00 @ 55.00
Chip	45.00 @ 50.00

Paper and Board

New York, January 22—Demand for paper of most kinds is not developing in a way that many members of the trade would like to see it. Consumers are proceeding very carefully in their buying; few are placing orders for other than supplies which are actually and immediately needed, and yet the market is characterized by fair activity for just this point in the year. One of the principal complaints of manufacturers and jobbers is the small volume of orders. This of course reflects the fact that buyers are operating on a hand-to-mouth scale, and is not likely to improve until consumption increases and users have need for larger amounts of paper.

Moreover demand is very spotty. In some parts of the trade reports are received to the effect that business is quite satisfactory, in others just the opposite is reported. Obviously this means some consumers are buying in relatively larger volume than others; also that certain kinds of paper are in much better call than others. Mills as a general rule are securing enough business to warrant productive operations on a fair scale. Few are running at capacity; on the other hand, few have been obliged to close down. It was reported during the week that the International Paper Company shut down one of its plants at Franklin, N. H., orders having gone out from the New York offices of that company, and poor business being given as the cause. Were this some other paper manufacturing concern, this development would doubtless bear greater significance; for example, if some company having one or two or even three mills was compelled to close one of its plants it would signify that paper demand was anything but satisfactory, but a company such as the I. P. with its numerous mills can discontinue operations at a single mill without meaning a great deal

Newsprint is in a firm market position, and no let up in the movement of print paper toward consumption is reported. Quotations are marked by a strong tone, with transient buyers frequently finding it necessary to grant slight increases to cover their requirements owing to the fact that most newsprint manufacturers are sold up on contracts.

Production of all classes of paper from the mills of the International Paper Company aggregated 540,000 tons in 1923, according to preliminary figures made public by that company. This compares with about 433,800 tons produced in 1922, showing a very healthy increase. The output last year, according to President Philip T. Dodge, was made up of one-third high grade paper and the balance newsprint.

Inquiries for fine paper in the hands of manufacturers and jobbers are developing into orders, and the movement of bonds and ledgers is gradually increasing. Prices are holding firm on high grade papers and this is a factor which is helping to bring buyers into the market. The cost of rags and other raw materials is steadily mounting, and manufacturers contend there is small probability of prices receding on any of the lines of fine

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paper unless there should be an unforseen reaction in the raw material market.

Book paper is in good movement but there is much room for improvement in this branch of the trade. Contract buyers of book paper are absorbing supplies in a steady manner and in moderate tonnage but demand from other consumers is slow. Prices are somewhat soft and producers are now and then shading quotations in an effort to stimulate demand.

Tissues are quotably steady and in routine call. Wrapping papers also are moving in routine amounts but mills are looking for additional orders and are granting some price concessions.

Box boards are easy in price and in limited demand. Plain chip is quoted at $45 a ton f.o.b. New York and news board at $50 per ton, and the probabilities are purchases are being made at cheaper prices. It is evident mills are competing for business and that they are shading prices.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract ..	3.50	@	3.75
Rolls, tranient ..	4.00	@	4.25
Sheets, contract ..	4.00	@	4.25
Sheets, transient .	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic ..	6.00	@	6.50
No. 2 Domestic ..	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1 ...	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	5.50	@	6.00
No. 2 Fiber	4.50	@	5.00
Card Middles ...	3.75	@	4.00
Common Bogus .	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	50.00	@	55.00
Straw, in sheets .	55.00	@	60.00
Binder Boards ...	80.00	@	85.00
Chip	45.00	@	50.00
Manila Lined Chip	70.00	@	75.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

A little easing of quotations on mechanical pulp has been noted, due, it is stated, to available supplies in the market being somewhat larger than they were, reflecting the increased operations of grinders occasioned by favorable weather conditions. Producers in Canada are reported selling ground wood to United States consumers down to $35 a ton f.o.b pulp mills, while importers of ground wood from Scandinavia are said to have disposed of some pulp on the spot at New York or other American Atlantic ports at as low as $31 a ton ex dock. Domestic grinders are quoting around $38 a ton at producing plants, quotations of course depending on the air dry test and the freight to consuming points. The open weather thus far this winter has enabled grinders to keep producing at a good rate, it is stated, and this has resulted in the accumulation of some surplus stocks of ground wood, which probably explains more than any other reason the sagging of prices.

Foreign and Domestic Chemical Pulp

Business in chemical wood pulp continues to develop slowly and yet the market is unmistakably showing some improvement, and it is well apparent that paper manufacturers are exhibiting more interest in offerings. Not a great deal of support is being given the market by important buyers, and although the situation is such where it appears everything is set for an advance in values, and sellers are more confident in their views and are offering less pulp, prices are afforded little opportunity to rise because of the limited demand. In some quarters quotations have been raised slightly. Foreign unbleached strong sulphite is quoted at between 2.65 and 2.75 cents a pound ex dock New York, against a recent bottom price of 2.50 cents, while Scandinavian kraft pulp is quoted at around 2.60 cents on the dock, whereas a short while ago purchases were made at below 2.50 cents. Domestic pulps show a hardening price tendency also. Producers claim there is no profit in manufacturing at present market values and are endeavoring to get prices up to where they can operate their mills at other than a loss. It is generally felt that as the winter progresses demand for pulp will expand, and with the increase in the movement into consuming channels it is believed values will be enhanced. Quotations ex dock New York and f.o.b. pulp mills are:

Sulphite foreign—			
Bleached No. 1..	4.00	@	4.50
Unbleached No. 1.	2.65	@	2.80
Unbleached No. 2	2.50	@	2.75
Easy Bleaching	2.90	@	3.15
Sulphite, domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No. 1	2.70	@	2.90
Unbleached news grade	2.50	@	2.70
Easy Bleaching	2.75	@	3.00
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kaft, domestic	2.65	@	2.90
Sulphite, screenings, refined	1.50	@	1.75

Domestic Rags

Probably the firmest kind of papermaking material at present is rag stock. Practically all grades or rags are in demand and prices are steadily moving higher, the low qualities used by roofing paper mills leading and nearly all the other grades sharing in the advance. Sales of No. 1 roofing rags have been made at 2 cents a pound and higher f.o.b. New York, while No. 2 packing has sold at 1.80 and 1.85 cents f.o.b. this city. Moreover, mills have bought freely at these prices and indications are dealers are well sold up for some time. Old thirds and blues have risen sharply. Repacked rags of this class have brought 3.50 cents a pound at shipping points though, according to quality of packing, they also are available at less than this figure. Old whites are firm and are gradually moving upward in value. New cuttings are in good demand and quotably firm with a particularly active inquiry for No. 1 white shirt cuttings at around 13.50 cents a pound New York, blue overall cuttings at 9 cents, and unbleached muslins at 11.75 cents. Quotations f.o.b. New York follows:

New Shirt Cuttings, No. 1	13.50	@	14.00
No. 2	6.00	@	6.25
Fancy Shirt Cuttings	6.25	@	6.50
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.50	@	5.00
White Lawns	11.25	@	11.50
New Muslins, unbleached	11.75	@	12.00
Light Silesias	8.25	@	8.50
Black Silesias	5.50	@	5.75
Overall Cuttings, Blue	8.75	@	9.00
Washables	5.25	@	5.50
New Black Mixed	5.00	@	5.25
Soiled Whites, house	3.25	@	3.50
Soiled Whites, street	3.00	@	3.25
Thirds & Blues, repacked	3.25	@	3.50
Thirds & Blues, misc.	2.50	@	2.75
Black Cotton Stockings	3.75	@	4.00
Roofing Rags, No. 1	2.00	@	2.10
Roofing Rags, No. 2	1.80	@	1.85

Imported Rags

Imported papermaking rags also are in active demand and advancing in price. Importers claim to be obliged to meet higher rates abroad and are repeatedly marking up quotations to mills, despite which a steady buying movement is noted. Dark colored cottons are bringing 1.80 to 1.90 cents a pound ex dock New York, while sales of German blue cottons have been reported at 3.25 cents a pound on the dock. Linens are firm and under inquiry, and new rags are moving in a consistent manner. Ex dock New York prices are as follows:

Lins., White, No. 1	12.00	@	13.00
Ger. Blue Cottons	3.25	@	3.50
French Light Blues	3.50	@	3.75
New Light Prints	6.50	@	7.00
New Unbleached	10.00	@	10.50
German Linen, blue	4.00	@	4450
German Linen, grey	6.00	@	6.50
German S. P. F.'s	6.00	@	9.00
German Light Prints	4.00	@	4.25
Dk. Colored Cottons	1.80	@	1.90

Bagging, Rape, Etc.

Old rope prices are well maintained with dealers reporting sales of No. 1 domestic manila rope at 6.50 to 6.75 cents a pound f.o.b. shipping points and of No. 1 foreign rope at 6.25 cents ex dock New York. The feature in old bagging is the broader demand for gunny and for roofing bagging. No. 1 gunny is fetching 1.50 cents a pound at dealers' shipping points for domestic and close to this figure on the dock for foreign stock, while roofing paper mills are paying one cent a pound and higher for roofing bagging at shipping points. F.o.b. New York quotations follow:

Gunny, No. 1	1.50	@	1.60
Foreign	1.40	@	1.50
Wool Tares, light	1.20	@	1.40
Wool Tares, heavy	1.40	@	1.60
Scrap. Bagg., No. 1	1.25	@	1.50
Roofing Bagging	1.00	@	1.10
For. Manila Rope	6.00	@	6.25
Domestic Rope	6.50	@	6.75
Mixed Strings	1.00	@	1.25

Old Paper

After having displayed a stiffening tendency for a while, prices of old paper have again turned easy and some grades are slightly lower in value. This is especially true as regards the cheaper qualities. Dealers appear to be holding the high grades but are letting go of the low qualities for whatever they can secure in the way of price. Folded newspapers are selling at 85 cents a hundred pounds f.o.b. New York, and possibly at a shade less, while No. 1 mixed paper is available at 65 cents New York. Shavings are little wanted, and offerings of shippers have been noted at 3.85 cents a pound and less f.ob. New York of No. 1 hard white and at 3 cents New York No. 1 soft white shavings. Flat magazines are selling at between 1.50 and 1.75 cents a pound at shipping points, and No. 1 crumpled magazines at 1.25 to 1.35 cents. Old kraft paper is steady at about 2.15 cents a pound New York. Quotations f.o.b. this city follow:

No. 1 Hard White Shavings	3.75	@	4.00
No. 2 Hard White Shavings	3.25	@	3.50
No. 1 Soft White Shavings	3.00	@	3.25
Box Board Chips	.70	@	.75
No. 1 Colored Shavings	1.60	@	1.75
Magazine flat stock	1.50	@	1.65
No. 1 Crumpled	1.25	@	1.35
Solid Ledger Books	2.15	@	2.25
Ledger Stock	1.90	@	2.10
Kraft No. 1	2.10	@	2.20
New Manila Cuttings	2.00	@	2.25
New Manila Env, Cuttings	2.75	@	3.00
Bogus and Mill Wrappers	.90	@	1.00
News, strictly overissue	1.10	@	1.15
Folded News	.85	@	.90
No. 1 Mixed Papers	.65	@	.70
White Blank News	2.25	@	2.35
Common Paper	.40	@	.45

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Twines

Current demand for twines is mostly of routine character yet it is said the market is showing fair activity for this time of the year. The price tone is very firm, due more to the strength in raw materials than to any unusual movement of the finished product into consuming channels. No. 1 manila rope is quoted at 15.25 cents a pound, jute rope at 15 cents, and papermakers' twine at 11.50 cents. Quotations are:

Sisal Hay, pure	12.25	@ 13.25		Jute Wrapping twine, A grade	20.00	@
Manila Hay, pure	16.25	@ 17.25		Papermakers Twine	11.50	@
Sisal Lath Yarn	12.25	@ 13.25		B. C. Hemp, 18	.39	@ .40
Manila Rope, pure, ¾ inch diameter	14.25	@ 15.25		B. C. Hemp, 24	.38	@ .39
Hardware Rope	11.25	@ 12.25		B. C. Hemp, 36	.37	@ .38
Jute rope, ¼ diam. and over, coils	14.00	@ 15.00		America Light India—No. 6	14.50	@
Sail twine, A grade	20.00	@		No. 7	13.50	@

Chemicals

Papermaking chemicals are in routine movement, chiefly against contracts, and generally lacking trading feature. Prices are quotably maintained with no changes of importance recorded.

IMPORTS AT NEW YORK

Week of January 14-19

Paper

Str. Conte Verde, Genoa—Japan Paper Company, 130 cs.

Str. Kristianiafjord, Harnosand—Order, 26 bls. wrapping.

Str. West Elcasco, Genoa—Order, 9 cs.

Str. Thuringia, Hamburg—New York Label & Box Works, 9 cs. cardboard; J. P. Heffernan Paper Company, 686 bls. wrapping; Keuffel & Esser Company, 76 cs. drawing; First National Bank of New York, 37 bls. wrapping; New York & Hauseatic Corporation, 188 rolls newsprint; P. H. Petry & Co., 4 cs.; Bernard, Judae & Co., 5 cs.; National City Bank, 196 rolls hanging; Order, 253 rolls and 16 bls. wrapping.

Str. Elzasier, Antwerp—Irving Bank-Columbia Trust Company, 63 bls. wrapping; Order, 3 cs.

Str. Paris, Havre—A. Flinn & Co., 6 cs.; Dupont Cellophane Company, 15 cs.; Japan Paper Company, 11 cs.; Whiting Patterson Company, 5 cs.; Globe Shipping Company, 3 cs.

Str. Belgenland, Antwerp—P. C. Zuhlke, 82 cs. printing.

Str. Olen, St. Nazaire—DeManduit Paper Corporation, 284 cs. cigarette; R. J. Reynolds Tobacco Company, 1,210 cs. cigarette; from Bordeaux—American Tobacco Company, 1,400 cs. cigarette; Bernard, Judae & Co., 31 bls. filter.

Str. Antonia, London—R. F. Downing & Co., 23 bls. hanging.

Str. Cedric, Liverpool—F. J. Emmerich & Co., 2 bls. hanging; J. J. Gavin & Co., 2 cs. photo; W. H. S. Lloyd & Co., 77 bls. hanging.

Str. Columbia, Glasgow—Blauvelt-Wiley Paper Mfg. Company, 104 bls.

Str. Orduna, Hamburg—W. Hartman & Co., 40 bls. and 80 rolls wrapping and 103 rolls newsprint; Hudson Trading Company, 57 rolls newsprint; J. B. Moors & Co., 51 rolls newsprint; New York & Hauseatic Corporation, 64 rolls newsprint; Wilkinson Bros. & Co., 55 bls. wrapping; Maurice O'Meara Company, 27 bls. wrapping; Chemical National Bank, 114 rolls newsprint; Bernard, Judae & Co., 15 cs. filter; Hallgarten & Co., 1,108 rolls wrapping; A. H. Ringk & Co., 66 rolls newsprint; Order, 218 bls. and 168 rolls wrapping and 2 rolls newsprint.

Str. Puget Sound, Helsingfors—Order, 136 rolls newsprint.

Str. Stockholm, Gothenburg—Newsprint Paper Corporation, 174 rolls newsprint; Wilkinson Bros. & Co., 26 bls. wrapping; Miller Paper Company, 597 rolls newsprint; Arkell Safety Bag Company, 96 rolls wrapping; Bernard, Judae & Co., 1 cse.

Str. Ausonia, Liverpool—F. C. Strype, 26 cs. tissue; Oxford University Press, 16 cs. printing; Brooks Paper Company, 6 cs. tissue.

Wood Pulp

Str. Kristianifjord, Husum—Pagel, Horton & Co., 7,200 bls. sulphite; from Domsjo—Pagel, Horton & Co., 7,200 bls. sulphite.

Str. Thuringia, Hamburg—American Woodpulp Corporation, 1,000 bls.

Str. Boschdyk, Rotterdam—M. Gottesman & Co., 2,450 bls.

Str. Kolsnaren, Stockholm—Pagel, Horton & Co., 3,480 bls. sulphite.

Str. Orduna, Hamburg—H. Hollesen, 2,810 bls.; M. Gottesman & Co., 367 bls.

Str. Puget Sound, Helsingfors—J. Anderson & Co., 450 bls. sulphite; E. J. Keller Company, 275 bls. sulphite; Lagerloef Trading Company, 103 bls.; Johaneson, Wales & Sparre, 5,316 bls.; Pagel, Horton & Co., 1,336 bls. sulphite; Bulkley, Dunton & Co., 1,500 bls. sulphite.

Str. Stockholm, Gothenburg—R. F. Hammond, 750 bls. sulphite; Johaneson, Wales & Sparre, 340 bls. sulphite; Order, 750 bls. sulphite.

Old Rope

Str. Thuringia, Hamburg—Brown Bros. & Co., 50 coils and 10 bls.

Str. Boschdyk, Rotterdam—Order, 32 coils.

Str. Galileo, Hull—Brown Bros. & Co., 28 coils; from Newcastle—Brown Bros. & Co., 163 coils; Guaranty Trust Company, 659 coils.

Rags

Str. Welshman, Liverpool—Albion Trading Company, 20 bls.

Str. Boschdyk, Rotterdam—E. J. Keller Company, 96 bls.; Robert Blank, 124 bls.

Str. Elzasier, Antwerp—Brown Bros. & Co., 603 bls.; Irving Bank-Columbia Trust Company, 51 bls.; International Acceptance Bank, 102 bls.

Str. Paris, Havre—Equitable Trust Company, 2,741 bls.

Str. Olen, St. Nazaire—Goldman, Sachs & Co., 109 bls.; Salomon Bros. & Co., 94 bls.; P. Berlowitz, 68 bls.

Str. Galileo, Newcastle—Philadelphia National Bank, 165 bls.; Brown Bros. & Co., 132 bls.; Order, 20 bls.

Str. Westerner, Antwerp—Castle & Overton, 221 bls.

Str. Cedric, Liverpool—Albion Trading Company, 37 bls.

Str. Columbia, Glasgow—Brown Bros. & Co., 5 bls.

Str. Ausonia, Liverpool—Order, 14 bls.

Str. President Polk, London—George M. Graves Company, 58 bls.

Paper Stock

Str. Thuringia, Hamburg—Mechanics & Metals National Bank, 39 bls.

Str. Elzasier, Antwerp—Salomon Bros. & Co., 42 bls.; Maurice O'Meara Company, 135 bls.; American Exchange National Bank, 63 bls.

Str. Lexington, Dundee—Guaranty Trust Company, 72 bls.; Equitable Trust Company, 60 bls.; Baring Bros. & Co., 116 bls.; Order, 9 bls.

Str. Westerner, Antwerp—Salomon Bros. & Co., 67 bls.

Str. Columbia, Glasgow—Order, 137 bls.

Eight U. S. Companies Bid

With eight United States companies bidding for pulpwood in the Thunder Bay district, and the total value of the export pulp estimated at 1,000,000, pulpwood operators and pulp "farmers" stand opposed to any legislative measures that would exclude the United States interests or make it prohibitive for them to buy on this side of the international border. This was the decision made by witnesses before the Royal Commission on pulpwood which sat at Port Arthur. One of the main arguments advanced by the farmer-operators was that the placing of an embargo on pulpwood to the United States would place the producers at the mercy of the home concern who would then be able to dictate the price of wood, without interference from outside competitors. Practically the entire district of Thunder Bay is opposed to the placing of an embargo or tax upon Canadian pulpwood going to the United States. Mill operators appeared the only interests supporting the idea.

* * *

Backus To Push Power Project

The Lake of the Woods control has practically effected an arrangement with R. W. Backus, Fort Frances, Ont., and Minneapolis millionaire lumber and pulp operator by which he will be enabled to proceed with his proposed power development at the Norman Dam at the outlet of the Lake of the Woods. Control of the Lake of the Woods levels will be secured to the board by the arrangement. What remains to be settled is the share of the cost of reconstruction work at the Norman Dam, which the Government should bear.

* * *

Sherwood Stockholders Meet

The annual meeting of stockholders and directors of the Sherman Paper Company of Watertown, N. Y., was held in the local offices last week. No change was made in the organization of the company and no special business of public interest was reported.

Mrs. Alice T. Sherman was reelected president; J. Victor Baron was continued as vice president and general manager, and O. P. Barnes was reelected secretary and treasurer.

The stockholders elected the following directors: A. T. Sherman, J. V. Baron, O. P. Barnes, George Olmsted, of Chicago, and Delos M. Cosgrove.

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Although it was promised as a Christmas present we have this much desired book for a New Year's gift. The fact that the date of publication on the title page is 1924 goes to show that the editor was promising more than he could perform. However, we have the book and will make a good start for the new year by reading it. Perhaps its advent will stimulate many of those who have the third volume in their bookcases to read it as well.

It is a book of 527 pages divided into six sections as follows:

Section 1. Preparation of Rags and Other Fibers, 62 pages, 19 illustrations, by E. C. Tucker.
Section 2. Treatment of Waste Papers, 72 pages, 21 illustrations, by E. T. A. Coughlin.
Section 3. Beating and Refining, 80 pages, 32 illustrations, by A. B. Green, with a Bibliography of 6 pages by C. J. West.
Section 4. Loading and Engine Sizing, 49 pages, 14 illustrations. Loading by Ross Campbell and Engine Sizing by J. A. DeCew.
Section 5. Coloring, 54 pages, 4 illustrations, by the Dyestuffs Committee of TAPPI in collaboration with Otto Kress.
Section 6. Papermaking machines, 210 pages, 83 illustrations, by J. W. Brassington.

In addition to the authors the editor and the committee in charge of the preparation of the work credit a long list of companies and individuals for helpful service and advice.

All that was said of the third volume covering the Preparation and Treatment of Wood Pulp may be repeated. Its successful accomplishment is unique as it represents the co-operative effort of the paper industry of a whole continent. Never have such care and expense been devoted to the preparation of an industrial work of instruction and reference.

Each section after being written, was examined and criticized while in manuscript by several competent authorities. The book is in fact the work of more than one hundred men prominent in the industry.

When the final volume of the set, now well advanced, is completed it would be difficult to exaggerate the importance of the achievement to extend too much praise to the editor-in-chief, J. N. Stephenson.

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BOND PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.

BOX BOARDS

STANDARD Paper Co., Kalamazoo, Mich.

BRIMSTONE

UNION Sulphur Co., New York.

CARS

Pulp

Easton Car & Construction Co., 196 Fulton Street, New York City.

Chase Foundry & Mfg. Co., 2800 Parsons Ave., Columbus, Ohio.

CASEIN

California Central Creameries, Inc., 425 Battery, San Francisco, Calif.

Bird & Co., J. A. & W., 88 Pearl St., Boston, Mass.

King, E. & F. & Co., 367 Atlantic Ave., Boston, Mass.

Reardon Company, 127 Clinton, St. Louis, Mo.

Wiarda, John C. & Co., 91 Provost St., Brooklyn, N. Y.

Sheffield By-Products Co., Hobart, N. Y.

Atterbury Bros., 145 Nassau St., (French Imported) New York City.

Casein Mfg. Co., 15 Park Row, New York City.

Duche & Sons, T. M., (Imported), 376 Greenwich St., New York City.

Hamilton Company, 50 Church St., New York City.

Innis, Speiden & Co., Inc., Isco Building, 46 Cliff, New York City.

Kalbfleisch Corp., The, 31 Union Sq., New York City.

Peek & Velsor, 8 Gold, New York City.

Scheel, Wm. H., 159 Maiden Lane, New York City.

Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.

Amalgamated Gum Co., (Vegetable for Wall Paper & Paper Coater Mfgrs.) Troy, N. Y.

Ferguson, Alex C., Jr., 460 Chestnut St., Philadelphia, Pa.

Rosin & Co., Penna. Bldg., Philadelphia, Pa.

Smith, Kline French Co., 431 Arch St., Philadelphia, Pa.

Union Casein Company, 822 Broad, Philadelphia, Pa.

Turnbull, J. G. Co., Orleans, Vt.

CHAINS AND WHEELS

LINK-BELT Co., Chicago, Ill.

CHEMICALS

Papermakers

du Pont, E. I. de Nemours & Co., Inc., Lithopone, Pigments & Heavy Chemicals Div., Wilmington, Del.

Western Paper Makers Chemical Co., Kalamazoo, Mich.

American Woodpulp Corp., 347 Madison Avenue, New York City.

Battelle & Renwick, 80 Maiden Lane, New York City.

Burns Mfg. Co., 46 W. Broadway, New York City.

Cooper, Charles, & Co., 194 Worth, (Job), New York City.

KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.

Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.

National Sales Co., Cincinnati, O., (Bentonite).

Paper Makers Chemical Co., Easton, Pa.

PENNSYLVANIA Salt Mfg. Co., Chestnut St., (Bleach), Philadelphia, Pa.

EMPIRE Size & Chemical Co., (Rosin Size—Foam Killer—Felt Soap), Albany, N. Y.

Philadelphia Quartz Co., 121 So. 32 St., Philadelphia, Pa., Silicate of Soda.

CLAY

China

United Clay Mines Corp., Trenton, N. J.

Bernhan Chemical & Metal Corp., 309 Broadway, Job), New York City.

Bingswanger, H. P., 7 West 16, New York City.

Chrystal, Chas. B., Co., Inc., 99 John, (Imp.), New York City.

Drakenfeld, B. F., & Co., Inc., 50 Murray, New York City.

English China Clays Sales Corp., 33 West 42nd St., New York City.

General Mineral Co., Inc., 104 Spring, New York City, (Imp., Exp. & Mfrs. Agts.)

Hammell & Gillespie, 240 Front, New York City.

Higman Company, John W., 29 Broadway, New York City.

Innis, Speiden & Co., Inc., Isco Building, 46 Cliff (Job), New York City.

Keystone Minerals Co., 41 Union Square, New York City.

Penn-Keystone Co., 41 Union Square New York City.

Roessler & Hasslacher Chem. Co., 709 6th Avenue, New York City.

Salomon & Bro., L. A., 216 Pearl, (Imptr., Exptr. & Dir.), New York City.

Scheel, Wm. H., (Dept. A.), 159 Maiden Lane, (Imptrs., Exptr. & Dir.), New York City.

Smith & Co., J. Lee, 23 Jacob, New York City.

Taintor Mfg. Co., H. F., 2 Rector, (Bolted), New York City

Tennant Sons & Co., C., 76 William New York City.

Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City

Vanderbilt, R. T. Co., Inc., 50 East 42nd St., New York City.

Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.

Hardis Kaolin Co., Dillsboro, N. C.

Onondaga Pottery Co., (Vitrified), Syracuse, N. Y.

Excelsior Ball Clay Co., 31 East 13th, Cincinnati, Ohio.

National Sales Co., 31 East 13th, Cincinnati, Ohio.

Harshaw, Fuller & Goodwin Co., (Imptr.), Cleveland, Ohio.

Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.

Florida China Clay Corp., (Fla.), Easton, Pa.

Immaculate Kaolin Co., (For filling, coating & pottery purposes), Easton, Pa.

Peper Makers Chemical Co., (Eng.), Easton, Pa.

Williams, C. K., & Co., (Bolted), (Imptrs.), Easton, Pa.

Atlas Mineral Products Co., Mertztown, Pa.

Star Clay Co. (powdered & lump washed), Mertztown, Pa.

Fergusson, Alex. C., Jr., 460 Chestnut, Philadelphia, Pa.

Foote Mineral Co., Inc., 113 No. 19th, Philadelphia, Pa.

Nevins Co., Samuel, 109 So. 2nd, (Dried, Grd. & Bolted), Philadelphia, Pa.

Philadelphia Clay Co., 1201 Chestnut, Philadelphia, Pa.

Wayner, Chas. A. Co., Inc., 814 Noble St., Philadelphia, Pa.

Lyon & Bro. S. C., Bennington, Vt.

Horn, Crockett & Co., (Miners & Refiners), Brandon, Vt.

Dill-Coppage, Inc., 235 Pine (Imptrs. & Exptrs.), San Francisco, Calif.

Savannah Kaolin Co., Savannah, Ga.

Bennett & Davis, Inc., 327 So. LaSalle, Chicago. Ill.

Mepham, Geo. S., & Co., East St. Louis, Mo.

Cooley Ball & Sagger Clay Co., Hazel, Ky.

Kentucky Const. & Improvement Co., Pryersburg, Ky.

Western Paper Makers Chemical Co., Kalamazoo, Mich.

McHose Clay Co., Perth Amboy, N. J.

McHose, L. H., Inc., P. O. Box 345, Perth Amboy, N. J.

Such Clay Co., Perth Amboy, N. J.

Perrine, Hy. C., & Son, South Amboy, N. J.

Golding Sons Co., Trenton, N. J.

CLAY

Papermakers

Savannah Kaolin Co., Savannah, Ga.

Owyhee Chemical Products Co.,3946 So. Union Avenue, Chicago, Ill.

Western Paper Makers Chemical Co., Kalamazoo, Mich.

Laclede-Christy, Railway Exch. Bldg., St. Louis, Mo.

Crossman Co., South Amboy, N. J.

Wright, Marcus S., South River, N. J.

United Clay Mines Corp., Trenton, N. J.

Carbola Chemical Co., Inc., 299 Ely Avenue, Long Island City, N. Y.

Binney & Smith Co., 81 Fulton, New York City, N. Y.

Chrystal, Chas. B. Co., Inc., 99 John, New York City.

General Mineral Co., Inc., 104 Spring, (Imptrs. & Exptrs., Mfg. Agts.), New York City.

Higman, John W. Co., 29 B'way, (Eng. & Amer.), New York City.

International Pulp Co., 41 Park Row, New York City.

Johns & Company, Inc., 50 Church, New York City.

PERKINS-GOODWIN Co., 33 West 42nd St., New York City.

Talc Products Co., 120 B'way, New York City.

Vanderbilt, R. T. Co., Inc.. 50 East 42nd St., New York City.

Whittaker, Clark & Daniels, Inc., 245 Front St., (Exp. & Impt.), New York City.

Excelsior Ball Clay Co., 31 East 13th St., Cincinnati, Ohio.

National Sales Co., (Colloidal Clay), Cincinnati, O.

Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.

Williams, C. K. & Co., Easton, Pa.

Star Clay Co., Mertztown, Pa.

South Carolina Clay Co., West Chester, Pa

Horn, Crockett & Co., Brandon, Vt.

CLAYS

Francesconi, J. C., & Co., 25 Beaver, New York City.

General Mineral Co., Inc., 104 Spring, New York City.

Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.

COAL AND ASH HANDLING MACHINERY

LINK-BELT Co., Chicago, Ill.

COGS

Menasha Wood Split Pulley Co., Menasha, Wis.

COLORS

Papermakers

King, E. & F. Co., 376 Atlantic Ave., Boston, Mass.

Hampden Paint & Chemical Co., Springfield, Mass.

Lucas & Spencer Co., (Pulp), Camden, N. J.

Sun Chemical & Color Co., Harrison, N. J.

Central Dyestuff & Chemical Co., Plum Point Lane, Newark, N. J.

United Color & Pigment Co., Evergreen Ave., Newark, N. J.

Janeway & Carpender, New Brunswick, N. J.

Debrook Co., Inc., 1105 Metropolitan Ave., Brooklyn, N. Y.

Clinton Metallic Paint Co., Clinton, N. Y.

Harmon Color Works, Inc.. (Pulp), College Point, N. Y.

Imperial Color Wks., Inc., Tait Paper & Color Industries, Inc., Glenns Falls, N. Y.

Tait Paper & Color Industries, Inc., Glens Falls, N. Y.

Aniline Sales Corp., 480 W. B'way, New York City.

American Aniline Products, Inc., 80 5th Avenue, New York City.

Ansbacher, A. B. & Co., 527 5th Avenue, New York City.

BACHMEIER & Co., 438 W. 37th St., New York City.

Binney & Smith Co., 81 Fulton, New York City.

Carbic Color & Chem. Co., Inc., 451-453 Washington, New York City.

Certified Chemical Corp., 80 Maiden Lane, New York City.

Ciba Co., Inc., Cedar & Washington, New York City.

CLASSIFIED DIRECTORY—Continued

Crescent Color & Chemical Works, Inc., 59th St. & 11th Avenue, New York City.

Devoe & Raynolds Co., Inc., 101 Fulton, New York City.

Doggett, Stanley, Inc., 1 Cliff St., New York City.

Heller & Merz Co., 503 Hudson St., New York City.

KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.

Laidlaw, Kelley & Co., Inc., 14 Platt, New York City.

Lavanburg, Fred. L., 100 William, New York City.

McNulty, Joseph A., 114 Liberty, New York City.

Martin Co., L., Liggett Bldg., New York City.

Metz, H. A. & Co., Inc., 122 Hudson, New York City.

National Aniline & Chemical Co., 40 Rector St., New York City.

Osborn Co., C. J., 101 Beekman, New York City.

Smith & Co., J. Lee, 23 Jacob. New York City.

Tidewater Chemical Co., Inc., 31 Desbrosses, New York City.

Wetterwald & Pfister Co., (Brunswick Color & Chem. Co.), 276 Spring, New York City.

Whittaker, Clark & Daniels, Inc., 245 Front, New York City.

Palatine Aniline & Chem. Co., Poughkeepsie, N. Y.

Siegle, G. Corp. of America, Rosebank, N. Y.

Standard Printing Ink Co., 1638-1648 Providence, Cincinnnati, O.

Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.

Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.

Hommel, O. Co., 211 4th Ave., Pittsburgh, Pa.

Williams & Co., C. K., Easton, Pa.

Wilhelm Co., A., Reading, Pa.

Keystone Color & Mica Co., (Wall Paper, Coated Paper & Scenic), York, Pa.

Pulp

Du Pont, E. I. de Nemours & Co., Inc., Wilmington, Del.

Hampden Paint & Chemical Co., Springfield, Mass.

Kohnstamm, H. & Co., 83-93 Park Pl., New York City.

National Aniline & Chemical Co., Inc., 40 Rector St., New York City.

CONSISTENCY REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

CONVEYORS AND ELEVATORS

LINK-BELT Co., Chicago, Ill.

COUPLINGS (Shaft)

LINK-BELT Co., Chicago, Ill.

Hudson-Sharp Machine Co., Green Bay, Wis.

DIGESTERS

Chicago Bridge & Iron Wks., 2036 Transportation Bldg.. (pulp), Chicago, Ill. .

Watson, Frye Co., Ltd., (paper & pulp mill, soda & sulphate), Bath, Me.

PORTLAND Co., (copper, paper & pulp mill), Portland, Me.

McNamara Bros. Co., Westport, Baltimore, Md.

Dillon Steam Boiler Wks., D. M., (paper & pulp mill, rotary), Fitchburg, Mass.

EASTWOOD Wire Mfg. Co., (papermaking), Belleville, N. J.

Reeves Bros. Co., 338 Rush Street, (pulp & paper mill), Alliance, O.

Tudor Boiler Mfg. Co., 715 E. 3rd St., (pulp), Cincinnati, Ohio.

Riter-Conley Co., 318 Oliver Bldg., (papermaking), Pittsburgh, Pa.

McAleenan Bros. Co., 25th & Railroad Sts., (pulp paper mill), Pittsburgh, Pa.

West Point Boiler & Tank Works, 23rd & Smallman, (paper making), Pittsburgh, Pa.

Petroleum Iron Works Co., Drawer 539 (pulp), Sharon, Pa.

Manitowoc Shipbuilding Corp., (paper mill, sulphate, rotary & soda), Manitowoc, Wis.

DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

DRIVES

Smidth & Co., F. L., 50 Church St., (Beater-Belt-Lenix), New York City.

DRYERS

Paper & Pulp Makers

Mintin, Ogden, Greenwich, Conn.

Smith & Winchester Mfg. Co., So. Windham, Conn.

Gordon, Robert, Inc., 1355 W. Washington Blvd., Chicago, Ill.

Rice Barton & Fales Machine & Iron Co., Worcester, Mass.

St. Louis Ventilating & Sheet Metal Co., 1306 Ann Avenue, St. Louis, Mo.

Carrier Eng. Corp., 39 Cortlandt, New York City.

Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.

Bartlett & Snow Co., C. OO French & Columbus, Cleveland, Ohio.

French & Columbus, Cleveland, O.

Cummer, F. D. & Son Co., Hanna Bldg., Cleveland, Ohio.

Kilby Mfg. Co., 4623 Lakeside Ave., Cleveland, Ohio.

Proctor & Schwartz, Inc., 7th St. & Tabor Road, Philadelphia, Pa.

Gordon Dryer Corporation, 275 W. Exchange, Providence, R. I.

EQUIPMENT

Crandon Mfg. Co., (special electrical, for pulp & paper mills), Portland, Me.

EVAPORATORS

Soda Pulp

Buffalo Foundry & Machine Co., 43 Winchester Avenue, Buffalo, N. Y.

Devine, J. P., Co., 1380 Clinton, Buffalo, N. Y.

Zaremba Co., 508 Niagara Life Bldg., Buffafflo, N. Y.

Angus Engineering Co., 10 Hanover, New York City.

International Process Co., 5 Beekman, New York City.

Odrway, Chales, 25 Church, New York City.

Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.

Kestner Evaporator Co., North Philadelphia, Pa.

FELTS

Dryer, Jackets

FITCHBURG Duck Mills, Fitchburg, Mass.

F. C. HUYCK & Sons, (Kenwood Mills), Albany, N. Y.

Albany Felt Co., Albany, N. Y.

Appleton Woolen Mills, Appleton, Wis.

ORR Felt & Blanket Co., Piqua, Ohio.

WATERBURY Felt Co., Skaneateles Falls, N. Y.

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SHULER & Benninghofen, Hamilton, Ohio.

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Macneal's Varnish & Color Works, 1600 Block Warner, Baltimore, Md.

Western Paper Makers Chemical Co., (Pearl), Kalamazoo, Mich.

American Chemical & Mfg. Corp., Kenilworth, N. J.

Carbola Chemical Co.. Inc., 229 Ely Avenue, (Fillers for every purpose), Long Island City, N. Y.

INTERNATIONAL Pulp Co., 41 Park Row, New York City.

Talc Products Co., 120 B'way, New York City.

Solvay Process Co., Syracuse, N. Y.

Lookout Paint Mfg. Co., Chattanooga, Tenn.

FILTERS
Pulp and Paper

Oliver Continuous Filter Co., 503 Market, San Francisco, Calif.

Redlich Mfg. Co., 637 W. Oak, Chicago, Ill.

Ordway, Charles, 25 Church, New York City.

Permutit Co., The, 4th Ave. & 30th, New York City.

Kiefer, Kary Machine Mahcine Co., 919 Martin, Cincinnati, Ohio.

Loew Mfg. Co., 9100 Madison Ave., Cleveland, Ohio.

GRINDERS
Wood Pulp

Pusey & Jones Co., Wilmington, Del.

Stroud, E. H. & Co, 928-934 Fullerton Ave,, Chicago, Ill.

Holyoke Machine Co., Holyoke, Mass.

Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.

Carthage Machine Co., Carthage, N. Y.

Dilts Machine Co., Inc., Fulton, N. Y.

Glens Falls Machine Wks., Glens Falls, N. Y.

Sandy Hill Iron & Brass Wks., Hudson Falls, N. Y.

Brown Co., A. & F., 79 Barclay, New York City.

Bagley & Sewall Co., Watertown, N. Y.

Jeffrey Mfg. Co., 956 No. 4th, Columbus, Ohio.

Dayton Globe Iron Works Co., Dayton, Ohio.

Scott, Olin, Est. of, Bennington, Vt.

JORDAN FILLINGS

The Bahr Bros. Mfg. Co., Marion, Ind.

KNIVES
Wood Pulp Machine

Atkins, E. C. & Co., Inc., 402 So. Illinois, Indianapolis, Ind.

Simonds Mfg. Co., Fitchburg, Mass.

Coes & Co., Loring (inc.), Worcester, Mass.

Branch Saw Co., 3000 N. B'way, St. Louis, Mo.

Dilts Machine Co., Inc., Fulton, N. Y.

Lancaster Machine & Knife Wks., LanLcaster, N. Y.

Cocker Mfg. Co., Lockport, N. Y.

Haring, Ellsworth, 116 Liberty, New York City.

Cleveland Knife & Forge Co., Cleveland, Ohio.

Worden Tool Co., (1854 Scranton Rd.), Cleveland, Ohio.

Simonds & Sons Co., A. A., Dayton, Ohio.

KRAFT PAPER

BROWN Company, Portland, Me.

LATHES
Truing, Pulpstone

Fulton Mach. & Vise Co., Lowville, N. Y.

MACHINERY
Barking

Fibre Making Processes, Inc., 6 N. Michigan Ave., Chicago, Ill.

Union Iron Works (Improved), Bangor, Me.

Portland Co., Portland, Me.

Waterville Iron Wks., (for paper mills), Waterville, Me.

Holyoke Mach. Co., Holyoke, Mass.

Carthage Machine Co., Carthage, N. Y.

Sandy Hill Iron & Brass Wks., (pulp mill), Hudson Falls, N. Y.

Trevor Mfg. Co., (168 Market), Lockport, N. Y.

Fulton Mach. & Vise Co., (slabs & edgings), Lowville, N. Y.

TOMPKINS-HAWLEY-FULLER Co., (Paper Creping), Valatie, N. Y.

Scott, Olin, Est. of, Bennington, Vt.

Valley Iron Works Co., (wood), Appleton, Wis.

Green Bay Barker Co., Green Bay, Wis.

Paper Combining

Jagenberg Machine Co., Inc., 133 W. 24th, New York City.

Paper Goods

Aicher Machine Works, 1634 Stockton (Slitting & Printing), San Francisco, Calif.

Specialty Automatic Machine Co., Chelsea, Mass.

Rice, Barton & Fales Machine & Iron Co., (Pasting, waxing, trimming, etc.), Worcester, Mass.

Paper Working Machine Co., Ave. U & 56th, (Corrugated), Brooklyn, N. Y.

Vierengel, M., Machine Co., Inc., 370 Troutman St., (special), Brooklyn, N. Y.

KNOWLTON Co., M. D., 26 Industrial, (corrugated), Rochester, N. Y.

Paper Laboratory

McKim Foundry & Machine Co., Lockport, N. Y.

Paper Cup

Ludington Machine Co., Waterbury, Conn.

Paper Cutting

Smith & Winchester Mfg. Co., So. Windham, Conn.

Child Acme Cutter & Press Co., 250 Devonshire, Boston, Mass.

McLauthlin, Geo. T. Co., 120 Fulton, (power & hand), Boston, Mass.

Hamblett Mach. Co., Lawrence, Mass.

Dillon Mach. Co., Lawrence, Mass.

Challenge Machinery Co., The, (Hand & Power), Grand Haven, Mich.

Swift, Geo. W., Jr., Inc., Bordentown, N. J.

Langston, Samuel M., Co., Camden, N. J.

American Type Founders, 4-6 Communipaw Ave., (lever & power), Jersey City, N. J.

CAMERON Machine Co., 57-61 Poplar, Brooklyn, N. Y.

Morgans & Wilcox Mfg. Co., (printers), Middletown, N. Y.

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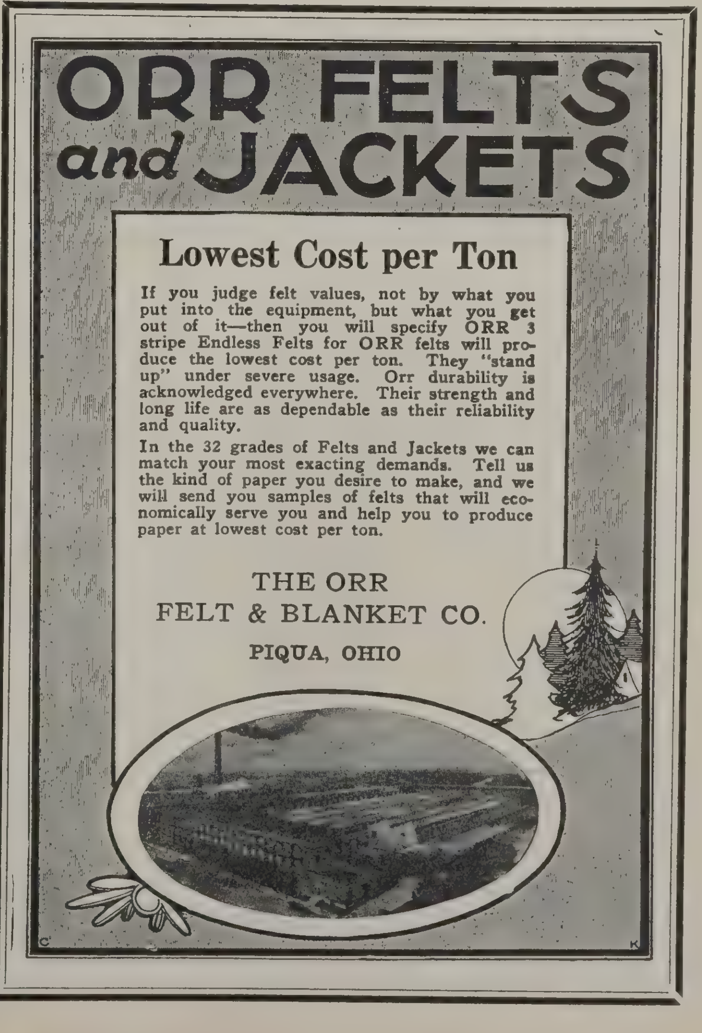

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KNOWLTON, M. D. Co., 26 Industrial, Rochester, N. Y.
Seybold Machine Co., Dayton, Ohio.
Sheridan, T. W. & C. B., 434 B'way, New York City.
Grammes & Sons, L. F., 1922 T. Union St., Allentown, Pa.
Beck, Chas., Machine Co., 605 Chestnut, (Sheet, Card, Film), Philadelphia, Pa.
Beloit Iron Works, (Board & Paper), Beloit, Wis.

Paper and Pulp Mill

Farrel Fdry. & Mach. Co., Ansonia, Conn.
PICKLES—W. F., Buckland, Conn.
Pusey & Jonse Co., (paper stock cutting), Wilmnigton, Del.
Dellenberger, E. C. & Son, 1945 Fulton Street, Chicago, Ill.
Haberkamp, Wm. Machine Works, 442 Wells, Chicago, Ill.
LINK-BELT, Co., Chcago, Ill.
Swenson Evaporator Co., 53 W. Jackson Blvd., Chicago, Ill.
Williams-Gray Co., 30 N. LaSalle, Chicago, Ill.
Union Iron Works, Bangor, Me.
Record Foundry & Machine Co., Livermoe Falls, Me.
Bolton, John W., & Sons, Inc., Lawrence, Mass.
Emerson Machine Co., Lawrence, Mass.
Horne, J. H. & Sons, Co., Lawrence, Mass.
MILLS Machine Co., Lawrence, Mass.
Clark-Aiken Co., The, Lee, Mass.
Jones, E. D. & Sons Co., Pittsfield, Mass.
Bird Machine Co., So. Walpole, Mass.
Montague Machine Co., (power transmission), turners Falls, Mass.
Rice, Barton & Fales Machine & Iron Co., (calendering, wet, dry, saturating, rag cutting, waterproofing, stock thickening, trimming, waxing, pulp, tissue paper, etc.), Worcester, Mass.
Penney, J. W. & Sons, Co., Mechanics Falls, Me.
Waterville Iron Wks., Waterville, Me.
Davis, Frank H., Co., 175 Richdale Ave., Boston, Mass.
Meisel Press Mfg. Co., 949 Dorchester Ave. 25, Boston, Mass.
Union Machine Co., Fitchburg, Mass.
Norwood Engineering Co., (paper finishing, calendering, rag thrashing, platers), Florence, Mass.
Golding Mfg. Co., Franklin, Mass.
Holyoke Mach. Co., Holyoke, Mass.
Jolly, Inc., J. & W., Holyoke, Mass.
Perkins, B. F. & Sons, Inc., (rag cutting), Holyoke, Mass.
Central Mfg. Co., Kalamazoo, Mich.
Standard Machinery Co., Owosso, Mich.
Mitts & Merrill, 67 McCroskry, Saginaw, Mich.
Paper Engineering Co., St. Joseph, Mich.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., (chppers), St. Louis, Mo.
Berlin Foundry & Machine Co., Berlin, N. H.
Thompson Mfg. Co., Lancaster, N. H.
Improved Paper Machinery Co., Nashua, N. H.
Langston Co., Samuel M., (paper can, paper box, corrugating, tube making), Camden, N. J.
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Taylor, Stiles & Co., (paper stock, rag cutters), Riegelsville, N. J.
Townsend Foundry & Mach. Shop Co., Albany, N. Y.
Sowers Mfg. Co., (coaters), Black Rock, N. Y.
Bliss, E. W., Co., (Adams & Plymouth Sts.), Brooklyn, N. Y.
Farnham Mfg. Co., 39 Indiana, (paper coating), Buffalo, N. Y.
Carthage Machine Co., Carthage, N. Y.
Ryther & Pringle Co., (shredders for ground wood, chemical fibre laps boards, sheets & rolls), Carthage, N. Y.
Dilts Machine Co., Inc., (cylinder paper making, wet, wood pulp), Fulton, N. Y.
Glens Falls Machine Works, (wet machines, washers, savealls, thickeners, deckers, etc.), Glens Falls, N. Y.
TRIMBEY Machine Works, (automatic consistency Regulator, Metering Systems), Glens Falls, N. Y.
Noble & Wood Machine Co., (rag cutting & threshing), Hoosick Falls, N. Y.
Sandy Hill Iron & Brass Works, (fourdrinier), Hudson Falls, N. Y.
Trevor Mfg. Co., 168 Market (wood pulp splitting, wood pulp, wet), Lockport, N. Y.
Beach-Russ Co., 54 Church St., (positive pressure blowers & vacuum pumps), New York City.
Smith & Co., F. L., 50 Church St., (Power Transmission), New York City.
Jaqenberg Machne Co., Inc., 133 W. 24th Street, (hot air dryers, gas heated, for coated paper, either in sheets or rolls), New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Knowlton Co., M. D., 26 Industrial (rolling & saturating corrugated & creasers), Rochester, N. Y.
Mayer Coating Machines, Inc., (coating for carbon paper, waxed & oil paper, etc.), Rochester, N. Y.
Baker Mfg. Corp., Saratoga Springs, N. Y.
Ticonderoga Machine Wks., (wire carrying rolls stock, thickening winders, felt spreaders, calender doctors valves, etc.), Ticonderoga, N. Y.
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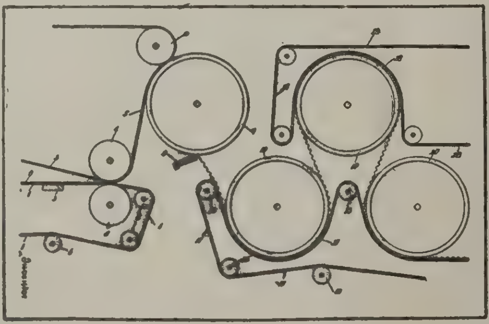

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Volume XXXIII, No. 15

PAPER

January 31, 1924

The Magazine of the Paper Industry

RUSSELL C. HUGHES, Publisher

THOMAS J. KEENAN, F.C.S., Technical Editor

ISMAR GINSBERG, B.S., Contributing Editor

Our Canadian Convention Number

SO important and far-reaching was the annual convention of the Canadian Paper and Pulp Association in Montreal last week, that PAPER is dedicating itself this week entirely to that convention. Outside of the usual news features, the entire book is devoted solely to the good things brought forth at the convention.

* * *

The technical, semi-technical and inspirational addresses at the convention had more than the ordinary interest. The reports, of which that of Secretary Frank B. Kellogg, of the Newsprint Service Bureau, is a sample, all contained real red meat for the men in the paper industry. Hence we felt that we couldn't do better than just to give one issue over to this cause. The addresses and information given at the convention should go to the furtherest ends of the paper trade. We are doing our share. Now do yours by absorbing this issue from beginning to end.

* * *

Our joy continues unabated that we have gotten among such a fine bunch of fellows as are in the paper industry. Times have been better in the paper business. That statement needs no embellishment. But when a failure comes along—although there are regrets and commiseration—there is no mournful lamentation in the industry in general. Despite a series of failures that would have dismayed many an industry, the general talk and atmosphere among the fellows of the paper industry is optimistic, cheerful, hopeful. This, we call assimilating punishment like a stoic. Not that failures are not deplored. Far from it. But the spirit seems to be, "It's too bad. But it can't be helped. We might as well be up and doing. Let's go."

That is another reason we are glad to be in the paper industry.

* * *

And as far as PAPER itself is concerned, we are highly gratified at the response to the revitalization and rejuvenation of the magazine. From all over the land comes praise, brief messages that what is being done is being appreciated.

Whoever said people do not appreciate good things is a victim of false reasoning. They most emphatically do recognize extra effort and appreciate service.

* * *

Furthermore we are glad to have Tom Keenan with us. Just this week there came this letter:

Mr. Russell C. Hughes,
New York City.

Dear Sir:

I wish to congratulate you in having gathered Mr. Tom Keenan back into your fold.

I not only envy his technical knowledge of the business but I think he is by far the best editorial writer in the paper business.

Yours very truly,

Bertrand Hopper.
Kalamazoo, Mich.

And that scarcely requires expatiation.

Likewise D. E. Scott, of the Bemis Bros. Bag Company, Peoria, Ill., writes that it is a pleasant surprise to see Mr. Keenan on the job and extending best wishes for every success.

And so it goes. Everywhere good words and kindness.

It makes one want to do better. It bucks one up and renews faith. We thank you.

But we want your suggestions. We want your advice. We want you to have a personal interest in this magazine. We want to mold it to the collective will of the entire industry. So speak your mind. We want to know what you think.

Russell C. Hughes, *Publisher.*

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Canadian Convention Filled with Interest

Sir William Price, G. Chahoon, Jr., George H. Mead, H. F. E. Kent and George Carruthers Among Speakers

PULP and paper being one of Canada's leading industries, the annual meeting of the Canadian Pulp and Paper Association, held in Montreal last week, was one very great interest, not only to the industry generally, but also to the general public. This was because of the outstanding nature of some of the speakers, and the subjects on which they discoursed. When industrial captains, such as Sir William Price, G. C. Chahoon, Jr., Geo. H. Mead, H. F. E. Kent, Geo. Carruthers, and many others who could be mentioned, express themselves on matters relating to one of the leading industries of North America they have something worth listening to, and so it proved. The papers delivered before the Technical Section were especially good; while Hon. T. A. Low, Minister of Trade and Commerce spoke on the past and present of the pulp and paper industry in such a way that he indeed must have been a pessimist who was not impressed.

The appearance of the pulp and paper men in such large numbers was taken advantage of by allied interests to stage other gatherings, the most important of which was the annual meeting of the Canadian Forestry Association. At these sessions notable addresses were delivered by F. D. J. Barnjum and Sir Lomer Gouin, until recently Minister of Justice in Canada and who as premier of Quebec introduced the policy of compelling those cutting pulpwood on Crown lands to manufacture it at home. He strongly defended this policy and favored the proposal to place an embargo exports of wood cut on privately owned lands.

Might Pass U. S.

In speaking at the annual banquet of the Pulp and Paper Association Hon. T. A. Low ventured the prediction that during the present year Canada might pass the United States in the production of newsprint.

Mr. Low pointed out that newsprint formed 80 per cent of Canada's total paper production, and that the market for four-fifths of it was found in the United States. He also remarked that two-thirds of the newsprint used in the republic is either manufactured in Canada, or made form pulpwood grown there. The total production of newsprint in Canada last year was 1,263,000 tons, a high water mark in the industry, representing an increase of 181,000 tons over the 1923 production, or equal to 16 per cent. As late as 1920 the production was only 883,000 tons during the course of the year. The total exports in 1923 were 1,137,963 tons, as compared with 959,515 for 1922. Of this all but 22,627 tons went to the United States, New Zealand alone taking nearly 10,000 tons of the remainder.

Hardly any other industry in America has grown as fast as that producing pulp and paper, except possibly it was the automobile industry. In 1878 there were no pulp mills in Canada; by 1881 there were five, with a capital investment of $92,000, with 68 employees and an annual output worth $63,000. In 1922 there were 43 mills turning out pulp alone, and 23 turning out pulp and paper combined, which was valued at approximately $85,000,000. In addition there were 28 paper mills, the total capital in the combined industry being $381,000,000 and being increased very rapidly. Mr. Low reviewed the history of the legislation by the provinces against the exportation of pulpwood cut on Crown lands and defended it, pointing out that as a result the quantity annually exported had not, until last year, much exceeded that in 1922. As for the future supply of wood, he expressed the conviction that the success of forest conservation would depend pretty much on common action on the part of Canada and the United States.

The Technical Men

Among the noteworthy addresses delivered before the Technical Section special mention is deserving that by Geo. Chahoon, Jr., on "The Place of the Technical Man in the Paper Industry", for it contained much that is equally applicable to young men in all walks of life. His message in short, was this; learn all you can about the technical side of papermaking get all that books and investigation can give you; but don't forget that life has a human side, and that the ability to organize and handle man is as important as anything else. Moreover, it can't be learned from books. One of his telling sentences was; "How you succeed in business or in life will never be taught in college or in school."

This address subsequently attracted much attention and was the subject of considerable discussion. Sir William Price was inclned to rate the technical men very highly remarking; "Technical men with common sense and vision are going to be the men of the future". To his way of thinking, purely practical men were handicapped through their lack of education. There should be close cooperation between the two classes. Geo. H. Mead threw out the suggestion that the technical men should outline a course of training that might be pursued by a technical man during the first four or five of his years in the industry.

Spoke to Forestry Men

The remarks of Sir Lomer Gouin before the Candaian Forestry Association were of special interest as he spoke on the embargo question. After narrating the history of this legislation in Quebec he discussed the larger question of federal action and said; "Is it possible to make that prohibition general in Canada? The objections come from the settlers and the jobbers. As to the jobbers, I have nothing to say, because I know that they will take good care of their own interests. As to the settlers, I am very favorably disposed to them, and I know that they have to be protected. But we made it possible in this province of Quebec to impose a prohibition of the export pulpwood on Crown lands and we find that our settlers are just as happy and prosperous as in any of the other provinces. I do not see why some way might not be devised by which prices would be fixed which would make it that the settlers in the entire country would receive from our own manufacturers as large a price as they could receive from the Americans. Would it not be possible for our governments to legislate to fix prices by a commission, if you like, so that the settlers will be treated as when exportation is allowed?"

Hon. James Lyons, Ontario's minister of Mines and Forests, told the pulp and paper men that his province was spending $1,100,000 a year on forest fire protection and was not getting anything like full value for it. This amount represented one-third of the total annual revenue derived from the forests. He strongly requested the heartiest co-operation on the part of the industry in the effort to preserve forest wealth. A survey to determine the amount of forest material in Ontario would soon be undertaken.

George Carruthers of Interlake Tissue Mills, Toronto, was elected president of the Association thus taking the place of H. F. E. Kent, retired.

At the annual meeting of the Newsprint Service Bureau, Secretary R. S. Kellogg made an excellent report of the newsprint situation in Canada and the United States. All officers of the Bureau were re-elected.

Felts and Mechanism of Water Removal

Result of Research Work Carried on by Laboratory of F. C. Huyck & Sons as Reported to Canadian Convention

By E. A. REES

IN the papers presented last year before this group, the results of certain studies in the laboratory were presented and it was attempted to collect and present, in a more or less graphic manner, the fundamental laws underlying the removal of water from paper at the presses. The laboratory evidences indicated that the entire mechanism from the standpoint of pressing and filtration. It has always been more or less the popular conception that the water is sucked or absorbed from the sheet by the felt much as a sponge would absorb water. Laboratory and field evidences to date indicate that the primary factors are not ones of capillarity and absorption in the literal sense and that the whole question may be met from the standpoint of a pressure-filtration equilibrium. The fibers must of course possess an ease of wetting properly to enable the water to filter away easily. In the initial period of the starting-up of a new felt, there is always a very thin film of animal fat covering the fibers and due to surface tension affects the water runs through the felt with difficulty. However, in general, aside from this isolated period, the felts possess a more or less constant ease of wetting capacity so that this factor practically is eliminated from consideration. It is largely a question of an equilibrium of pressure conditions, squeezing the water out of the felt, and with the felt acting mainly as the cushion and medium for the filtration of the water. *The resulting dryness of sheet is determined by this equilibrium between the forces tending to eject the water from the mass of cellulose and the forces interfering with its release and escape from the zone of pressure.*

Words of Wisdom

IF anybody in the world knows felts it is F. C. Huyck & Sons, of Kenwood Mills, Albany, N. Y., and Kenwood Mills Ltd., of Arnprior, Ontario, Canada. Consequently the conclusions of research work of this concern are of the utmost importance to the entire papermaking trade. This paper, couched in terms that anybody can understand, is a valuable contribution to papermaking.

Factors and Laws of Water-Removal

The general direction of the effects of these different factors as derived from experimental work on miniature machines designed for the use of small felts, 14' x 18", were presented before this group last year. The tests were made by saturating small strips of blotting paper and running them through the rolls on felts. The different factors were varied as desired and it is believed that for comparative purposes the results obtained were just as indicative of the general direction of the relative effects as if a continuous sheet of pulp or wet paper were running on the felt and between the rolls.

The summarized factors and principles which determine the water-removal status are—

1. The Pressure Applied.
2. Hardness of Rolls.
3. Diameter of Rolls.
4. Speed of Sheet and Felt.
5. Resistance of Felt to the Flow of Water.

The total pressure applied, the hardness of the rolls and the diameter of the rolls all affect the concentration of pressure over an area of sheet at the nip zone. Now the sheet enters the nip upon a felt and the felt itself may materially affect the concentration of pressure just as a bottom press roll may affect it. In fact the cushion or relative hardness or softness of the felt influences the concentration of pressure at the nip zone so greatly that the factors of sheet crushing on a practical and safe operating scale are very intimately connected with the type of felt demanded. There is also a differential of pressure distribution change over the nip area, the pressure spreading from a high concentration at the very nip to smaller and smaller pressures through the zone of contact and these changes may be abrupt or gradual. (Relative pictures of these areas were obtained by ink impressions from the top roll when resting on a sheet of paper lying upon a stationary felt.) This whole question then must be referred to the concentration of pressures per unit area of nip contact and also the area over which the pressure is spread. Now there is the speed of the sheet and felt, which determines the force with which the water moves forward due to its own velocity and the time of contact at the nip and finally the resistance of the felt itself to the flow of water—all of these factors together with the pressure-area forces finally determine the resulting equilibrium content of the sheet.

Mechanism of Water-Removal Through Felt

It is quite interesting to note that as the sheet and felt approach closer and closer to the nip where the rolls are in the closest contact, there is more and more resistance to the flow of water because of the impervious roll beneath. And there is also the tendency for the revolving roll to carry the water back into the nip. As the water is released farther back in the nip then, there is more and more necessity for water to permeate through the felt in the direction contrary to its motion. This lateral or backward porosity seems to be the real mechanism by which the water flows through the felt at the nip. (See Fig. 1).

As far as the felt is concerned, its cushion and hardness or the extent to which it itself affects the nip pressure and its ease of admitting the flow of water through it are the balancing factors which are of primary importance.

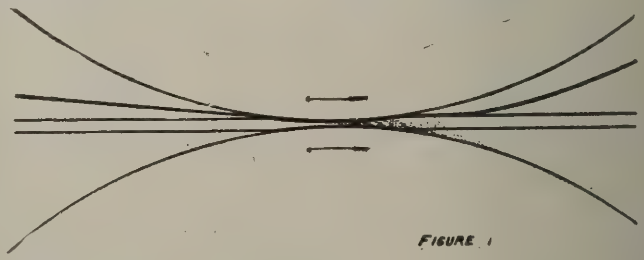


FIGURE 1

There is more or less a popular conception that a felt is a "felt," made of wool but of definite and constant properties which are more or less similar to those of an ordinary felt. Now there are an infinite number of possibilities for producing different properties in a woolen felt—there are all sorts of combinations of wools and yarns, etc., which can be built into different resulting balances of characteristics with different water-removal abilities.

Lack of Constancy of Felt and Effect of Stock

Now it so happens that it is an inherent property of wool and the felts that its performance is not a constant one.

There is a gradual change in the chemical constitution of the fiber and due to the deteriorating action of the water it gradually loses its resilience and life and tends to become brittle. Due also to the continued application of pressure between the rolls, the felt is gradually packed down harder and tighter and flatter so that it gradually creates more and more nip pressure and of itself tends to squeeze more and more water out of the sheet of paper. But it has also been found that as these changes occur, its lateral porosity decreases and its ability to permit of the flow of water through itself grows less and less. And the resultant dryness of sheet depends upon how the two factors of increased tendency to squeeze out more water and also increased resistance to prevent its flow neutralize each other in the felt.

It has been proved on the laboratory testing machine by taking periodical tests day after day with small saturated strips of blotting paper that a dryer and dryer sheet was obtained. In other words, the factor of increased nip pressure, due to the hardness of the felt, overbalanced the loss in ability of the felt to admit of the flow of the water with the net result of a dryer sheet. And this has been proved repeatedly with all sorts of felt constructions. Different initial dryness was obtained with different felts and the change toward dryer sheets occurred at different rates, according to the particular balances employed, but in all cases there was the general tendency toward dryer sheets of blotting paper as the felts were run day after day. It so happened because of the manner in which the laboratory tests were performed that there was no tendency for any plugging-up of the felt by means of cellulose stock and it was run continuously, essentially as a system of wool fibers alone. Now of course this is not true in a practical working mill condition and even with the best washing facilities and frequent cleansing the felt gradually becomes more and more dirty and departs more and more from its initially clean condition.

Fig. 2 shows a representative performance of a typical first press news felt. The fluctuations are due principally to periodical washings. The gradual trend downward in water removing efficiency is the significant point. This loss in efficiency is characteristic of all felts on all the presses as they continue running. It seems quite evident that the difference in change of efficiency in a practical working condition on the one hand and the laboratory on the other hand must be attributed to the action of the paper stock in dirtying the felt. This has a very important bearing on the entire water-removal problem.

It would indicate that satisfactory felt cleaning devices are very much in need and also that for every felt there is a balancing point at some stage in its life where its lack of water-removal ability would not warrant further running.

Suction Press Performance

Now it has also been found on a fast running machine that it is possible to shut off the suction entirely and not affect the water-removal ability of the suction press. The water which is removed at the nip is never drawn through the pump at high speed even with the suction on but is always caught in the save-all under the press where it has been thrown out of the holes by centrifugal force. On a slow speed machine it has been found that all of the water is sucked through the pump and none of it is thrown out into the save-all by centrifugal force. Calculations reveal that at 1,000 ft. per minute the time of contact at the nip is only about 1/70 of a second.

This is all suggestive as to whether or not the real mechanism of water-removal at the nip on high speed suction press conditions is not one of squeezing and merely pressing into the holes and that the provision of channels or holes to enable the water to get away easily at the nip may be a principle of some merit.

It has been shown how the water-removal efficiency decreases day by day on the ordinary press. The felt becomes flatter and harder and creates more nip pressure but it also tends to pick up stock more easily and become plugged. The stock particles block the passage for the flow of water so that the net result is less and less water-removal efficiency.

Fig. 3 shows a representative performance of a felt running on a suction press. The felt here also becomes flatter and harder and creates more nip pressure and with the added ease provided possibly by the holes at the nip for enabling the water to get away, the net result is an increase in felt efficiency day by day.

It would seem that this entire mechanism of water-removal at the nip is well deserving of further concentrated study.

Field Application of Water-Removal Felts

During the past year in co-operation with two of the largest and most representative News mills of Canada, it was attempted to build felts for different conditions and embodying many different balances in properties. The object was to ascertain whether the balance could be thrown in the direction of more water-removal at the presses in a practical working condition. The first step consisted of measurement of the physical factors in the conditions.

Top press rolls were weighed and leverage pressures measured by means of dynamometer attachments. Variations of pressure which occur in practical working conditions could also be followed by means of the dynamometers. Fig. 4 shows a dynamometer installation in the leverage system of a press. Dynamometers were also attached to the hitch rolls and the felt tensions followed throughout the running life of felts.

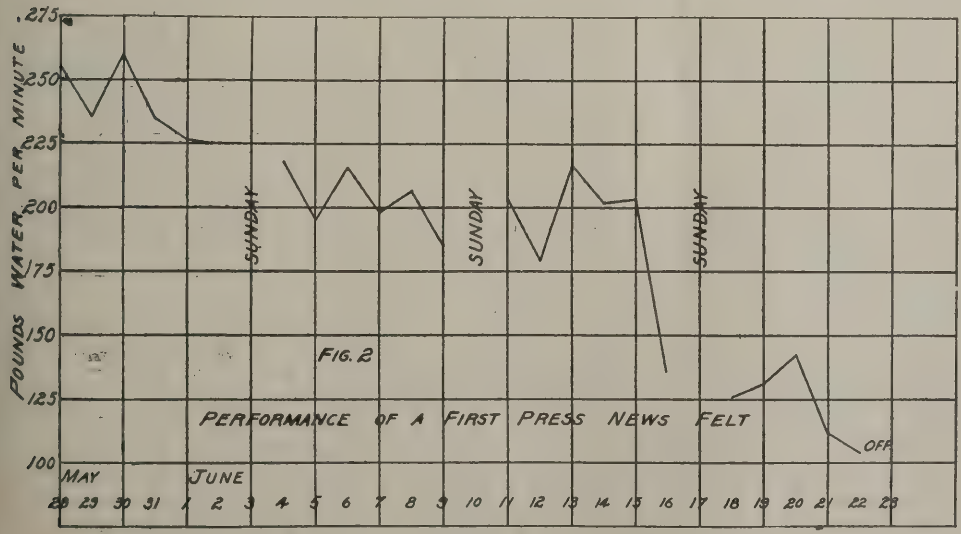


FIG. 2

PERFORMANCE OF A FIRST PRESS NEWS FELT

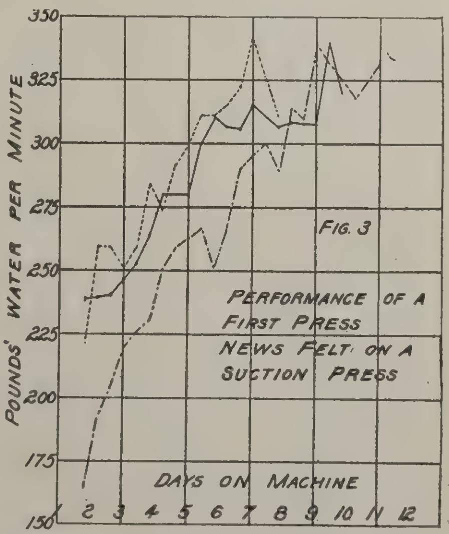


FIG. 3

PERFORMANCE OF A FIRST PRESS NEWS FELT ON A SUCTION PRESS

The work performed by the felts was then followed by periodically weighing the water which was squeezed out at each press. The usual moisture test was taken as often as practical but this test generally is accompanied with a great many difficulties and large errors in manipulation and is only representative of a very small period of time and in fact very little emphasis could be placed upon it without the accumulation of a considerable number of tests. Felts were balanced in many different ways and followed closely—in fact the complete performance and history of all the presses was collected and correlated carefully with the steam readings.

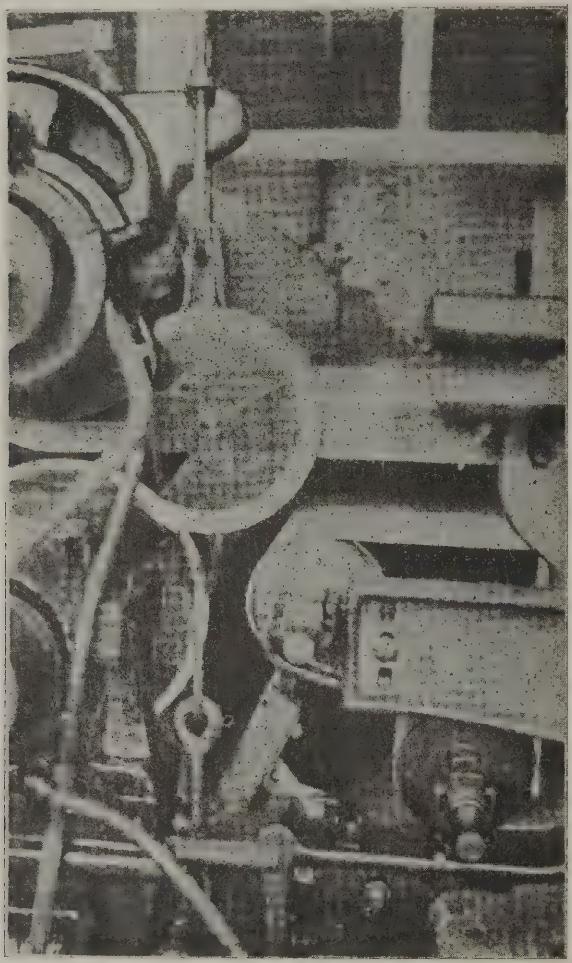


Fig. 4

Figs. 5 and 6 show comparative steam figures which were obtained with different balances in felt construction. It will be noted that a reduction of about 10 p. c. in steam consumption was obtained by merely changing the balance of felt construction; this entailed practically no loss in felt life, was accompanied with an ease-of-running property meaning freedom from breaks and also spells longer life of dryer felts.

In general it costs about twenty times as much to remove water at the dryers as it does to remove it at the presses. It would seem then that all possible efforts for increased water-removal efficiency in felts are well worth while. The fact that a 10 p.c. reduction in steam means a greater saving than the entire cost of the felts is indicative of the possibilities in such research.

The general picture of decreasing efficiency in felt performance applies of course to each of the press felts and to insure a drying condition as constant as possible from day to day, it is necessary to balance up the new and old felts on the machine. The fluctuations in balance of performance are reflected in the steam figures and it will also be noted that the variations are much less with water-removal felts. In other words, there are possibilities in the

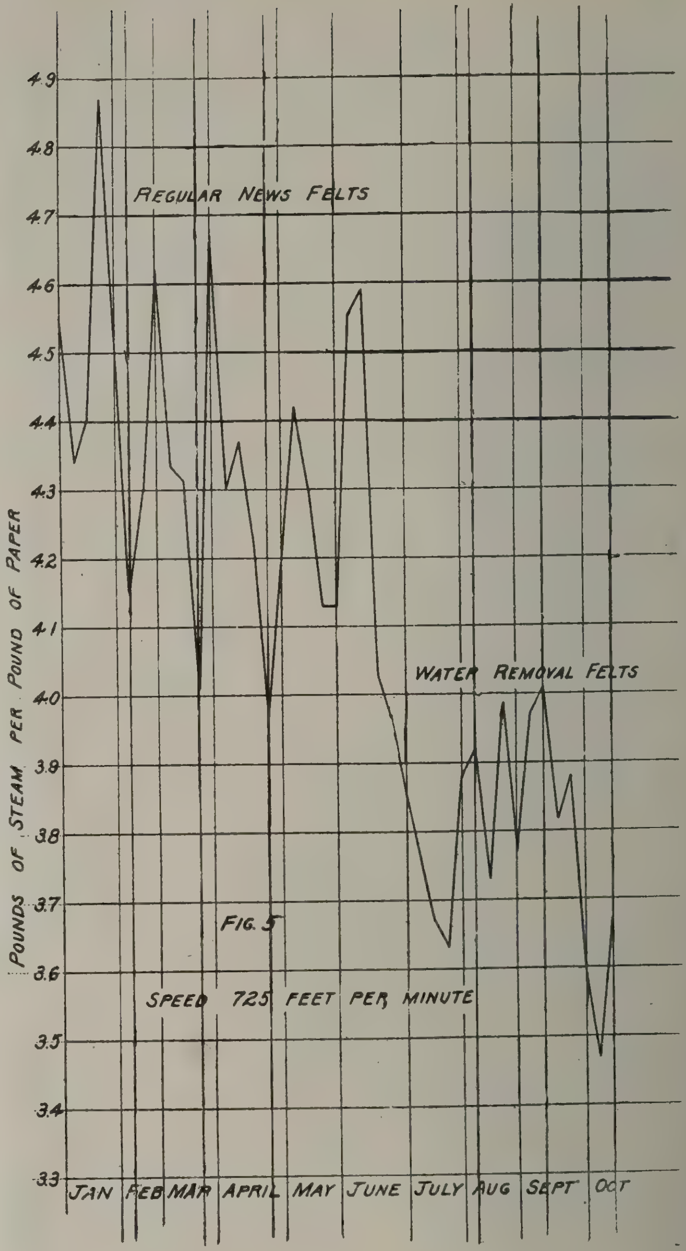


FIG. 5

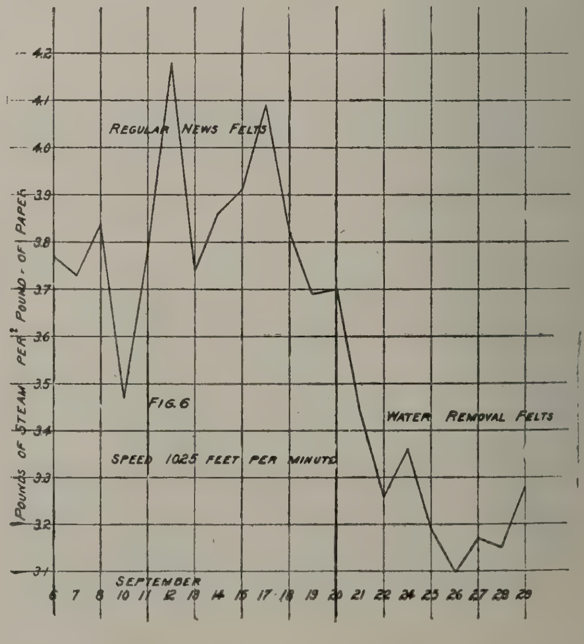


FIG. 6

felts of producing lower steam costs and also a more constant performance of machine conditions. The ideal felt of course is the one which will remove the greatest possible amount of water each day and also remove the same amount each day.

Limitations of Water Removal Felts

The uniformity of pressing and the distribution of the wearing effects across the felt may be followed by carefully testing the felts and noting how the wear has been distributed. Figs. 9, 10 and 11 show relative tests of warp and filling at different sections across felts after use in different conditions. The variations in crown conditions and uniformity of pressure distribution may easily be traced. The filling of the felt reflects the changes more sensitively than the warp threads of the felt. Fig. 7 shows a photograph of the cross-section of a news felt against the filler direction and shows the warp threads, which run lengthwise and in the machine direction, virtually buried in the filler. It is evident that the filler of the felt must resist most of the abuse. Fig. 8 shows a photograph of the cross-section of a news felt against the filler direction after use on a paper machine. The packing down of the felt and the loss of filler cushion are clearly shown.

Now there are two essential attributes of a felt, toughness and water-removal ability. It so happens that these very qualities are diametrically opposed to each other in felt construction. Every ounce of *toughness is imparted to a felt at a sacrifice of some water-removal.* The limit of water removing ability which can be built into the felt then is the demand for toughness and the severity and lack of uniformity in the practical working condition. Uneven distribution of pressures either through crowns, unbalanced weighting or roll variations are all serious handicaps for the application of water-removal felts.

Hurried starting-up of felts with insufficient wetting and allowance for the maximum shrinkage in length and widening of width can also only be met by designing felts with more toughness and less water-removal. The starting-up of a felt is very fundamental and it is the inherent nature of all woolen felts, through a certain characteristic of manufacturing process, to demand this careful wetting and shrinking at the start in order to obtain the best results. In the process of felt making, the felt is felted to dimensions shorter in length and wider in width than those at which it performs on the paper-machine. In this felting process, the fibers are not only knitted but there is also considerable bending and folding. These bends and folds may be removed by stretching and this the felt-maker proceeds to do by stretching the felt and drying it at the length where it is required to run. This stretching in length is also accompanied by a shrinking in width to the desired finished width. Now when this fabric is again wet up, it exhibits a tendency to shrink in length and widen in width, tending to revert back to the size at which it was felted. This shrinking and knitting imparts a setting quality and resistance to stretching which the felt-maker can thus supply to the best advantage. If the fabric were felted to the desired finished size, and not subsequently stretched in the felt mill, then a very great ease of stretching would only manifest itself in the paper-mill and this would entail a great many uncertainties. It is this ease of stretching which the felt-

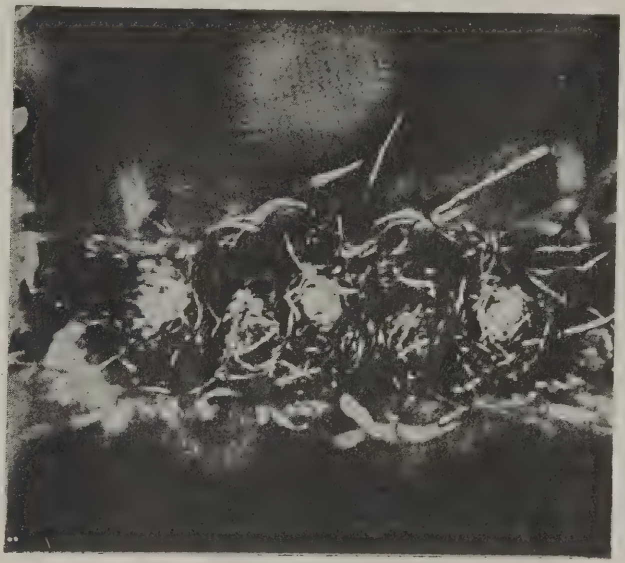


Fig. 7

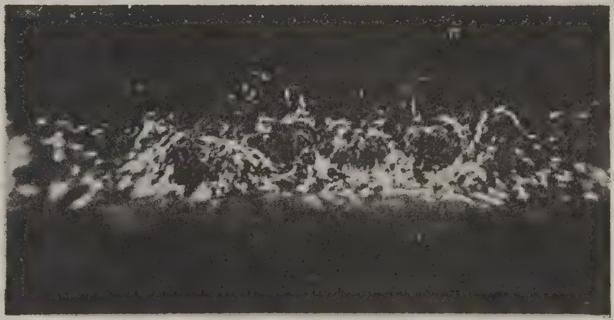
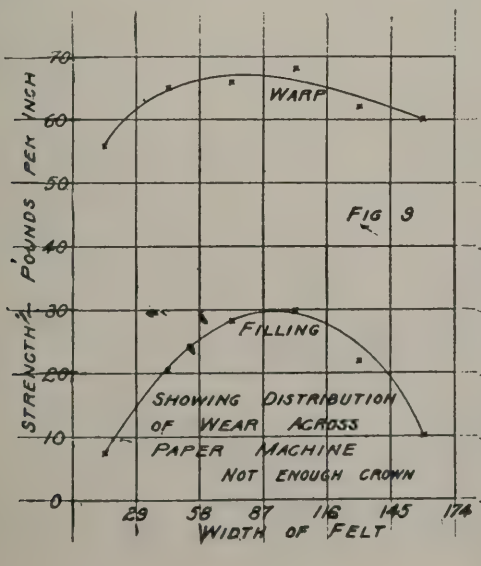
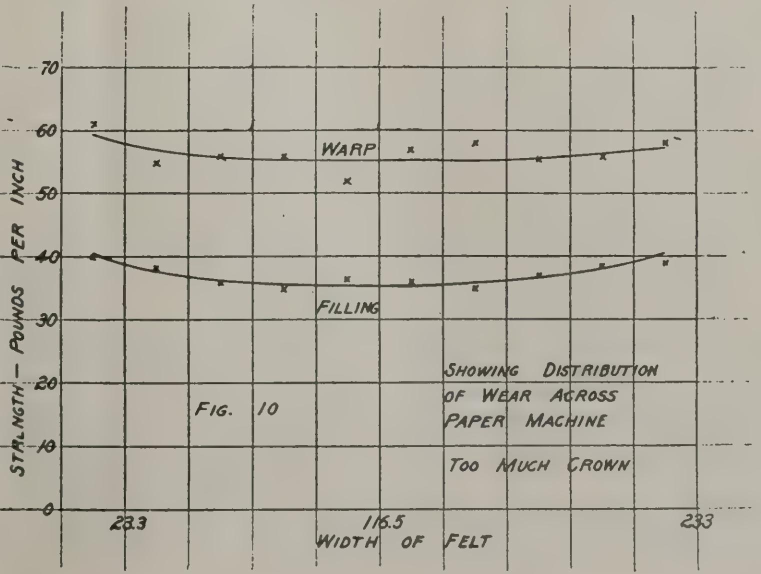


Fig. 8





maker removes from the fabric by stretching it before application on the paper-machine. It is a necessary process and there is no knowledge at the present time which indicates that this process can be avoided.

The whole theory of the running size of a felt is connected with this process. The felt shrinks in length and widens in width upon being wet up. The felt is then tightened up so that it will run and it continues to stretch slightly all during the run. This stretching in length is accompanied by a narrowing of the width and this tendency to narrow should balance the tendency of the felt to widen so that the felt should run at all times at its proper width.

To insure the maximum of knitting and setting of fabric, sufficient time for shrinking and very thorough wetting is necessary. Manipulations in the paper-mill in which this process is not performed force the felt-maker to build tougher felts initially and this he can only do at a sacrifice of water-removal.

Toughness and water-removal are two inherently opposed properties in felts and neither can be supplied without a sacrifice of the other. However, this does not necessarily mean that a water-removal felt should net a shorter life. I believe it is generally true at the present time that for all uniform and smooth conditions, felts are removed largely because they become hard and boardy and are inclined to mark and crush the sheet. Generally they are not worn out and still possess plenty of body. There is no evidence at hand to indicate that a water-removal felt should give less life than the ordinary tough type of news felt which even now is not worn out when taken off. It is true, however, that a water-removal felt does not possess the foolproof construction of the type of tough felt and is not quite as resistant to wide variations in machine conditions.

Conclusion

It has been attempted in only a brief manner to outline some of the principles of water-removal and to relate some experiences in a practical way. The papermaker's felt is a very important item in the cost of papermaking. Literally the felt cost comprises only a very small fraction of the total cost of paper but nevertheless it is intimately connected with a whole series of operations and costs—steam costs and tonnage production figures are all influenced very materially by the type and quality in the papermaker's felt. But there is as yet very little understanding of the mechanism of water-removal at the nip and I am sure that on the part of the felt-makers, we have as yet hardly begun to understand the properties and possibilities in our product. We have much to learn about wool and we have much to learn about the functions which our products should exhibit to the best interests of the papermakers. Through a continuance of the team-work and co-operation which has been enjoyed in the past and the closest of study of conditions, however, there should be ample encouragement that progress can be made and the many problems solved as they present themselves.

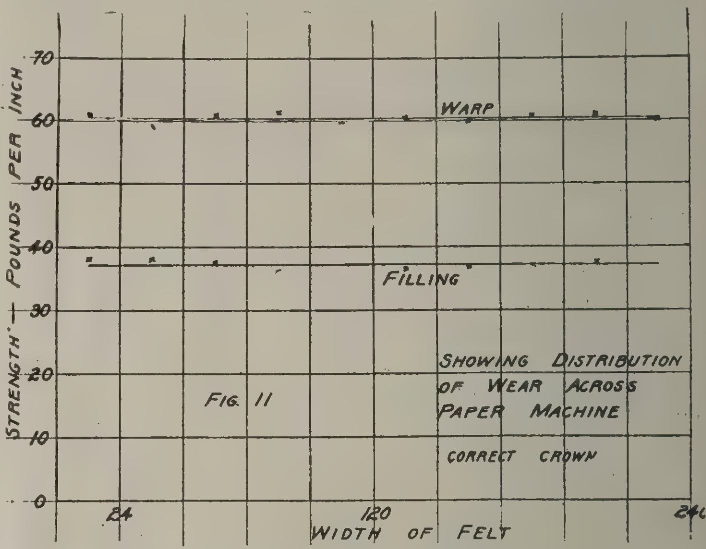


FIG. 11

ROSEBUSH LOOKS FOR AN IMPROVEMENT

General Manager of Northern Paper Mills is Frank in Predicting an Improvement Over 1923

THE outlook for 1924 shows an improvement in the paper business with indications favoring little change in wages in the mill or prices obtained for the finished product, according to Judson G. Rosebush, general manager of the Northern Paper Mills, who is financially interested in several other Wisconsin mills.

The first six months of 1924 will be better for the paper business, and for business in general, than the last six months of 1923, Mr. Rosebush said in an interview. Compared with the first six months of 1923, they will be characterized by "more confidence and less buoyancy," Mr. Rosebush said.

While no radical changes are looked for in any direction, paper production is expected to be better this year than last. Pulpwood, which recently has been higher in price, is showing a sag; whether this will be permanent cannot now be forecast, he said. A production of hemlock and spruce in excess of the needs of the mills is believed to be the cause. Wages, he predicted, would remain about where they are, with no immediate prospects of increases or decreases, and the same is true of the working forces. Prices of the product he does not expect to see undergo any marked change.

Commenting on the general industrial outlook, with particular reference to the labor situation, Mr. Rosebush pointed out that a new condition has arisen. "People are placing more emphasis on comforts of life, and less on the necessity of strenuous industrial development," he declared. He illustrated the remark by remarking that buyers today would sooner invest their money in an automobile than in the stock of an industrial concern.

"The entire industrial machine of the nation is slowing down," he said. "People are seeking more comforts. Roosevelt today would not have nearly as many followers in his doctrine of the 'strenuous life' as he might have had 25 years ago. This tendency is exemplified in the growing prevalance of the Saturday half holiday and the eight-hour day. Wage decreases are being more bitterly fought for the same reason. People feel that there is no need for the importation of more labor, and for this reason the government's present policy on immigration is likely to become permanent.

"Yet, despite this 'slowing down' of the industrial machine, car loadings for the last six months of 1923 were the greatest in our history, proving that people are consuming. The nation has a tremendous capacity for consumption, and, while strange, the situation is being looked forward to hopefully."

The European situation has a minor bearing on business prosperity in this country, Mr. Rosebush declared, asserting that with the exception of wheat and cotton European consumption amounted to less than 5 per cent of the country's production.

In brief, after the depression of 1923, which reached the "valley" in the summer, climbing upward to December, the nation's business on a sounder basis than at the opening of the last summer, is looking forward to 1924 with "caution and confidence."

Parchment Company Rushed

All production records for the Kalamazoo Vegetable Parchment Company will b shattered during the next twelve months according to reports submitted at the annual meeting during the week. The new mill just placed in operation will tremendously increase the capacity of the plant. Present orders will keep the mill busy for a long time and new orders are being received at a rate unprecedented, since the days just after the war. Frank Mostellar was elected a director to succeed the late C. A. Peck. The other officials and directors were re-elected. The officials are: president, Jacob Kindleberger; first vice president, Frank Mostellar; second vice president, James A. Greenlee; secretary, S. Ward Kennedy; and treasurer, C. S. Campbell.

Pyl Heads Allied Mills

John A. Pyl of Kalamazoo, was electe vice president of the Allied Paper Mills Inc., at the annual election of officers during the week. He will succeed Arthur L Pratt, former president of the King Paper Company and one of the best-known men in the paper industry in Michigan. By refusing to fill the vacancies caused by the deaths of George Hanselman and C. A Peck and by dropping E. J. Dayton o Detroit at his own request the stockholders reduced the membership of the board of directors from 22 to 19. Orders are increasing in number and volume, it was reported. The officers for the next year are: A. G. Gilman, president; John A. Pyl, vice president; secretary, George S. Davis; and treasurer, S. B. Monroe.

The Matter of Groundwood Testing

Here Is a Discussion of Something That Every Mill Has Battled With at One Time Or Another

By C. S. V. HAWKINGS
Chief Chemist, Price Bros. & Co., Limited

The subject of Groundwood testing is one that is always in debate in the paper mill. While every mill must proceed on its own initiative, these observations set down from the paper mill of Price Brothers & Company, Limited, at Kenogami, P. Q. should catch the attention of all paper men in both America and Canada.

IN RECENT YEARS the subject of groundwood testing has been before the attention of the technical men to a great degree. At some time in this period practically every concern manufacturing groundwood in any quantity has endeavored to establish some system of control work that would enable the operators to discover the nature of the stock as represented by a numerical standard. For this purpose there are several machines at present on the market. The most important of these types are the Green Freeness tester manufactured by the Star Brass Manufacturing Company and the Schopper tester as sold by the Foreign Paper Mills Inc. All types, however, resolve themselves into the same fundamental principle. A cylinder containing stock of a known consistency has a wire fastened to the bottom. The white water and stock is allowed to drain through this wire and the rate of drainage is measured. These main details are then divided into particular modes of procedure which differ more or less with each mill. In fact it is doubtful if there are any two mills following exactly the same procedure. As a consequence, figures which are quoted in this paper, will bear no significance except as compared to other figures obtained by exactly the same method. Inasmuch as the general tendency should be the same by any procedure, this discussion will be confined to the particular type of apparatus and the methods in use at the paper mill of Price Brothers & Co., Limited, at Kenogami, P. Q.

The routine procedure followed at the above mill is as follows: Samples of stock are taken from (1) the diluted groundwood stock as pumped to the screens, (2) screened and deckered stock, (3) paper machine stock as delivered to the wire. Unfortunately the Grinder Room is located at some distance from the paper mill so that the time consumed in pumping, together with the time taken for the test caused the results to be of little value for control purposes. To offset this, a small screen and decker were built and installed in the grinder plant. These are of the same general type as the regular screens and deckers and have been found to give good satisfaction. See fig. 1.

All stocks are diluted to a consistency of approximately 0.4 per cent bone-dry brought to a temperature of exactly 68 deg. F. and three determinations made of the quantity of side drainage from the funnel of the apparatus. The average is taken as the final result. Each determination is made up of 1,000 ccs. of diluted stock and all dilutions necessary are made with fresh water. The instrument used is shown in Fig. 2.

In order to determine the actual consistency, a sample of 1,000 grms. is weighed out, filtered on a piece of linen in a Buchner funnel, dried with an electric iron on a hot plate until no further steam is evolved and given a final drying of about five minutes in an electric oven at 135 deg. C. Having obtained the drainage in ccs. and the accurate consistency, the figure is corrected by experimental curves to the reading at exactly 0.4 per cent bone-dry consistency. The curves used for correction are shown in Fig. 3.

For instance, should the freeness be 70 ccs. at a consistency of 0.45 per cent. The point on the chart is found corresponding to this and a line drawn through this point parallel to the nearest determined line. This line crosses the 0.4 per cent at a point corresponding to a freeness of 81. The corrected freeness is then 81 ccs.

The time necessary for this test is of course one of the main features. We have found that it takes approximately fifteen minutes from the time the sample is brought to the testing room until the final corrected figure is obtained.

In outlining the above procedure, I do not wish to claim that it is the only procedure. In fact instead of running the consistency at 0.4 per cent bone-dry, some mills are taking this to 0.3 per cent consistency. Some are using a centrifuge for determining the consistency instead of the filtering method. Some bring the consistency to a definite and accurate figure and correct for temperature. It seems quite reasonable to believe that any of these methods will give comparative figures of the same value. The real value of any of these methods providing we establish their individual accuracy is a question of time alone. Inasmuch as we have found that fifteen minutes after the sample is collected is quite fast enough, we have continued with the above method.

Perhaps the most important part of the work on this subject is a discussion of the factors that influence the freeness figures as determined by the above methods. In a general way these remarks should apply to all methods of procedure. I will treat this subject under the following heads:—

1. The effect of white water on Groundwood stock,
2. The effect of white water on Sulphite stock,
3. The effect of white water on Paper Machine stock,
4. The effect of different mixtures of Sulphite and Groundwood,
5. Time,
6. The changes due to changing consistency and temperature.

1. The Effect of White Water on Groundwood Stock

Samples were collected and to these, different percentages of white water were added. Both samples were brought to a consistency of 0.4 per cent bone-dry and the varying mixtures formed.

As the white water itself is an unknown quantity, the figures obtained merely show the tendency. Several conclusions may however be drawn from the facts found. The white water has a decided slowing effect, decreasing in magnitude until a minimum is reached, when from 40 to 60 per cent of white water is added the freeness came to approximately the same in all experiments, namely 34-36. After this the stock continued to increase rapidly in freeness.

2. The Effect of White Water on Sulphite Stock

The procedure still remains as before. The curve of a typical set is shown in Fig. 5.

The white water is shown to have a very marked effect on the sulphite. Again the freeness goes down to about the same level.

3. The Effect of White Water on Paper Machine Stock

The procedure in this case was the same as before with the exception that Paper Machine stock was substituted. The results as found are shown in Fig. 6.

The white water evidently has the same effect but to a lesser degree. It is notable that the slope of the curve is much less for additions up to 60-70 per cent of white water. After this, the curve follows curve 1 very closely. It is also notable that the curve shows a minimum of approximately the same as that in the former cases.

4. *A Study of the Effect of Varying Mixtures of Sulphite and Groundwood*

The curve showing the results obtained in these experiments is shown in Fig. 7.

The gradual slowing effect of groundwood is clearly shown. The curve is almost a straight line.

5. *The Effect of Stock Standing in a Tank over a Period of 24 Hours Was Investigated*

Samples of ordinary Paper Machine stock were thoroughly mixed and tests run at intervals during 24 hours. Corrected freeness readings show a slight variation in twenty-four hours.

11:45 A. M.	97
2:45 P. M.	95
5:45 P. M.	94
8:45 P. M.	94
11:45 P. M.	95
5:45 A. M.	94
11:45 A. M.	96

It is certainly evident that within the limits of experimental error there are no changes worthy of mention in twenty-four hours.

6. *Changes Due to Changing Consistency and Temperature*

To study the effect of consistency and temperature several samples of varying freeness at different consistencies

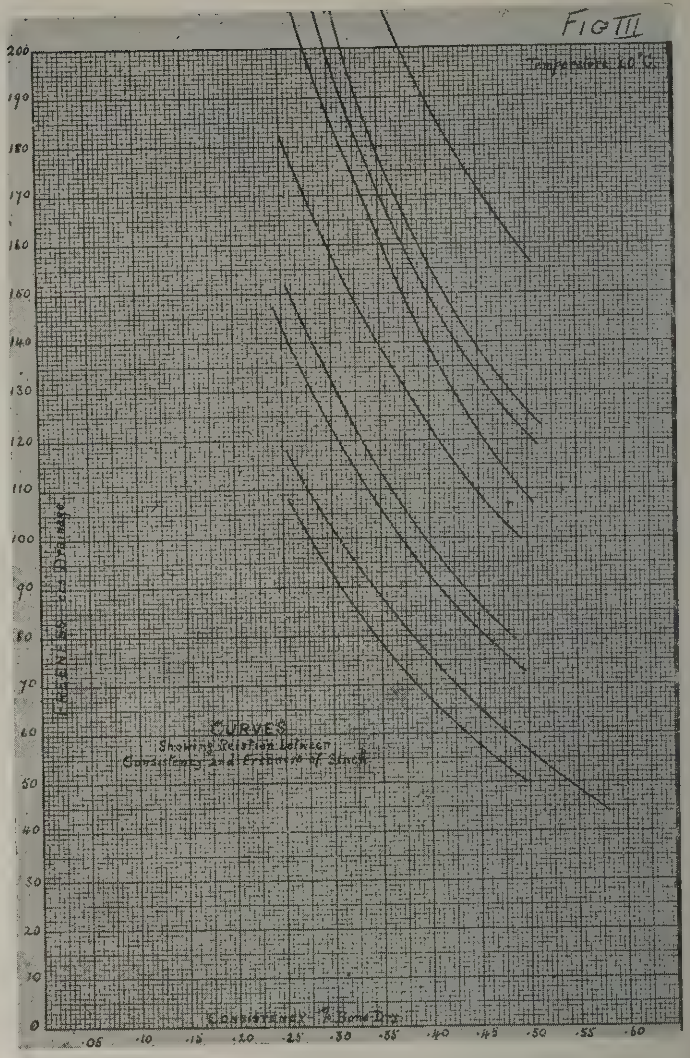
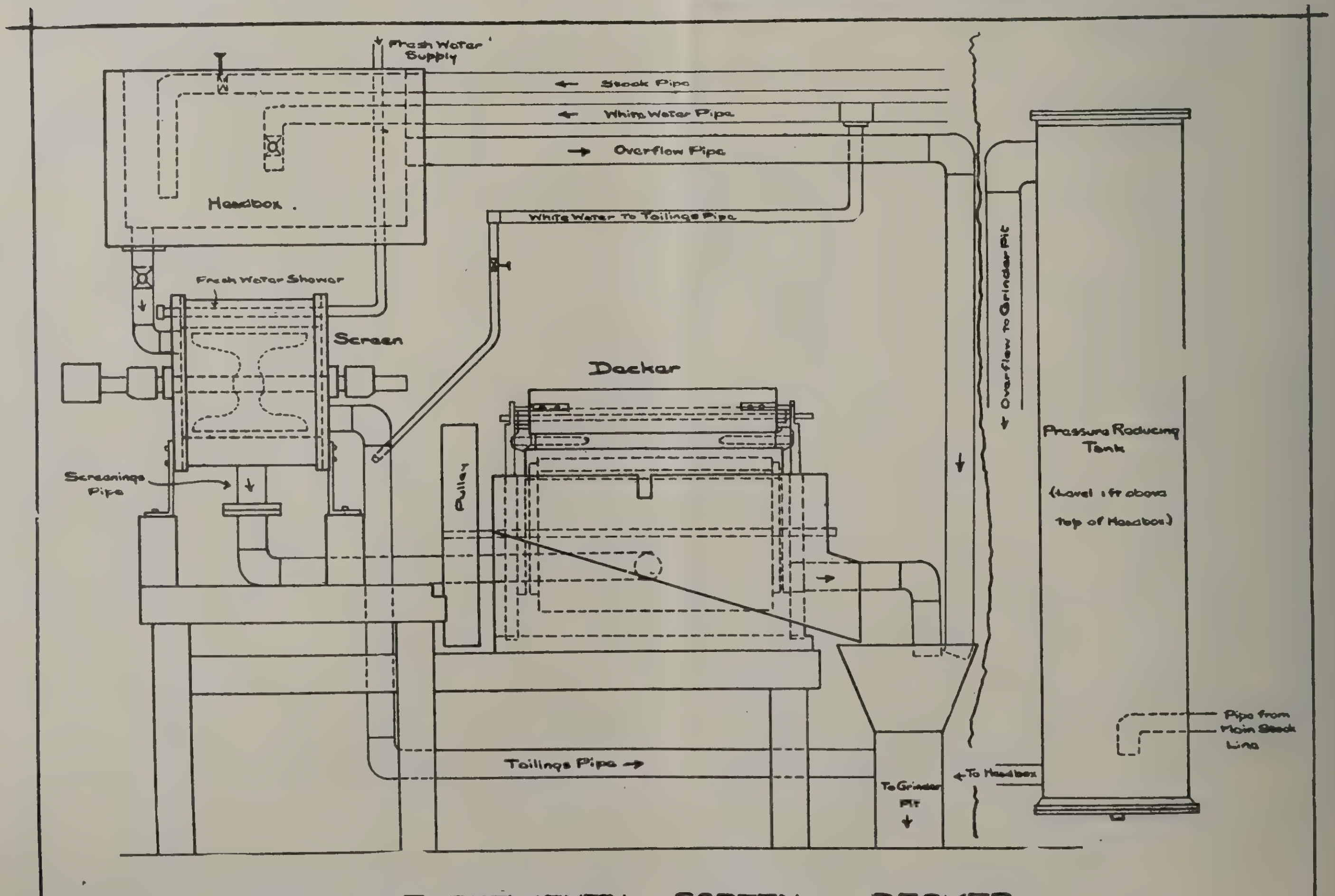


Fig. 1.



LAYOUT of EXPERIMENTAL SCREEN and DECKER
Scale 1"=1'

were changed in temperature from 60 deg. F. to 90 deg. F. in steps of 4 deg. F. These curves are shown in Fig. 8. No. 1 is a preliminary test,

No. 3, 5, 6, 9, 13, 14 are tests run at a consistency of 0.4 per cent bone-dry.

No. 15, 16, 17, 19, 20 are tests run at a consistency of 0.3 per cent bone-dry.

No. 23, 25, 26, 27 are tests run at a consistency of 0.2 per cent bone-dry.

The range of freeness at 60 deg. F. varies from 56 to 207. The remaining experiments are not plotted, but an examination showed that they followed the others very closely and are not included because they would tend to confuse each other with too much detail. The conclusions we can draw from a study of these curves are that:

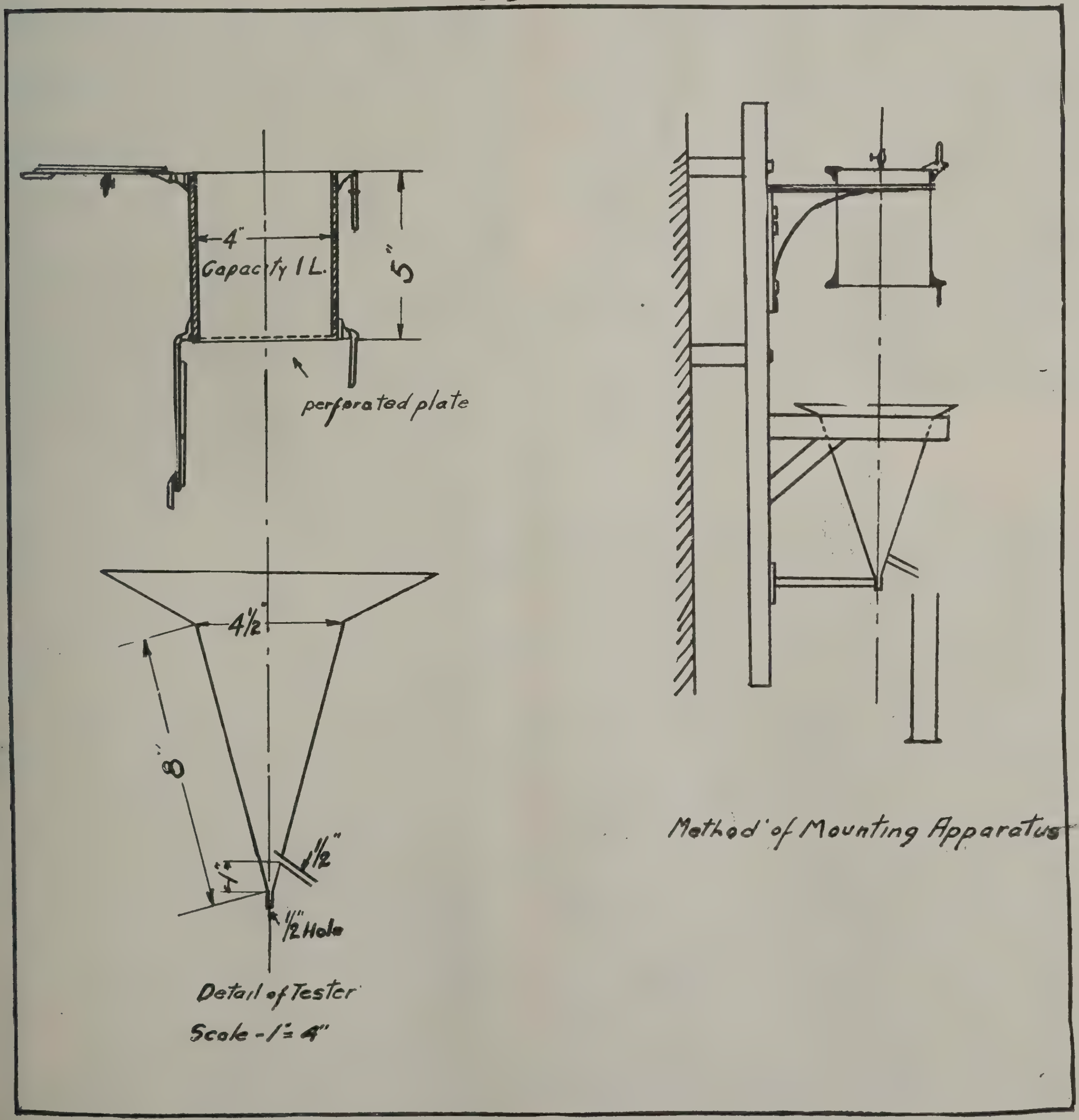
(a) Within the limits of temperature shown, each curve approximates a straight line;

(b) That the rate of change of freeness with temperature varies as the original freeness.

For the sake of outlining a possible correction curve for temperature, we have plotted the curves shown in Fig. 9.

It would appear from an examination of these curves that example of a correction possible from these curves, had the freeness at say 60 deg. F. and is independent of the consistency at which one requires the stock to be run off. As an example of a correction possible from these curves, had the freeness been found to be 100 at 80 deg. F. the corrected paper machine. Fig. 10 shows a part of the test made from January 18th to March 1st, 1922. On this are plotted,

FIG II



freeness would be 84 at 60 deg. F. It would be practically impossible to correct for both consistency and temperature at the same time so that it appears that either way of choosing a routine procedure is a matter of convenience only.

A rather interesting part of the work on freeness is the attempt to trace the action of the varying stocks on the

Fig V

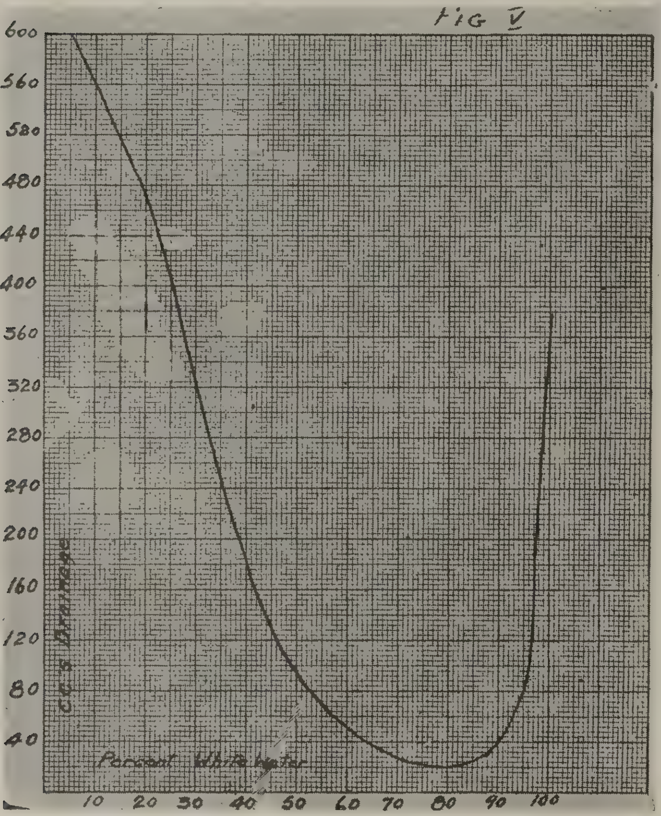


Fig VII

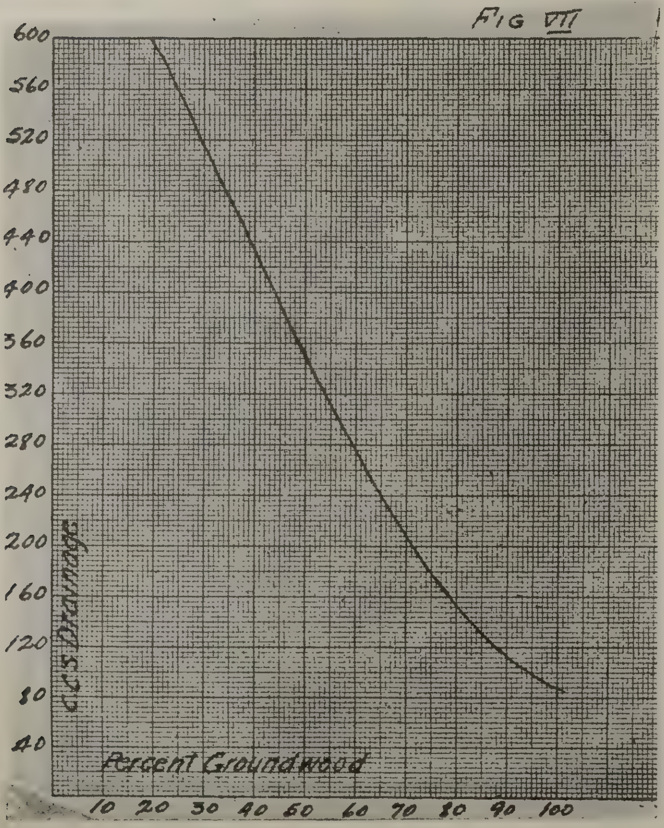
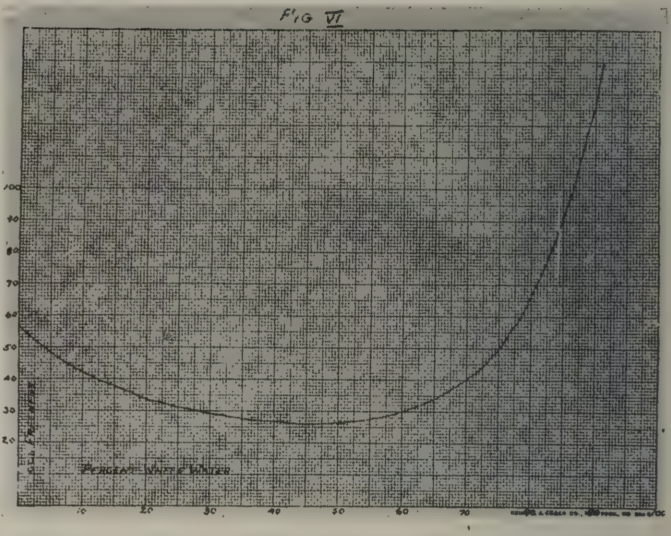
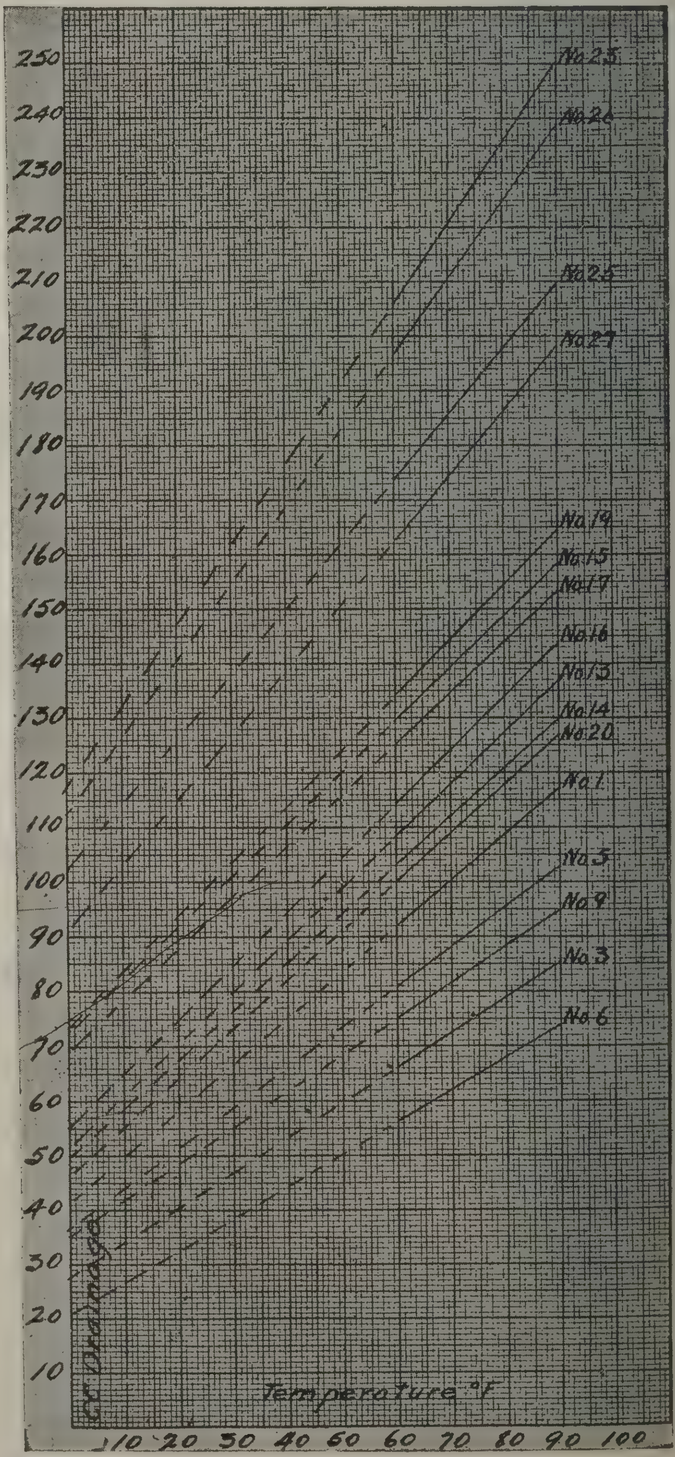


Fig VI





corrected freeness of screened and deckered stock, corrected freeness of paper machine stock and freeness on paper machine stock as run.

Notes on this curve include, valve settings for white water as regulated by the machine tenders. This curve shows that in general the freeness as determined by the test indicates the experience of the machine tenders. There are of course exceptions to this and herein lies the reason why so many have found this test to be of little use. To more fully discuss this, it is necessary to refer to screenings tests made on stock of varying freeness readings. It was found here that in general the freer the stock the greater was the percentage of coarser fiber. The following tables show this, as well as some discrepancies which we will attempt to explain later.

	%	%	%	%	%
Sample	1	2	3	4	5
Freeness	101	123	188	256	325
Retained on 20 mesh	1.0	1.4	1.5	3.0	4.2
Retained on 65 mesh	33.2	44.3	47.8	52.9	51.6
Retained on 100 mesh	9.9	12.6	12.0	9.4	8.9
Retained on 200 mesh	16.9	13.7	13.3	11.5	13.5
Passed through 200 mesh	39.0	28.0	25.6	23.2	21.8

There is one important feature of this screening test which caused a good deal of trouble at first and which has been explained to a certain degree before. If more than a certain amount of flour is included there is a point reached at which further addition of flour tends to make the stock very much freer, due no doubt to this part passing right through the tester. One can easily understand that it would be possible to have varying mixtures of different sized fibers which would give an identical freeness and yet be totally different as to nature. It is for this reason, I believe, that the freeness test alone is of little value. It is apt to be very misleading when any very great changes are brought about in the groundwood plant. If we could supplement this with a quickly determined numerical indication of the relative proportions of fine and coarse fibers, the two together would be an excellent guide to the control of groundwood quality. One does not wish to minimize the good which can be accomplished by the freeness test alone and the figures so obtained and used by an operator who is familiar with the general conditions of the cutting surfaces, etc., are invaluable. It is my opinion that until we have obtained some other companion test to this one that the results so obtained will always be subject to criticism from the precise operating point of view.

In conclusion, it is essential to note that with such a number of methods in use at different mills, there is little if any use in exchanging data as to conditions of freeness. Would it not be possible to have these methods and types of apparatus standardized to such an extent that figures obtained in one locality would be comparable to those obtained elsewhere? Undoubtedly there are many criticisms to offer even in the present design of testers. It has been our experience that it is the exception rather than the rule to have two testers by the same maker read absolutely the same under all conditions. The time has come when this test must be standardized or pass into the discard as subject to too many variations to be of real value to our industry. Our neighbors to the South have gone into this question at some length and there is no reason why we should not do likewise.

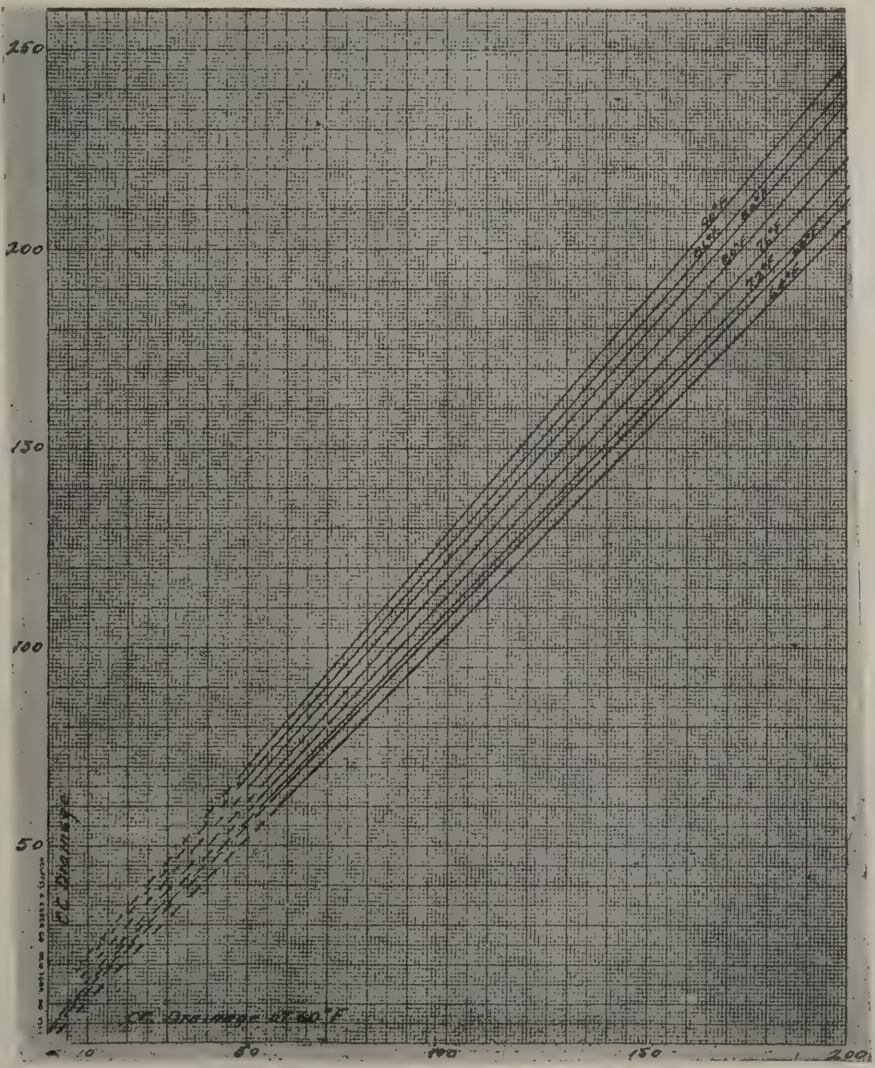
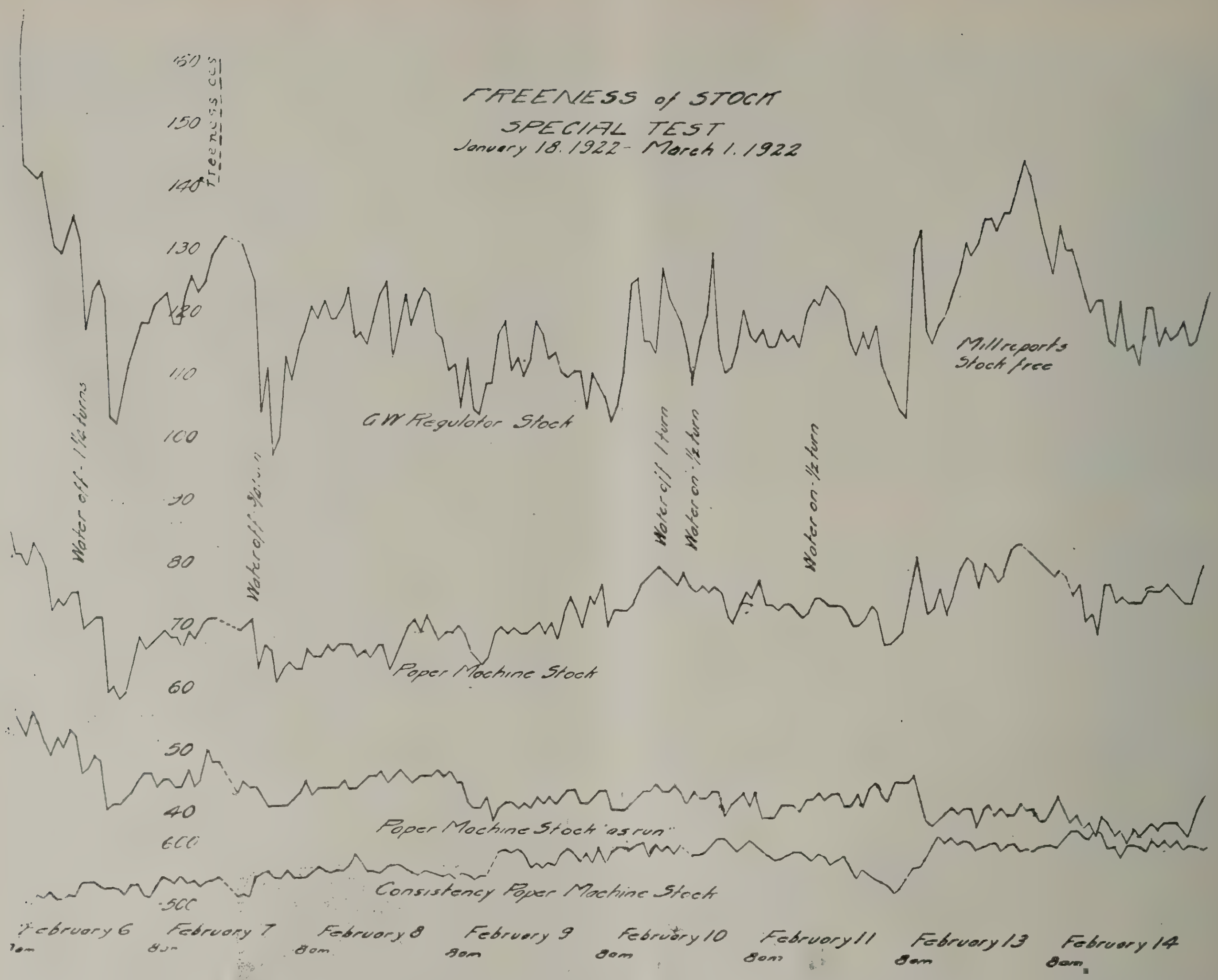


Fig. IX.



Floors for Shipping Rooms

New Ideas on Flooring Presented at Annual Meeting of Technical Section, at Montreal, by an Authority

By **CHARLES A. MOLLEN**
Consulting Paving Engineer

IN PREPARING this short paper, I have tried to view the subject so as to understand what the manager of a paper mill would want to know about asphalt mastic flooring as compared to the other floorings available in order to enable him to decide what is best for use in the shipping room of his paper mill, as well as in other places where the floor problem presents special difficulties—at the wet end of the paper machine, for instance.

Not a competent judge am I of what special qualities in a floor a paper man needs; for I am a paving man, and every man to his own trade. But I have been informed that wood flooring fails in the shipping room because it splinters and the fibers tear out under the heavy hand trucking, while the concrete floor is unsatisfactory because it crumbles under this kind of traffic, becomes uneven and rough, and is the cause of considerable dust. In view of these facts, what I have to say may be of real value to some of those present.

Asphalt mastic is not a floor, it is a floor covering. Being a more or less plastic material, it must have under it a relatively rigid supporting floor or foundation of either wood or concrete. The asphalt mastic is usually only about one inch in thickness, and must be compared with the finishing boards of a wood flooring or the top course of a concrete floor. It is sometimes well to get exact place in the order of things before proceeding too far with the consideration of such a problem.

Asphalt Flooring is plastic; not rigid, not elastic. It is like putty or sheet lead in that it stays where it is put until some other force comes along to ré-put it into some other shape. A good plastic mastic flooring is a proper compromise between the two extremes of rigidity and plasticity, both of which qualities are undesirable in a flooring or a pavement surface in excess of the serviceable mean.

The nature of asphalt surfaces is not usually very well understood I find in talking with most engineers and architects who are not specialists in the paving field. To begin with, it might be said that the same general principles control whether the asphalt mixture is laid as a sheet asphalt pavement on a roadway or as a mastic covering for a floor. In the minds of many, there seems to be an idea that there is a great difference between the mixtures used for these two purposes.

An unwarranted significance has come to be attached to the more general use of the word mastic in connection with asphalt mixtures when they are used for flooring instead of for street paving; but any of the more common asphaltic mixtures can be used successfully in either place, subject only to such changes in design as may be dictated by the thickness required, the temperature conditions, traffic, or other extraordinary surroundings.

Compared to Hydraulic Concrete, the special qualities of bituminous concrete are easily explained. Portland cement concretes, and mortars, with their cement-water chemical combination as a bonding medium for the mineral aggregate, possess a rigidity with which we are all familiar. Bituminous mixtures, asphalt or tar-concrete mortars or mastic, with approximately the same mineral aggregates, require merely the use of the bituminous cementing medium which has a temperature set, and remains plastic, instead of having the chemical set which makes the hydraulic cement concrete so rigid.

Both types of concrete are made with the same general type of mineral aggregates, graded from any maximum size of stone, gravel, or sand down to the fineness considered desirable. In the asphalt mastic mineral aggregates, a proportion of pulverized limestone dust should be used which is about equal in fineness to the Portland cement in the hydraulic concrete. The most characteristic difference between the two types of concrete is the substitution of the asphalt cement which is viscous and binding, for the water that acts upon the Portland cement to make it bind.

Because it is far too soft was the reason given, not long ago, by the manager of a paper mill, for deciding not to use asphalt mastic flooring in his shipping room. It seems that an asphalt floor had been laid in another mill, about which this manager knew, probably the work of some rule-of-thumb man who did not fully appreciate the technique of the asphalt paving and flooring industry, and this particular flooring had proven too soft.

That was not a valid reason, however; for asphalt mastic floorings can be made as hard as concrete or so soft that it can be gouged into with the fingers, as maybe desired. This decision against mastic flooring was most certainly based on a lack of understanding of the material. There may be other very good reasons for not using asphalt mastic in a paper mill, concerning which I know not; but the statement that it is too soft is most positively not one of them.

Too much mystery engineering has in the past been the curse of both the asphalt street paving and the asphalt mastic flooring industries; as also of many other types of work. The so-called practical man who claims to have, or gives the impression that he has a vast amount of secret knowledge concerning the technique of asphalt mixtures, has been the bane of the industry since its early days. The mastic flooring men usually talk voluminously, for instance, concerning the special merits of what are known as European rock asphalts.

The value of practical men in any industry should not be underestimated. Any technician not himself engaged in the actual doing of the work, who will not listen attentively to the experiences and views of the practical workman, is simply lacking in good sense; but, on purely technical points, the practical man should submit his information to the technical man so that he may be able to interpret even his own experience intelligently. Each man needs the other.

The European rock asphalts, whose assumed superiority has been much advertised and never proven, can be duplicated quite closely in any American City; in fact they have been duplicated and the duplicates used extensively, and some of the very excellent mastic work done is with materials which never saw Europe at all. Once stripped of its mystery, European rock asphalt is a very simple subject. It is used in street paving as well as in flooring in Europe, where it is cheap; and anticipated the synthetic sheet asphalt pavement in North America.

One can synthetically produce what he wishes in an asphalt paving mixture; while if he insists on having one of the so-called products of Nature, then he must take more or less just what Nature has provided through the accidents of geological formation. In producing her native asphaltic materials, it is somewhat doubtful to my mind whether Nature had specially in mind street paving and mastic flooring as we know them today.

Great thickness is undesirable either in an asphalt street covering or an asphalt floor covering. Anywhere from three-quarters of an inch to one and one-quarter inches is all that would ever be required on the floor of a shipping room. The wear of asphalt surfaces is so slight that it need hardly be considered. The mineral particles, instead of being held in rigid position as are those in Portland cement concrete or mortar surfaces, are bound into the plastic asphaltic material which coats and surrounds them. In a way, an asphalt flooring can be said to be continually mending itself.

The old Pennsylvania station in Jersey City, laid between the New York City ferry exits and the entrance to the trains, has an asphalt flooring that antedates my earliest recollections; and, as far as I know, it is there yet. The constant walking over it, and the fact that it appears to be of the proper density and rigidity-plasticity compromise, made it almost indestructible. It was used very extensively for foot traffic before the Pennsylvania Station, at Thirty-Third Street, Manhattan, was opened.

The Canadian National Railways have an asphalt floor covering in the freight sheds on Wellington Street at Bridge Street in Montreal, which has given excellent service for 13 years, and is still in good condition. Metal shapes are dropped on this floor, constantly making indentations which are promptly ironed out by the ever passing hand truck traffic. I do not know who laid this floor, whether its excellence is a matter of accident or the result of a practical knowledge of the technique of the industry; but it is an example of what an asphalt flooring can be under such conditions.

The oldest asphalt surface now in existence, which has become famous in the industry, was the result of an accident, not knowledge; though it is the basis of a great deal of our present technical information. This pavement is on Vermont Avenue, between H and I Streets, Washington, D. C., and was laid two inches thick in 1880. I took samples of it a few years ago, and it is still almost two inches thick. The pavement is rendering good service today, and the records of the City of Washington show that its annual maintenance cost has been very slight.

Asphalt floors have advantages over asphalt streets in that they are protected by a building in which the temperature is more or less constant. The Vermont Avenue asphalt surface, for instance, is subjected to probably as low as zero several times during a winter and the temperature of the pavement surface itself often reaches 140 degrees Fahrenheit on a hot summer day; besides which, the rapid changes in temperature outside are not reproduced, at least with such severity, in a shipping room.

Widely varying temperatures are one of the principal enemies of asphalt surfaces, against which they are protected in a room kept at an even temperature. It does not matter what the temperature is, just so it is more or less uniform; because the rigidity-plasticity compromise can be adjusted to any given temperature. On street work, we have to adjust this quality to widely varying temperatures, and to the fact that some streets get their heaviest traffic in the summer, while others get theirs in the winter.

Actual wear is not a factor, as I said before, on an asphalt street pavement surface or on an asphalt flooring surface. It would take a great many years for either to wear out, as a cement concrete floor will do; because there is no appreciable crumbling and blowing away as in the case of a cement flooring under heavy truck traffic. This is prevented by the plastic nature of the asphalt flooring, which enables it to take up the shock of traffic without permitting the particles of sand or dust to be crushed, and tends to mend them even if they are slightly shattered.

All the voids in the aggregate of an asphalt paving or flooring mixture must be filled with the plastic asphalt cement, and slightly overfilled in most cases. The extent of the overfilling of the voids is one of the main factors in the rigidity-plasticity compromise. The other main factor is the consistency of the asphalt itself, which can be purchased from the refinery at any consistency desired.

Asphalt flooring is waterproof, if it is properly made; that is, if the mixing is so done that the particles of mineral aggregate are properly coated and there is a sufficient quantity of asphalt to fill the voids. If the mixture is not properly made, it may be porous and admit water and then the pavement or the flooring will disintegrate from this cause.

No place for water to enter should exist in any asphaltic. Some years ago, in connection with a lawsuit, we placed two compressed blocks of asphalt surfacing mixture in water in our laboratory. That which had failed admitted seven per cent of water by volume in a few days, while the block cut from a similar surfacing that was laid under our supervision and concerning which we had data, has been in water ever since, and it still fails to show any absorption. Where there were no unfilled voids or porosity, there was no place for the water to enter.

The ease of making repairs to an asphalt mastic covering is another item in its favor. If any small area has to be removed or requires replacement for any reason, the old material cn be remelted and relaid, and it is as good as when it was new mixture at the time the job was originally constructed. This procedure is quite common with many cities as regards asphalt street repairs over cuts made to get at sub-surface structures. The pavement surface is cut out in squares, the opening made, and then the squares are laid back. Later on, a small equipment comes around, remelts the squares, and relays them just as it would lay new mixture.

Any handy man can make repairs to an asphalt flooring if he has a small melting pan and the necessary material available. It may be thought desirable to keep a small quantity of new mixture on hand that can be remelted. A stock might just as well be set aside some place when the job is originally done. The only danger in making such repair work is through a careless man allowing the asphalt cement to burn by not keeping the mixture constantly agitated as it is melting.

To make satisfactory repairs to a Portland cement concrete floor surface is a very difficult matter, to say the least; for the repaired area must be kept out of use for several days while the cement is hardening, and the period should be longer. Repairs to wood flooring that is worn are also difficult to make, and not always satisfactory; unless the new planks or blocks are planed down to the true thickness of the old floor.

Walking on an asphalt flooring is easier on the feet than walking on hydraulic concrete. There is just enough give in the material so that it helps the workmen in this respect. For the above reason, possibly it may be an advantageous material to use in many other places in the mill besides the shipping room, though wherever oil will drop on it directly, a small pan should be placed to prevent the softening effect of constantly dropping oil. No slight amount of oil will be injurious but constant saturation with a light oil will gradually flux an asphalt surface and soften it to some extent.

A good surface is maintained on the floor with asphalt mastic by merely walking on it, as was the case in the lobby of the Pennsylvania Sation in Jersey City. In fact, the most difficult place for which to design an asphalt covering is for some floor or flat roof where there is no traffic, and rapid changes in temperature which tend to cause contraction cracks which traffic is needed to keep from forming or to mend after they have formed.

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Heat Economy in Machine Room

Showing How Much Heat in the Machine Room is Not Profitable, Although Not Known by the Owners

By T. J. HIGGINS
Manager, Ross Engineering of Canada, Ltd., Montreal, P. Q.

FROM a heating and ventilating stand point, economies in other departments of the mill, while important, are dwarfed by those possible in the machine room, and as the various uses of air in the paper industry are so very numerous, space requires that we limit this article to its application in the machine room only.

However I will try to show not only the different methods of ventilating the machine room, but also what the problem is, and particularly bring out some of the knowledge which has been accumulated in the last few years on a subject which has in the past been treated mainly by "rule of thumb," and in accordance with the judgment of the individual designer.

In general I should say that the machine room presents not so much a heating problem as a ventilating problem. This is on account of the heat given up by the dryers, and which is almost enough to keep the room comfortable, even in cold weather, as to temperature, except possibly at the extreme ends of the room. There is however a large amount of vapor arising from the machine, and this amounts roughly to about 2 lbs. of water evaporated per lb. of paper. In other words a machine turning out 50 tons of paper per day, is evaporating approximately 100 tons of water per day, and this must be taken care of unless there is to be serious trouble with fog and condensation.

Probably the oldest system for ventilating a machine room was to permit the vapor-laden air to escape through the roof, either by natural draught or by the use of fans, and allow air to leak into the room to take its place. If this air came into the machine room from some other department of the mill, conditions were not very bad, but if it had to come in around windows and doors, the cold air would cause condensation and drip. The next step was to put steam coils under the roof to keep the temperature here above the dewpoint and prevent this drip.

The Matter of Forced Ventilation

Then came the system of forced ventilation whereby a quantity of air, practically equal to the air being removed from the roof, was preheated and admitted to the machine room. This was a big step in advance, and until very recently seemed to answer the requirement. The air was usually blown on the roof, as it was found that most of the condensation occurred there, and that by keeping the roof warm it could be largely prevented.

However, the application and the quantity of this air, varied, depending upon the opinion or judgment of the engineer and mill owner. The type of installation depended on how much money it was desired to put into the system, or upon how much power could be given up to the system, or on whether exhaust steam could be used for heating the air, and for the most part ducts were run wherever it seemed that there was the best space available.

It may be gathered from the foregoing, that little attention was paid to the method of introducing the air, or the manner of its application. Contracts for ventilating systems were awarded to the concern that would guarantee to deliver the largest amount of air and heat for the smallest amount of money. The volume of air was usually based upon changing the air in the machine room in so many minutes, and it became common to specify a five minute air change, or if that seemed too big an item for commercial reasons, a 10 minute change, or even a 15 minute change might do, in these cases it being considered necessary to heat the air to a higher temperature in order to offset the smaller quantity.

We need not point out that this method of figuring a system was all wrong. The practical experience that would cause a man to decide on a five minute air change for the reason that in some other mill it was used and worked out satisfactorily, does not take into consideration the construction of the building, the amount of glass surface, exposure, whether a warm or a cold roof, whether machine is hooded or not hooded, the amount of water evaporated, nor the fact that one machine room might have about half the cubic measurement of another mill, producing the same amount of paper.

The Real Test

The only test was—"Does it keep the room clear of all vapor and drip?" If it does it is a fine system. If it doesn't then it isn't big enough, and the only cure is to put in more or larger apparatus. The fact that there might be an ample supply of air, if properly applied, was rarely considered, and this haphazard method of engineering has not only led to systems unsatisfactory to owners because they did not remedy the drip and cold, and were expensive in cost and operation, but has led to systems which keep the room dry and warm, and so are entirely satisfactory, but which would not be so satisfactory if the owners realized fully the waste of heat and power that goes steadily on. We are not dealing in this article with systems which are not large enough, (and there are plenty of these), but we are dealing with systems which are too large, or which are large enough but do not produce the desired results.

We haven't the space in an article of this kind to describe instances in detail, but in one mill we investigated, and who were thoroughly pleased with their system, we found the air going to atmosphere thirty percent saturated, and they were not so pleased when they discovered they were using 1100 boiler horse power to ventilate that room, when they should have been using not over 500.

Of late years, however, it has come to be recognized that air discharged along the roof of machine rooms doesn't perform any other duty beyond carrying off the moisture. A number of years ago, the present so called vapor absorption system was developed under the Belcher—Wilson patent, and was especially applicable to machines operating without dryer felts, such as board, pulp machines, etc.

I don't think there is any question but that when a machine can be supplied with a system of nozzles on the dryers, that this is the proper method of ventilating a machine room. It has shown increased drying capacities ranging from 15 per cent. to 40 per cent., or when for any reason this is not desirable, a substantially reduced steam pressure. It also aids in uniform drying, reduces breakage about 60 per cent., eliminates wet streaks and cockle, puts more life in the sheet, resulting in better calendering, and all these advantages are secured without more cost for heat or air than if it were furnished through a roof system only. On fast running newsprint machines, book machines, etc., which have dryer felts, it is not very often that nozzles can be used and in these cases we bring the air down around the machine, partly up under the bottom felt, and partly in between the felts to approximate as far as possible the results, but without the use of cross nozzles.

No Hard and Fast Rules

There are no hard and fast rules in the design of these systems, and in every case the requirements peculiar to the individual mill must be considered. From an owner's standpoint, since it is possible to spend many times the first cost during every year of operation, it is vitally important that he be certain that these requirements have been considered, and that it is designed for the greatest economy possible in complete understanding of all the factors that enter into it. He should also have in mind when his engineer figures the steam the system will use, that if the system is properly designed, it can not possibly affect or change his total steam consumption except for the better. This is now pretty generally undersood and is occasioned by the fact that all the air which is removed from the machine room must be replaced, and it must be heated somewhere from the outside temperature to the temperature at which it leaves the ventilators. It may be heated in an adjoining room, in a separate heater, by the dryers, or by steam coils, but in every case it is heated by steam, and I think there is no question but that this air could be much more economically heated in a heater properly designed and for this specific purpose. In the old days, which by the way are not so old, a mill owner in purchasing a ventilating system, would often ask how much steam it would take, and when advised would often decide he could not afford to give that amount of steam, and would either abandon the idea or put in a smaller system. However this was (unless the system was terribly oversized), he was simply fooling himself, as he was going to use that steam and for that purpose anyhow.

It would probably be a great shock to many mills, if they were to realize that it is probably taking 40 per cent as much steam to ventilate their room as to dry their paper, yet many mills are much worse than that. Accordingly the cost of an adequate and properly designed system is a part of the cost of doing business, and should be faced with a clear understanding of what it is, and with an equal determination that it shall be as economical as possible.

The next step is the utilization of the waste vapors passing from the ventilators for the purpose of heating the air supplied to the system. This is accomplished by means of an equipment developed under the Briner patent, and which consists of alternate systems of channels, through which the vapors pass horizontally, and the fresh air vertically down, the heat being transmitted through the walls of the machine to heat an equal volume of incoming fresh air. We all know the amount of steam required to turn the water in a sheet of paper into vapor, and by cooling this vapor to below the dew-point, it condenses, thereby releasing this same heat of vaporization. In round numbers, for every pound of vapor condensed into water we obtain the heat equivalent of a pound of steam. We have hundreds of readings on a number of installations, and based upon readings in over eighty mills to determine an average temperature and humidity of vapors, we find that a rise in temperature from zero to eighty degrees then may be expected in these economizers, on practically any installation, where it is physically possible to adopt the system.

As a more or less typical instance let us take that of a mill making 85 tons, and when the conditions require that 90,000 cu. ft. per. min. pass through the machine room. In raising this volume from zero to eighty degrees, through economizers, a saving of heat units equivalent to 119 pounds of steam per minute is made. This is 7,140 pounds per hour, and at 60 cents a thousand (substitute any more accurate figure), represents a saving of $4.28 an hour, $102.82 a day, or $15,423.00 in 150 days. On a test reading at another Canadian mill, we found the fresh air entering at 30 degrees below zero, and that it was being heated to 70 degrees, representing a saving 214,840 pounds of steam on that day, and as well as the dollars and cents savings, it is usually a tremendous advantage in the very severe weather, when the boiler plant is at its peak load.

Another way to utilize the waste heat in these vapors is to draw them through sprays of water. These sprays cool and condense the vapors, and the heat released raises the tempeature of the water very considerably. Tests made by a boxboard manufacturer show that the vapors passing out of their roof would heat all of their beater water from 40 degrees to 104 degrees.

We are only at the beginning of the real work that is necessary to secure economical ventilation of machine rooms, but there have been important advances made in the past few years.

Waste in Pulp and Paper Industry

Constructive Criticism

By B. T. McBain

Assistant General Manager, Nekoosa-Edwards Paper Co.

THIS petty stuff of always finding fault with what this man or that man in the organization does or does not do, is what disorganizes business today. I presume it is nothing different than what has been going on since the beginning of the world, but that is no reason why it should continue.

One man is blamed for not doing a thing and called a Piker and when another man turns around and does for the good of the business, what the other man was blamed for not doing, then that man is called a usurper and found fault with because he did do what should have been done by someone else. Some people find fault; but do nothing themselves to help correct the faults for the mere fact of finding fault and not suggesting corrective measures, is not just criticism.

Criticism is what we all need; but it should be constructive criticism or not at all. I could find fault with the highest man in the land; but I couldn't fill his shoes and my criticism is worth nothing. I might find fault with a Superintendent and suggest measures for correction, carrying these corrective measures through to conclusion. That is constructive criticism and does some good.

The Go-Getter is always blamed for something; someone finds fault with something about him, more than anything because he is a Go-Getter; but that is no reason why the Go-Getter is guilty of the things the fault finder mentions.

Many times "We see the mote in our brothers' eye; but do not see the beam in our own eye," says the Good Book and that surely fits in with business conditions in many, if not all organizations today.

If I don't like the way the President of my employing Company handles the business, I will quit—then it is time enough to find fault with my superior officers. Until then it is up to me to carry out his policies to the best of my ability irrespective of fault finding members of the stockholders, directors, or of the minority generally.

Constructive Criticism is wanted—Fault finding, forget it.

The Editorial Page

Sift Them Down

EVERY failure of a pulp and paper company should be sifted to the bottom. If there is malfeasance or illegality it should be punished. Every person interested in the welfare of the paper industry as a whole will concur in these statements.

There have been failures at times in the past, without making any definite charge whatsoever, which have been questionable to say the least. Perhaps it would have been difficult to place the finger on the exact man to blame, but somehow, somewhere, there was the suspicion of criminality.

That is why every failure should be sifted to the very bottom. The failure of a pulp and paper company is serious enough without adding thievery to it. The losses that must be suffered, the dragging down to ruin of other firms, the impaired credit of creditors as a result of such failures, are all sufficient without the suspicion of fraud. Let the suspicion of fraud enter in and creditors writhe in their anger, and the entire credit situation is tied up as tight as a drum. When everybody has money, and everything is booming, there is plenty of credit. Let the hand of ruin fall on one or two ill fated companies and the credit situation tightens up to painful proportions in a day's time. It is a perpetual odd commentary on credit, that when you don't need any you can get all you want and when you are in dire straits, and need it badly, there is generally none to be had.

And so we claim that the entire industry should be helpful in trying to clear up obscurities about any failure. Information should be freely given. The calcium should be thrown on the sore spots. The trade should know its own worst cancers.

Turn on the light and keep it on.

Make It a Dandy

The Canadian convention in Montreal last week was a huge success. Now is the time to lay the plans for a greater success at the annual convention of the American Paper and Pulp Association in April. And with it, the exposition should not be forgotten.

We don't want to take up much space to tell you this same story again. But we don't want you to forget. So here is this week's reminder.

Short and Sweet

There will be no sad hearts in the paper industry if and when the European financial tangle is unraveled to some extent. If "Hell and Maria" Dawes and his men are successful, the German problem will have been solved. This will mean stability and in the paper market that will be of inestimable value to the paper industry of America. The amount of exports is constantly dropping.

* * *

Harold Henry, of Higgins & Henry, Chicago, has again showed his pep and ability in being chosen head of the movement to form the American Paper Stock Association. He is already president of the Chicago Paper Stock Association.

* * *

What the forestry men think of the McNary-Clark forestry bill now pending in Congress is shown in the article by J. R. Simons, in his department on "Forestry in the Paper Industry," in this issue.

* * *

Dr. Hugh Baker, secretary of the American Paper and Pulp Asociation, is touring a number of paper mills through the Middle West. We'll wager he comes back with a bagful of new ideas.

* * *

President Coolidge will never be accused of causing a paper shortage from the amount he uses in statements to the country.

* * *

It will soon be time for results of the new year to be showing.

Use of Canadian Talc in Papermaking

A Dissertation on an Important Subject as Read at the Annual Meeting of the Technical Section at Montreal

By W. C. LODGE
Division of Pulp and Paper Forest Products Laboratories of Canada

THE use of mineral filling or loading materials is common practice in the manufacture of a great many classes of paper. The function of a filler is to fill up the interstices betewen the fibers giving the smooth surface necessary for process work and half tones. It also renders the paper more opaque, improves the feel and enables it to take a better finish on calendering.

The materials commonly used are china clay, talc, asbestine, calcium sulphite, chalk and barytes, but clay is used to the largest extent.

China clay is hydrous aluminum silicate Al_2O_3, $2SiO_2$, $2H_2O$, corresponding to 46.5 per cent SiO_2, 39.5 per cent Al_2O_3 and 14 per cent H_2O and most of the commercial clays are fairly close to this formula, the most important variable being the percentage of iron oxide which amounts to as much as 2 per cent in the off color clays. The material used in the following tests was a fairly high grade clay of the following composition: —

TABLE No. 1—CHINA CLAY

SiO_2	46.70
Al_2O_3	39.50
Fe_2O_3	.37
Ca O	.56
Mg O	.15
Loss on Ignition	12.58
Residue on 100 M. Sieve	.10) Grit
Residue on 200 M. Sieve	.12) Grit

Talc is hydrous magnesium silicate (Mgo) 3 (Sio_2) 4 H_2O corresponding to 31.8 per cent Mgo, 63.5 per cent Sio_2 and 4.7 per cent H_2O. It occurs in foliated masses and has a greasy feel, a pearly, lustre, and unlike clay, which is prepared for the market by washing and settling, it is ground and graded to different degrees of fineness.

Commercial talcs show a much greater deviation from the theoretical composition than clays as the following examples show:—

TABLE No. 2—COMMERCIAL TALC

	Tyrol	St. Lawrence County New York State	Bavaria	North Carolina	Vermont	New Hampshire
SiO_2	62.12	60.59	62.35	61.35	51.20	42.43
Al_2O_3		.13	trace	4.42	5.22	6.08
Fe O	1.58	.21	1.34	1.68	8.45	13.07
M O	.....	.....	.....	.....	.32	trace
Ca O	.....	.....	.....	.82	1.17	3.27
Mg O	31.15	34.72	31.32	26.03	26.79	25.71
H_2O	4.73	3.77	4.78	5.10	6.90	8.45

Thorpe Dict. of Chem. 1913, Vol. V. P. 381.

Austria, France and Italy have until lately been the chief commercial sources of talc but of late years several deposits have been developed in North America. In Canada deposits at Madoc, Ont., have been worked for several years, the output going to the rubber and cosmetic industries and a small percentage to the paper trade. The deposits are very white in color, very soft, free from free silica, and the origin and formation have been described by Graham, (Pulp and Paper Magazine, Volume 2, 1913, Page 266.) Chemical analyses show them to be mixtures of talc, and magnesite in varying proportions, three samples on anlysis giving the following results:—

TABLE No. 3—MADOC TALC

SiO_2	48.46	48.90	48.40
Al_2O_3	.95	1.39	1.52
Fe_2O_3	.07	.08	.10
Ca O	8.97	9.71	9.22
Mg O	27.40	26.28	26.92
Loss on Ignition	14.12	13.72	13.85

These figures correspond to approximately 78 per cent of true talc, 5 per cent calcium carbonate and 5 per cent magnesium carbonate.

The residue is very different from clay screenings in that it consists of unground talc which is soft and easily crushed and not particles of silica and which is the usual reject from clay.

Formerly talc, especially that ground on this side of the water was in bad repute because of poor methods of preparation. The percentage of grit was very high and the scales or "shiners" were very noticeable on the finished sheet, but improved methods of grinding, screening and grading have eliminated these troubles to a large extent and there is no reason to believe that they cannot be removed absolutely. There is no residue on the 100 M. sieve and the residue on the 200 M. varies from .50 to 1.00 on the better grades. Some of the poorer grades run as high as 6 per cent.

It has been argued that the retention of talc is much higher than clay and that it increases the absorbency of the sheet. The following short series of tests was put through with a view to checking these claims.

Duplicate runs were made with the laboratory apparatus using both clay and talc, conditions kept as constant as possible. The pulps used were bleached sulphite, bleached soda and groundwood.

The materials were put into the beater in the following order. The sulphite pulp was beaten lightly for half an hour when the groundwood or soda was added together with the filler. The roll was then raised and the beating continued for 10 to 15 minutes when the color and size were added. Five minutes later the alum was added and the beating continued for a further five minutes, when the beater was emptied.

The stock usually stood for about two hours in the chest before running over the machine during which time it was thoroughly agitated. The speed of the paper machine was 35 to 36 ft. per minute and very little pressure was applied to the calender stack.

The papers made were fine book, cheap book, blotter and news; all which were unsized. A few runs were also made using sized stock to determine the effect of the carbonates in the talc on the alum used in sizing.

The finished sheets were allowed to stand over night. Samples cut the next day and placed in the constant humidity apparatus for three hours before testing. The average moisture at the time of testing was 7 per cent. The figures given are the average of 5 sheets each tested in five places. The retention was determined by ashing the paper, correcting for loss on ignition, etc. and results are reported using the formula:—

Ratio filler to fiber in paper = per cent.
Ratio filler to fiber in charge retention

No correction was made for the ash in fibre itself except in the case of newsprint.

TABLE No. 4—FINE BOOK PAPERS

Charge	No. 1	No. 2	No. 3
Sulphite Pulp, lbs.	30	30	30
Soda Pulp, lbs.	30	30	30
Clay	40	Talc 40	30
Alum	1.5	1.5	1.5.
Ream Weight, lbs.	66	64	64
Bursting Strength, lbs.	19.4	23.8	23.6
Per Cent Strength	29.4%	37.2%	36.8%
Per Cent Filler	22.2%	29.7%	24.5%
Per Cent Retention	42.3%	63.4%	65.0%

From the above table it will be noticed that there is a marked superiority, both in strength and retention of the talc filled sheets. The retention of the talc is 50 per cent greater and the sheets are 20 per cent. stronger in spite of the fact that they have a lower fibre content.

Test No. 3 was an attempt to make a finished sheet which contained the same per cent of filler as test No. 1.

The rolls of No. 1 and 3 were sent to the Consolidated Lithographing & Printing Co., who tried them on the offset printing machine. No dusting was observed with either but the talc-filled sheet gave a clearer impression.

TABLE No. 5—CHEAP BOOK PAPER

Change	No. 1	No. 2
Sulphite, lbs.	30	30
Groundwood, lbs.	20	20
Clay, lbs.	35	Talc 35
Ream Weight, lbs.	62.5	63
Bursting Strength	11.85	21.25
Per Cent Strength	19.0	33.6
Per Cent Filler	29.6	31.6
Per Cent Retention	60.1	66.0

Although there is not such a marked difference in the retention in this instance as in the previous case, the effect on the strength is very noticeable, so much so, that this test was duplicated with the following results:

TABLE No. 6—CHEAP BOOK PAPER

Ream Weight, lbs.	64	61
Bursting Strength, lbs.	12.5	22.8
Per Cent Strength	19.5	37.4
Per Cent Filler	29.5	31.0
Per Cent Retention	59.8	64.5

It would appear that the effect of adding groundwood to the mixture would be to increase the retention of the clay as the talc retention has remained practically the same as in sulphite soda mixtures.

Blotting Paper

Practically all the cheaper grades of blotters carry filler to a greater or less extent and it was thought that the use of wood pulp mixtures with clay and talc would show up clearly any difference in their effect on absorbency. The following furnishes were used:—

TABLE No. 7—BLOTTING PAPER

Run No.	1	2	3	5	6
Sulphite Pulp	20	20	10	10	10
Soda Pulp	40	40	50	50	50
Clay					50
Talc	40	40	50	50	
Time Beating	½ hr.	¾ hr.	½ hr.	1 hr.	1 hr.
Per Cent Filler	30.6	28.5	41.7	46.0	30.2
Per Cent Retention	65.5	71.0	85.8	94.5	51.8
Drop Test	10	5	3	4	13
Absorption. Secs. to climb ½"	69	44	28	34	90

A furnish modelled on one of these was run over a commercial machine traveling at 250 ft. per minute with results that were in very close accord with the laboratory figures. The resultant product compared very well with an all rag blotter and is practically as fast in the drop test. In the absorption test, however, the talc-filled sheet shows a decided tendency to filter out the pigment, allowing only the water to carry up beyond a certain height. Where a dilute solution of a dye was used for this test the papers behaved in very much the same way. From the above results it would appear that this is a very satisfactory furnish for blotter and is certainly superior to many of the commercial blotters, the furnishes of which are much more expensive.

Sized Stock

The presence of carbonates in the talc would naturally suggest that there might be a reaction with the alum that would interfere with the sizing operations. The effect is shown in the following table:—

TABLE No. 8—SIZE STOCK

Run No.	1	2	3	4	5	6
Sulphite Pulp, lbs.	30	30	30	30	30	30
Soda Pulp, lbs.	30	30	30	30	30	30
Clay, lbs.	40				40	
Talc, lbs.		40	40	40		40
Rosin, lbs. (as size)	1.05	1.05	1.05	1.05	2.00	2.00
Sulphuric Acid			6			
Alum, lbs.	2	2	1½	4	4	5
Ream Weight, lbs.	58	58	66	66	66	68
Bursting Strength	15.4	9.5	16.6	16.6	7.0	8.5
Per Cent Strength	26.6	16.4	24.5	25.2	10.6	12.5
Per Cent Filler	30	28	38.6	32.5	29.5	35.0
Per Cent Retention	65	59	70	72	63	81
Per Cent Rosin	65	1.04	.96	.94	1.97	2.00

It will be seen that the addition of a little more alum corrected the action of the carbonates entirely. It would appear that the alum-rosin size reaction proceeds much faster than the alum-calcium carbonate reaction.

In no case was there sufficient foaming to cause difficulty on the paper machine. Of the two clay seemed to give a little more trouble.

News Print

The marked difference between the strength of the talc-filled sheets and those loaded with clay suggested that the usual weakening effect of a filler might not be so pronounced with talc and it appeared feasible that it might be used in newsprint to advantage. Three tests were made as follows:—

TABLE No. 9—NEWSPRINT

Furnish	No. 1	2	3
Sulphite, lbs.	12	12	12
Groundwood, lbs.	48	48	48
Clay, lbs.		6	
Talc			6
Alum	1	1	1
Ream Weight, lbs.	32	34	32
Bursting Strength	11.0	11.0	14.2
Per Cent Strength	36.0	32.4	44.0
Per Cent Filler		8.2	8.7
Retention		89%	95%

One of these, No. 3, was super-calendered with excellent results, the finished sheet comparing favorably with ordinary rotogravure stock. These figures were confirmed in subsequent runs and it was arranged to have a trial made on a commercial machine.

Six rolls were made up with the intention of making paper carrying 4 per cent and 6 per cent and 8 per cent of talc but through some misunderstanding they came out 2 per cent, 3 percent and 4 per cent. The furnish was a mixture of 27 per cent sulphite and 73 per cent groundwood, and samples taken at the apron and from the finished sheets were tested, the results being given below.

The talc was added dry, direct into the mixing chest and mixed thoroughly for about twenty-five minutes before the stock was run over the machine. There was no trouble in getting the stock over the wire; the only noticeable difference was the fact that the suction was increased some two inches as there was a tendency of the stock to "skip" to the third suction box. The rolls were made without any breaks.

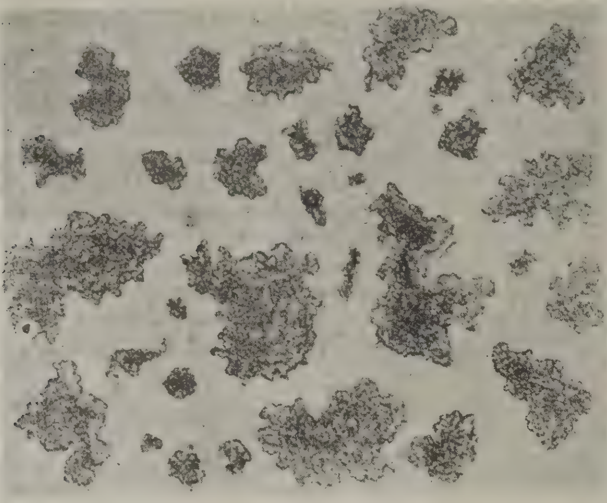

Fig. 1.—Clay

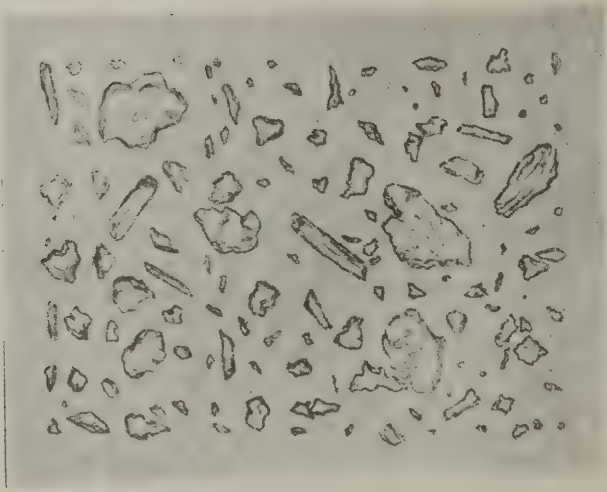

Fig. 2.—Talc

Table No. 10—Newsprint

Run No.	1	2	3
Filler charged	8.0%	6.0%	4%
Filler at Apron	5.6	3.98	2.66
Filler in Finished Sheet	3.94	3.26	2.40
Per Cent Retention (based on % at Apron)	68%	81%	90%
Ream Weight	31.5	33.0	34.0
Bursting Strength	10.8	10.7	10.7
Per Cent Strength	34.0	32.5	31.4

Through the courtesy of the Montreal Star these rolls were run over their presses. The press was set up so that 32 of the 84 pages of the issue would be printed on the talc-filled paper. This gave 27,000 continuous impressions on the talc-filled stock 28 of the pages printed satisfactorily throughout, in fact, some of the impressions towards the end of the run are superior to those made on ordinary newsprint. On the remaining four, however, the type smeared badly at about half way through the run and this condition grew steadily worse as no attempt was made to correct it by cleaning up the type. It is noteworthy that the greatest trouble occurred on the sheet carrying the lowest percentage of filler.

Even in these sheets that did fail the failure was confined to two or three parts of the page and not spread over the whole area. The failures occur only in the rotographic section, and the writer failed to find a single instance of any of the printing type being clogged. It does not seem reasonable to ascribe the trouble to the talc and it is planned to have the test repeated in the near future.

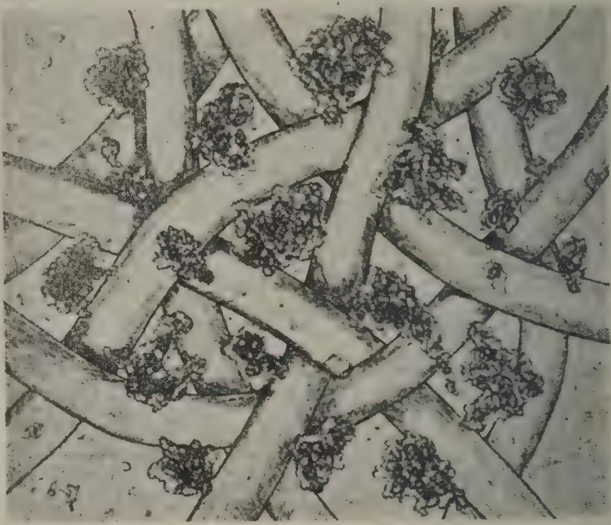

Fig. 3.—Clay with fibres

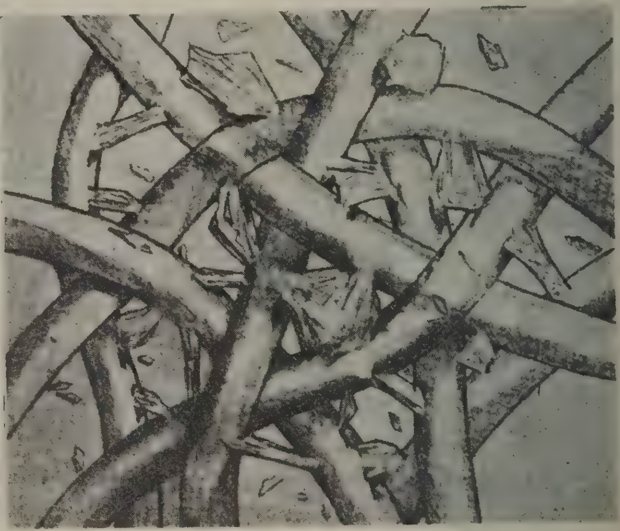

Fig. 4.—Talc with fibres

Talc and clay are, of course, very different materials. Clay is amorphous (Figure 1) talc crystalline (Figure 2) and this difference accounts for many of the variations between sheets made with these two fillers.

Clay presents no edges or corners to the fibres (Figure 3), acting more as a solid lubricant, hence its weakening action on the strength of the sheet. Talc on the other hand (Figure 4), tends to lock in the spaces, the corners of the crystal press into the sides of the fibres and so resist the tendency to slip against one another when the sheet is torn or pulled apart.

The amorphous nature and fineness of the clay tends to fill up the interstices of the sheet more completely and so clog them, decreasing the absorbent power, while talc being both coarser and crystalline actually increases the number of capillary spaces.

It is apparent that the greater retention value of talc is also due to these features.

Summary

(1) From the laboratory tests described, it would appear that talc has a much higher retention value than

clay and that this tendency is more pronounced with chemical than groundwood pulps.

(2) It would appear that talc has a positive influence on the strength of the sheet and that this endency is more pronounced wih groundwood than with chemical pulp mixtures.

(3) It would appear that talc is much superior to clay in blotting furnishes.

(4) It has also been shown that the effect of the carbonates of Canadian Talc on the sizing process is almost negligible.

(5) The difference between talc and clay is a function of the size and shape of the particles.

Laboratory tests are, of course, comparative but not conclusive; it may be pointed out that the formation on a machine traveling at 30 to 40 feet per minute is necessarily better than that obtainable on a high speed machine.

What little work has been done on commercial machines, however, tends to corrobate to some degree the laboratory results both as regards retention and increased strength.

The question of the influence of talc on printing, i.e., the tendency to clog the type is not yet answered, the results so far would incline one to believe it does not interfere but a long series of tests would be necessary to establish this point.

Should this be the case, and the results above given be confirmed on commercial machines, considerable economy can be effected, both in the substitution of talc for clay (the former being cheaper in first cost and having a higher retention value) and also by the introduction of talc newsprint. If this latter can be developed it might prove of considerable value in reducing materially the drain on our pulpwood supply.

The writer gratefully acknowledges the assistance of the Consolidated Lithographing and Printing Company, the Howard Smith Paper Mills, the Belgo-Canadan Paper Company, the Montreal Star and the Asbestos Pulp Company of Madoc.

A Short List of References on Talc and Related Subjects

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Mineral Addition to Printing Paper, July, 14, 1915, p. 19.

Notes on Filling and Loading Substances, Pulp and Paper Magazine, 1917, pp. 60314.

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Talc in Paper Making—Showcross, Paper Making, 1922. p. 245-6, 269-70, 314-15, 336-37, 366-67, 1923 p. 12, 13.

Factors Affecting Retention of Clay—J. D. Rue, Pulp and Paper Magazine, 1917, pp. 977-982.

The Advantages of Talc-clay, Paper, Sept. 2nd, 1914, p. 36.

Various Uses of Talc in Paper Making, Paper, July 21, 1917, p. 19.

Plantation Pulp

We shall be interested to obtain the name of the pulp and paper company which the Forest Service announces this week as having established plantations of cottonwood on the Scioto River bottomlands in Ohio. The purpose of the plantations is to provide for an assured supply of raw material for the company's mills.

Very little of the old stand is left in this region, and most of the old growth is on ridges and is of poor quality. The company is considering the purchase of hill land and the extention of its holdings in the bottomland to secure a crop of second-growth timber.

E. F. McCarthy of the Appalachian Forest Experiment Station visited the region recently and reports that the second growth in all the hill counties about Chillicothe, Ohio, is in a thrifty and productive condition. The owners are well aware of the value of their timberlands and look for periodic returns from ties, locust and sassafras posts, as well as a constant supply of pulpwood for the paper plant.

New Brand Names

Applications for registration of the following brand names have been made in the Toilet Paper Label Registration Bureau of the Tissue Paper Manufacture Association:

From December 20, 1923, to and including January 20, 1924.

Blue Duck—Fisher Bros. Paper Co., Fort Wayne, Ind.; Blue Rose—Fort Howard Paper Co., Green Bay, Wis.; Busy Bee—Gotham Tissue Corporation, New York, N. Y., (Taxin & Shapiro); California—Blake, Moffitt & Towne, San Francisco, Cal.; Dandelion—Ajax Paper Mills, New York, N. Y.; Try the Drug Store First—A. R. Rapp Co., Chicago, Ill.

The following brand names have been registered in the Toilet Paper Label Registration Bureau of the Tissue Paper Manufacturers Association by the Fort Howard Paper Company of Green Bay, Wis.

From December 20, 1923, to and including January 20, 1924.

Evanglo, Farabuv, Lady Luck, No. 26, Numark, Nu-Star, Our Seal, Pride of the Woods, Pull One, Selfelp, Sunglo, Vapordu, Wiplot.

Waterproofing Paper

A new process for waterproofing paper is described in *The World's Paper Trade Review.* The waterproofing is effected by the precipitation of a size which is added direct to the beater on the fibers of the paper. The precipitating agent used in the process is alum. The size consists of an emulsion of a bitumen, fat, wax or mineral oil in a solution of rosin soap. Protective colloids such as glue, gelatine, starch and the like are also added to this mass. Besides a condensing or polymerizing agent, such as formaldehyde, tannic acid, chromic and the like are also employed. The purpose of these substances is to polymerize the rosin, partially oxidizing the mineral wax and hardening the fiber.

For example to a size containing sodium resinate at a temperature of 70 degrees C, there is added one third of a pint of paraffin wax which has a melting point of from 40 to 50 degrees C. The mixture is then emulsified, eight to ten per cent (calculated on the weight of the rosin) of a forty per cent solution of formaldehyde is added and the mixture is agitated until it attains the desired properties. Gelatine (one to two per cent calculated on the weight of the water present) may be added for the purpose of retarding the subsequent precipitation with alum.

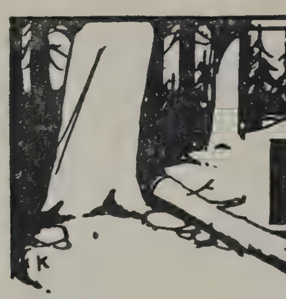
The resulting size is added to the beater and the paper pulp is maintained at a temperature of from 45 to 50 degrees C until the couch roll is reached.

Feeding Pulp Digesters

The material that is to be digested is first pressed together to form cakes in a suitable press. A binding agent may or may not be added. The briquettes are then filled directly into the digester and are disintegrated by the digestion process. If the press cakes are very moist and easily separated into fibers or if this condition is attained by a preliminary treatment with steam, then a binding agent need not be used. Otherwise a binding agent should be used. This process is patented in German Patent No. 385,225.

Manufacture of Coated Paper

It is known that unglazed paper has been used for making transfer paper by first covering the former with a coating. According to the process that is patented in British Patent No. 205,119, unsized or only slightly sized paper is employed for coating with heavy insoluble colors, including colored or white pigments, for example for photographic printing paper, for lithography and metal and colored papers. The paper is heated to facilitate the penetration of the size so that only sufficient size or glue solution remains on the surface of the paper as is required to fix the coloring matter. The paper may be led over a heat plate or drum immediately after the coating operation when the paper becomes more capable of absorbing the size which cannot solidify at once. The paper may be heated prior to the coating process. The coating may be effected either on a coating machine or on an emulsion machine. The process is applicable to the manufacture of novel coated papers.



NEWS FROM CANADA

WATCH OUT FOR THIS KIND OF MAN

Collects the Money from Workers and Then Departs With It

RECENTLY, there appeared in eastern Canada, an individual who announced he was an organizer for the international pulp and paper workers union. He arranged a number of organization meetings, which were attended by some employees of pulp and paper mills in the various eastern Canadian centers. Although the man announced his name as Labelle, it has been found he has also traveled under other names. He collected nearly a thousand dollars in initiation fees, and nothing has since been heard of him.

In citing this instance, it is remarked by such well known figures in the pulp and paper industry in eastern Canada, as Angus McLean, president of the Bathurst Company, that practically all of the trouble between employees and employers insofar as the pulp and paper mills and woods operations are concerned has been created by outside labor organizers. That many of the labor leaders are exploiting the workers does not seem to be realized by some of the workers, although the tendency is toward this impression by the bulk of workers. The ease with which Labelle disappeared with nearly a thousand dollars, is an instance of the gullibility of some of the pulp and paper mill employees. Labelle had appealed to the men to pay him the fees on the assumption he would secure for them an increase in wages, and a reduction in hours.

Every strike that has taken place in eastern Canadian pulp and paper mills as well as in the pulpwood cutting operations in the woods can find origin in an outside labor leader. Practically all of the strikes have been very disastrous from the standpoint of the employees, and the workers are now loath to participate in strikes. The most recent strike was that declared on the Nashwaak Pulp and Paper Company of St. Johns, N. B. After a protracted period of idleness, the employees returned to work, on about the same conditions that had been prevailing, prior to the opening of the strike. This strike had been ordered by outside organizers who failed to achieve their objective, with the result that outside organizers are not welcome with the employees of this company.

* * *

Broke All Records

The Spanish River Pulp and Paper Mills, Limited, head office Toronto, and mills at Sault Ste. Marie, Espanola and Sturgeon Falls, Ont., broke all records for production of newsprint during 1923. Production at the three mills totalled 236,359 tons. This figure compares with 197,116 tons in 1922 and 172,231 tons in 1920. In 1921, when a strike occurred, newsprint production at the mills went down to 139,412 tons.

* * *

A Little Fire

A slight fire took place at King Division of the Allied Paper Mills, on January 16th. The oil dripping down from the super calenders, caught fire, in the basement, and with one puff, reached the floor above. The damage was slight.

Ridiculous Prices

Angus McLean, the widely known lumber and pulpwood operator of Bathurst, who was in Toronto a few days ago, says it is a little early yet to size up the 1924 situation in connection with the pulp and lumber market. He said, however, that there were very large quantities of foreign pulp coming to the American market from the Scandinavian countries and being sold at ridiculous prices, so that the Canadian manufacturers are really operating at a loss and, in trying to meet this competition, are operating below cost. If this continues, he says, there is no future whatever for the pulp business and conditions for 1924 look anything but hopeful. He stressed the fact that the only hope for the lumber industry in the Maritime Provinces today is a policy of material lowering in the cost of production so that the products can be sold to meet the foreign competition and still make a profit.

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Annual Banquet Is Jolly

Over a hundred representatives of the Espanola, Sault Ste. Marie and Sturgeon Falls mills of the Spanish River Pulp and Paper Mills, Limited, sat down at the annual banquet of the company at Sault Ste. Marie, Ont., January 19. President George H. Mead came from Dayton, Ohio, and he was accompanied by W. N. Hurlburt, R. T. Houk, Jr., J. G. Sutherland, H. Conway, Alex Creighton and R. W. Worrell. J. G. Gibson, secretary, was the only representative from Toronto. In addition to the heads of departments, engineers, foremen and executives of the various mills, a number of civic officials were guests of the company and the program included a speech by Hon. Charles McCrae, Minister of Mines, in the Ontario Government.

The new pulp and paper school at Three Rivers, Que., was formally opened a few days ago with an enrollment of fifteen day and twenty evening pupils. This school, it is expected, will furnish skilled labor from the citizens of Three Rivers district where up to the present it has been necessary to import this class of help.

* * *

Make Contracts Individually

As the plan for co-operation with the University of Michigan as a unit, all the mills going in, has fallen through, the mills are making up their contracts with the U. of M. individually. While the Bryant firm has hired an outsider to take charge of their extension work. H. C. Fleischer, of Aschafferburg, Germany, has taken up his work here. He is a Doctor of Chemistry, and, before coming to the Bryant Paper Co. has had charge of the chemistry department of The Paper & Pulp Co. of Aschaggenburg, Germany. This concern operates seven mills there. He states that felts last a great deal longer in this country than they do over there, the average life of a felt there is one week, while here it is three. He also states that he is here to bring ideas from the old world into the new, and try to work out economies in operation, like they do in Germany.

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Sheldon E. Wardwell has been elected a director of the Great Northern Paper Co., Madison and Millinockett, Maine. He will succeed the late Col. Haskell, Newton, Mass.

MATTAGAMI EXPECTED TO CONTINUE

Ask for Deposit of Bonds With National Trust Company

A BONDHOLDER'S committee of the Mattagami Pulp and Paper Company, Limited, head office Toronto, has been formed and a letter sent to shareholders asking them to deposit their bonds with the National Trust Company. According to the letter the receiver has liquidated a loan to the bank of approximately $39,000 made so that operations could be continued. About May, 1923, the pulp and pulpwood was exhausted and liquidated and since then the receiver has been carrying on operations. The receiver now holds funds of the bank arising from the operations up to May, 1923, and amounting to $200,000, and has also obtained permission of the court for the issuance of receiver's certificates to the amount of $425,000, ranking in priority to the bonds, for the purpose of securing additional pulpwood to maintain the operations without a break and for capital expenditure on plant.

Various court orders have been made authorizing the receiver to make expenditures totalling approximately $200,000. Some of these expenditures were directed to be charged to operations and some to capital, the result being that the value of the plant and equipment has been increased by approximately $135,000. The money so expended has been paid out of operations and the realization of wasting assets such as supplies, etc. Since May, 1923, the operations of the receiver have resulted in profits of approximately $100,000 and in addition stumpage has been provided at the rate of $2 per cord for all wood cut by the receiver on the company's limits. The receiver states that the plant of the company has been well maintained, and is at present operating at higher efficiency than at any time since the company went into liquidation. He has advised the committee that the wood now on hand, or contracted for, will be exhausted during the coming spring or summer and that when that point is reached it will be necessary to shut down unless further arrangements are made for an additional supply of pulp. The company still retains large areas of pulpwood limits which it held when the bonds were issued but funds will be required to cut wood or contract for it and deliver it to the mills. The receiver is asking for authority to borrow $1,500,000.

* * *

Charles S. Harmon Dies

Charles S. Harmon, Portland, Me., well known traveling representative for the C. M. Rice Paper Company for 45 years, died January 21, after a short illness. Mr. Rice was born at Thorndyke, Maine, in 1854. He was a prominent Mason for 40 years, and was also a Knight Templar and an Odd Fellow. He is survived by his wife, a brother and sister.

* * *

To Build New Structure

The National Paper Company, grocers' paper supplies, 43 Peck street, Providence, R. I., has distributed plans for figures in connection with the erection of a three-story brick and steel business building, 40x60 feet

Canadian Briefs

Barnjum Makes Pledge

Concluding an address before the Society of Forest Engineers in Montreal in which he reiterated his long-continued advocacy of an embargo on Canadian pulpwood exports, F. J. D. Barnjum, the noted conservationist and Canadian lumberman gave the following "definite and serious" pledge: "If the heads of Canada's three largest banking institutions will select an unbiased and acceptable committee of three men of good judgment whom I cannot convince that Canada's entire available wood supply will become exhausted within a period of less than ten years, unless drastic and immediate measures are taken to prevent such a calamity, I will agree never to mention forest conservation in Canada again."

* * *

Increase Borrowing Powers

The borrowing powers of the Whalen Pulp and Paper Company, the British Columbia concern which recently went into the hands of a receiver, have been increased by the courts from $600,000 to $800,000. Most of the $600,000 which had been borrowed by E. F. Giles, predecessor to Mr. Mills, who was appointed Dec. 7, had been used up, according to the solicitor for the bond holders. Wages, taxes and similar claims, have required $353,833; insurance $60,000, and it had been necessary to redeem $65,000 bonds of the B. C. Sulphite Fibre Company. This left $112,000 for working capital. Available assets totalled $838,675, and included $319,000 of pulp and lumber, $80,000 of logs and $429,000 of general material and supplies. It was explained that the Bank of Nova Scotia would advance an additional $200,000.

* * *

Heard Good Talks

At a meeting of the Toronto Carton Club last week, to which were invited members of the Canadian Paper Box Manufacturers' Association, members of the trade were present from Hamilton, Galt, Guelph, Stratford and Peterboro. Brief talks were given by the members on "Viewing the Year 1924 and on a vote of those present Don Porter of the Rudd Paper Box Company was awarded the box of cigars awarded by the secretary for the best presentation of the case, with Mr. Green, of the Dominion Paper Company running a close second. The members took an optimistic view of conditions in the paper box industry both as to the present and the future. A committee was appointed to look into the matter of fire insurance rating of the paper box factories and to report at the next meeting. This pledge was signed: "That during the course of the year 1924 we shall be guided, in quoting prices, by the thought that a fair margin of profit on all sales is essential to the welfare of our business and the paper box industry as a whole."

* * *

New Company Formed

With a capital of $2,000,000 and head office in Montreal, the incorporation is announced in the current issue of the Quebec Official Gazette, of the Cape Magdalen Pulp and Lumber Company, Limited. The original incorporators are F. B. Common, L. H. Ballantyne, Charles R. McKenzie, F. G. Bush and W. P. Creagh. The new pulp company is granted the usual powers to carry on business of manufacturers of pulp and paper.

PORTLAND COMPANY VISIT WISCONSIN MILLS

President and General Manager of New Mill on a Splendid Trip

E. H. MILLS, President and Mr. Joseph Kaster, Manager of the newly organized pulp and paper Company of Portland, Oregon, known as Portland Pulp and Paper Company visited the different mills of the Nekoosa Edwards Paper Company at Port Edwards and Nekoosa, Wisconsin on Wednesday, January 23rd, and inspected the two mills of the Consolidated Water Power and Paper Company at Wisconsin Rapids and Biron, Wisconsin, on Thursday the 24th.

The building of the new mill at Portland, Oregon, will be commenced early in the spring and will require approximately a year to get the work completed. This mill will be of concrete and re-inforced steel construction and is to be equipped with modern machinery for the manufacture of Kraft paper. Slabwood lumber from the Monarch Lumber Company's mill will be used to make the kraft paper. Mr. Mills and Mr. Kaster are now on their eastern trip in the interests of their new industry and are buying the necessary machinery with which to equip their new plant which will be located adjoining the Monarch Lumber Company's mills at Portland, Oregon.

Mr. Kaster had been associated with Mr. B. T. McBain for a number of years while they were with the Crown Willamette Paper Company of Washington and Oregon and he made it a special point to look up Mr. McBain to renew acquaintance and to go over the mills of the Nekoosa Edwards Paper Company. Another old associate of Mr. Kaster was Mr. C. A. Wiley, general paper mill superintendent of the Nekoosa Edwards Paper Co. as these two men were machine tenders together some thirty-five years ago in Indiana, friendships thus being renewed also.

Mr. Joseph Kaster was the organizer and first manager of the Oregon Pulp and Paper Company at Salem, Oregon, which now operates a three machine paper mill together with the necessary auxiliary mills for the various grades of pulps.

Mr. Mills has for a number of years been associated with the lumber business as part of the Spaulding Logging Co. of Salem, Oregon.

* * *

To Retire Bonds

A call for the retirement of $60,000 in bonds will be issued at once by the Sutherland Paper Company following action taken at the annual meeting here. The bonds are part of an original issue for $300,000 dated March 1, 1920, and bearing interest at seven per cent. More than $50,000 already has been retired. The bonds involved in the new retirement include the entire issue for 1924 and the first part of 1925. All the officers and directors were re-elected as follows:

President, L. W. Sutherland; vice president, O. F. Miller; secretary, F. W. Sutherland; treasurer, Walter Otis; and directors, the officers, and Frank B. Eilers, F. M. Hodge, Fred Appeldoorn, Edmond W. Chase, and A. M. Meincke.

* * *

Next Meeting February 21

The next meeting of the Superintendents' Association will be held February 21 at the Park-American Hotel. At this meeting, Edgar Rhoads, of the J. E. Rhoads & Sons, makers of Rhoads Leather Belting and Lace Leather, will speak.

New York Trade Notes

Durham Company Bankrupt

An involuntary petition in bankruptcy was filed on January 25 against the Durham Paper and Pulp Company, with offices at 17 East Forty-second Street, New York, by these creditors: Bulkley, Dunn & Co., creditor for $25,000; H. Hollesen, Inc., $25,000, and the State Bank, $10,0 and Judge Frank Winslow appointed Charles A. Marshall receiver under $10,000 bond. The company operates paper and pulp mills at Durham, Pa.; Forresport, Hadley and Napanock, N. Y.; Seymour, Conn., and Rising Sun, Md., the principal output of which is kraft paper. Heavy losses sustained recently in the operation of these mills and the alleged wrongful seizure of the Hadley plant, which resulted in that mill being temporarily closed, were given as the cause of the failure of the company, which admitted its willingness to be adjudged bankrupt. No statement was made concerning the company's liabilities and assets, but in an equity action last November Charles R. McNair was appointed receiver and at that time it was said the liabilities exceeded $1,000,000 and the book value of the assets was listed at $2,000,000. This receivership was subsequently vacated.

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The Shuttleworth-Drake Company, jobbers in paper and paper bags of 220 West Broadway, New York, has filed notice of a change in name to Clarence V. Shuttleworth.

* * *

The Stevens Paper Company, Inc., has moved to the Metropolitan Life Insurance Building, 1 Madison Avenue, New York, where an attractive suite of offices on the thirty-ninth floor is occupied. The company represents the Rhinelander Paper Company, of Rhinelander, Wis.; the Paper Novelty Company, of Green Bay, Wis., and the Tuttle Press Company, of Appleton, Wis., the agency for the specialty business of the last-named concern having just been acquired.

* * *

Nathan Leshner, of the Leshner Paper Stock Company, Inc., Lockland, O., and I. Klous, of the Stone Bros. & Victor Galaup Company, 153 Spring Street, New York, both of which companies are large importers of papermaking rags, returned on the steamship Aquitania, January 23, from business trips to Europe.

* * *

Robert Reed, formerly sales representative in the Ohio territory for the American Woodpulp Corporation, of New York, is now a member of the sales force of the wood pulp department of the Perkins-Goodwin Company, of the Aeolian Building, New York.

* * *

The Bronx Pioneer Waste Paper Corporation, of New York City, was incorporated under New York State laws at Albany several days ago to pack and deal in waste paper with a capital of $20,000. D. A. and T. and K. Galante were the incorporators.

* * *

The waste paper and papermaking rag department of Atterbury & McKelvey, of 145 Nassau Street, New York, is now under the management of Andrew Ragone, who is president of the Andrew Ragone Company, Inc., of James Slip, New York, and who has been identified with the old paper trade for a good many years.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

MIX AND BAKE IN A QUICK OVEN—CONGRESSMAN CLARKE OFFERS PRACTICAL RECIPE

Various Phases of Forestry Taken Up at Annuel Banquet of Forestry Association

THE McNary-Clarke forestry bills now pending in Congress were the chief subject of discussion at the annual banquet of the American Forestry Association in New York January 23, by Senator Moses, member of the Senate committee of which Senator McNary was chairman, and Congressman John D. Clarke, who introduced the committee bill in the lower house.

Mr. Clarke prefaced his discussion of general forestry problems with this recipe for forestry:

“Take ninety-six United States Senators and 435 members of Congress. Mix well with pictures of the denuded hills of China and its population with the lowest standards of living. Add a panoramic view of our now fast disappearing forests, due to the absence of a national forestry policy. Place into the mixture the leaven of an aroused public conscience, demanding a national forestry policy adequate to the requirements of the United States. Knead into six loaves, embodying the following points based on reciprocal laws and the co-operation of each of the states with the federal government:—

1. More funds for patrol and lookout stations to prevent and put out forest fires.

“2. Just forest taxation laws to encourage private owners to grow trees.

“3. Substantial additions to the already existing areas of public-owned forest lands.

“4. More assistance to the private forest owner, both in aiding reforestation and in the proper management of existing woodland.

“5. Adequate appropriation for investigation and research work in order to utilize and get the most out of our forests.

“6. Permission for owners of private forest land who actively co-operate with the government, to deduce a certain percentage from their income tax returns, on the same principle as is now followed where the individual makes charitable contributions.

“Repeat the same process with the legislatures in each of the forested states.

“Bake quickly.

“Result: Forty-eight states co-operating with the Federal Government, and the children of all the tomorrows singing the praises of those who joined in accomplishing this long desired end.”

Mr. Clarke then proceeded to analyze the forestry problem, emphasizing the need for co-operation between federal and state governments and the private owner, saying in part:

“In discussing a national policy, the states must realize that they have a definite responsibility which cannot be shifted. That responsibility is the duty of going forward, each state in its own little way, with a policy based on the sovereign law of that state to encourage reforestation. If you want a program, here is one:

“A Real Definite Survey of the State,

“1. To ascertain the extent of lands more suitable for reforestation than for agriculture.

“2. An exact, scientific determination of the kind of trees those lands will best grow in the light of that survey and the needs of the state.

“3. Getting going with a plan of growing and distributing the needed trees.

“4. Proper tax laws that will make certain that our public-spirited citizen will not be penalized for making wood lots and idle lands productive.

“5. Proper protection from fire and the enemies of trees.

“My own state of New York has been working splendidly on this program and presents a picture that points the way to what each of the states can do, but it is only part of the story, for, with the best efforts of the 48 separate states there must be the heartiest co-operation of the Federal Government itself, or else our real good will not be achieved. Co-operation is the watchword, and it finds itself in part expressed in the bill introduced by Senator McNary in the Senate, and by myself, at the Senator's solicitation, in the House of Representatives. This Bill, if enacted into law, represents a great forward step in reforestation that needs the support of this influential association, not that it meets either your or my full wishes, but for God's sake let's get going somewhere.”

REGULATION ON PRIVATE TIMBER LAND

State Senator Rabenold Will Discuss This Question Before American Foresters

STATE Senator Rabenold, of New York, will be one of the speakers on the annual program of the New York Section, American Society of Foresters, discussing the regulation of cutting on private land, and having asked the timberland owners for suggestions and plans, he now requests that the foresters join with him in the formulation of some proper legislation on this point. As a result, the meeting of the Section which will be held at Albany, February 6, will be more than ordinarily important in its relation to actual forestry practice in New York State. Senator Rabenold is chairman of the state senate reforestation committee, and he wants the state's foresters to draft a forestry law which would bring about better forest management on a large scale. Those who are to attend are being asked to be ready with suggestions for such a law.

The entire program is involved closely with the problems of the paper industry, and H. S. Churchill will have a paper on the subject of “What Constitutes a Practical Working Plan for a Lumber or Pulp Company in the Adirondacks.”

The New York State Forestry Association's convention will be held the day previous, and will be devoted to a program of rather more popular type than that of the forest engineers on February 6. The Forestry Association is bending its energies toward developing, at the annual meeting, a basis for economic forest taxation. So much interest has been manifested in the program of February 5 and 6 that the General Electric Company at Schenectady has arranged to broadcast some of the leading addresses. WGY promises a radio audience of half a million for this occasion. We do not as yet know what results for forestry might be derived from radio broadcasting, but this undertaking at Albany should arouse constructive thought over a wide area and yield some results in obtaining the policies that are needed.

DECAY IN DOUGLAS FIR LAMENTED

One of the Most Important Timber Trees in Pacific Northwest Stricken

DOUGLAS fir is the most important timber tree in the Pacific Northwest and comprises nearly one-fourth of the merchantable timber of the United States. Because it is very susceptible to disease caused by four fungi which are responsible for great loss to owners of over-mature timber, an investigation was made some time ago by the United States Department of Agriculture. This was to determine the extent of such damage and to formulate methods for more accurate estimation of the amount of defective timber. At the present time, estimates on Douglas fir stands are commonly very inexact, and often result in heavy financial losses and costly litigation.

Timberland owners in the Douglas fir region may be interested to know that the investigations thus far made have been published in Government bulletin 1163, entitled, “A Study of Decay in Douglas Fir in the Pacific Northwest.” This is obtainable from the Department of Agriculture at Washington, D. C.

Mechanical injuries are of little importance in relation to the entrance of decay. Knots are responsible for nearly ninety per cent of the volume of all decay in the trees studied. Fire scars are the entrance point for four per cent. and the remaining six per cent come in through other scars. Fire is the only controllable factor, so there can be bus little reduction in the extent of decay in future stands by by a reduction in the scars caused by controllable mechanical injuries.

It is a well established fact that young stands or second growth are relatively immune from decay, but it is not yet determined at what age in the life of the stand this immunity ceases and the trees become subject to extensive decay. Establishment of this age will enable timber men in the future to cut stands before there is any real loss and at the same time permit the trees to attain the maximum size.

THE SIX FOOT SPACING IDEA

Principle Is Explained for Paper and Pulp Mill Executives

IN its January bulletin, the New York State Forestry Association explains to its members the principle involved in the close spacing of trees in the forest plantation, and illustrates these principles with a photograph of a white pine whose trunk is perfectly clear of limbs for nearly 150 feet. The following is quoted from the main body of the article:

"The United States foresters who estimate timber in the national forests of the West tell us that it requires "three looks" before the eye reaches the top of the average sized redwood, Douglas fir or Sitka spruce. In the East we are accustomed to scan the average conifer at one glance; but occasionally, as in the virgin forests of the Adirondacks, we encounter trees running well over one hundred feet. These trees have clean, straight boles and will often produce a thousand board feet of lumber.

"The remarkably clean stick of timber which is selected to tell the story suggests a brief investigation into the methods of producing successful forest plantations.

"Trees in the natural state meet with severe competition on all sides and only those that can keep their terminal shoot to the light will win out. Those that survive have "cleaned" themselves by opposing their lateral branches against the perpetual whipping and crowding of neighboring trees, until at maturity they become refined to the point of perfection in standing timber.

We try to reproduce, in reforestation, these natural competitive conditions. Hence, trees are usually planted six feet apart each way—1210 trees to the acre. A thousand trees to the acre are sufficient to produce the desired results. At twenty years it is desirable to thin out the suppressed trees. It is not necessary nor especially advisable to trim off the lateral branches. If, however, these are dead and brittle they can be knocked off in winter to permit of better recreational use of the plantation.

The final stand will be no greater than in the natural grown forest. In planting our trees close together we merely follow the rules already suggested by Nature; but we assist nature by providing a more even distribution of the planting stock and by thinning out at regular intervals the trees which she would otherwise kill off in her own slow but sure way."

* * *

To Establish Factory

The Planters Nut & Chocolate Co., Suffolk, Va., will establish a factory for the manufacture of paper boxes and glassine bags. The plant, which will also house the chocolate factory, will be 100x325 feet, six stories high. The first unit will be completed by June 1 and the last one about the end of the year.

* * *

What do you do with the time you save each day?—*Tree to Trade.*

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

By R. H. ROGERS

Industrial Engineering Dept.
General Electric Company,
Schenectady

"Red" second hand up in the Otis Mill could make paper but he couldn't read anything printed on it. He was a great fight fan and attended every "mill" that he could get to. Some of the boys ran across a two year old paper outlining a big fight, showed "Red" the pictures and sold him a ring side seat for five dollars.

On the appointed night, "Red" stood around the entrance alone for two hours with it 22 below, then went to a nearby "chemist" friend who told him that the fight he was waiting to see had taken place two years before.

"Red" staged one of his own when he met the scheming shift coming out of the mill gate.

Business Opportunities

The Purchasing Agent, Government Printing Office, Washington, D. C., will take bids until Feb. 6, for two book sewing machines, as per specifications on file.

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Coblenz, Germany, in the market for a quantity of cartons and wax paper, Reference No. 8913. Also, of a concern at Vienna, Austria, desiring to purchase American printing and lithographing machines, No. 8914; of a company at Leeds, England, in the market for a quantity of wall paper, No. 8798; and a concern at Montevideo, Uruguay, desiring to purchase about 75,000 pounds of writing and printing papers, Reference No. 8898.

* * *

Government Paper Mill Projected on Pacific Coast

Representative John E. Raker, California, has introduced a bill in the House of Representatives, Washington, D. C. (H. R. 114) authorizing the public printer to provide for the construction of pulp and paper mill or mills for the manufacture of print paper for Government service, such plant or plants to be located on the Pacific Coast, with initial daily output of not less than 50 tons per day.

What They Say:

The Matter of Poplar

Editor PAPER:

Considerable ink is now being used in the paper trade journals discussing conservation of timber, but I note that no one is willing to forget their selfishness or make any temporary sacrifice to solve this problem.

I have in mind the use of poplar in the manufacturing of newspaper and similar grades of paper. We all know that a good sheet of newspaper can be made that contains as high as 25 per cent of poplar groundwood. A few mills making news use a small amount. Northern Wisconsin and Michigan and a great many other states are filled with poplar which is now a detriment to the settler. In Wisconsin alone, about 300,000 cords of spruce move to the mills each year for paper. Over 75 per cent goes into news. If 25 per cent of poplar was used, there would be a saving of over 50,000 cords of spruce in one state alone.

In the last session of the Wisconsin Legislature a bill was introduced making it compulsory to use 15 per cent of poplar in newspaper and similar grades. But, what happened? Some day when this thing is opened up by someone with sufficient nerve, it will make interesting reading, and selfishness and disloyalty to our future resources will be exposed.

I am not signing my name to this article for I think too much of some of my selfish friends to get "in wrong" with them but I am looking forward to the time when someone will stir the matter up and secure Federal and State Legislation before it is too late.

OBSERVER.

* * *

Fire Damage Diminishing

The fire demon was kept at bay in the western forests during the year 1923, according to the report of E. T. Allen, forester of the National Lumber Manufacturers Association, and the Western Forestry and Conservation Association. Great areas were swept in the five Pacific coast states of the Western Association's field, but the damage to standing timber was less than usual partially because of improved methods of forest fire control. Fires in the south and lake states were more destructive of potential forests than of standing timber. Human carelessness was the chief cause of all fires last year. Man-caused fires ran as high as 90 per cent of the country's total, and 60 per cent of the losses in the far west. The burden of expense in fire control was largely borne by the private owners.

* * *

Takes New Position

Glenn Townsend has accepted a position with the Rex Paper Co. He was formerly connected with the King Paper Co.

LeRoy W. Allison

Prominent Engineer

Newark, N. J.

Says:

MY DEAR MR. KEENAN:

I cannot refrain from addressing you a line regarding the advancement of PAPER, which I am noting and following with more than ordinary interest. The attractiveness and life that is being put into the journal, commencing with the last few issues, is marked, and I congratulate Mr. Hughes and yourself, as well as your associates, in the course that has evidently been decided upon for the future growth and prosperity of the publication.

Just permit me to extend my sincere congratulations to Mr. Hughes, yourself, and others connected with your department, in the earnest revival which has come about, and I trust that you prosper far beyond immediate expectations.

With kind regards,
Cordially,
Le Roy W. Allison

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Deferiet, N. Y.—The St. Regis Paper Co., Watertown, N. Y., has plans nearing completion for the construction of five new units at its local pulp and paper mill, estimated to cost close to $500,000, including equipment. The structures will be one and two-story. A. L. Miller is company engineer.

Muncie, Ind.—The Hinde & Dauch Paper Co., Sandusky, Ohio, is reported to be planning for the purchase of equipment for installation at its local plant, to be rebuilt following a recent fire loss. The work will cost about $65,000.

Philadelphia, Pa.—George A. Bisler, Jr., 710 North Fifth Street, manufacturer of paper boxes and containers, has plans under way for the construction of a new four-story addition, 135x146 ft., for considerable increase in output. The William Steele & Sons Co., 219 North Broad Street, is engineer.

Newark, N. J.—The Progressive Paper Box Co., has filed plans and will commence the construction of a new plant at 341-55 Jelliff Avenue, estimated to cost $90,000.

Minneapolis, Minn.—The Martin F. Falk Paper Co., is said to be planning for the rebuilding of the portion of its works, recently destroyed by fire.

Chicago, Ill.—W. H. Freund & Co., care of Burrett Stephens, 37 West Van Buren Street, architect, have plans under way for the construction of a one and two-story, and basement, paper refinishing plant at 110 North Market Street, estimated to cost about $50,000. It is expected to call for bids at an early date.

Marion, Ind.—The Lindley Box & Paper Co., is said to be arranging a list of equipment for installation in connection with the rebuilding of its plant, recently partially destroyed by fire.

Philadelphia, Pa.—The Corrugated Container Co., Venango and Sepviva Streets, has had plans prepared for the construction of an addition to its plant, to include the installation of new equipment. Improvements will also be made in the present factory. Work will be commenced at an early date.

Pownal, Vt.—Morris Manes, 138 Church Street, North Adams, Mass., is reported to be organizing a company to construct and operate a local pulp and paper mill. with estimated cost placed in excess of $150,000, including equipment.

Burbank, Cal.—William Tisch, Glendale, Cal., and J. J. Stalker, Burbank, have tentative plans for the construction of a new plant in the Fawkes district, where a site 100x300 ft., has been purchased, for the manufacture of paper and fiber boxes and containers. The initial structure will be one-story, 50x150 ft.

Middletown, Ohio—The Frank Smith Paper Co., has commenced the installation of equipment at its new local mill, and expects to have the plant ready for operation at an early date.

New Cumberland, Pa.—The New Cumberland Paper Box Co., is considering plans for the erection of a one-story addition to its plant to provide for considerable increase in capacity. Charles C. Stone is one of the heads of the company, in charge.

New Companies

Danbury, Conn.—The Olmstead Paper Co., has been incorporated with a capital of $25,000, to manufacture and deal in paper products. The incorporators are Seymour L. Durgey and Frederick S. Olmstead. 66 North Street, Danbury.

Cambridge, Mass.—The Shawmut Paper Box Corporation has been incorporated with a capital of $600,000, to manufacture paper boxes and containers. Lyle A. Brown, 3 Bradford Terrace, Brookline, Mass., is president and treasurer.

Baltimore, Md.—The R. C. Paper Products Co., 223 North Calvert Street, has been incorporated with a capital of $30-000, to manufacture and deal in paper goods. The incorporators are Linwood Reese, George W. Steffey and Frank C. Curtis.

Brooklyn, N. Y.—The Rosnap Envelope Mfg. Co., has been incorporated with a capital of $10,000, to manufacture paper boxes, containers, etc. The incorporators are T. Doran, F. Franz and J. Tuthill. The company is represented by M. Silverstein, attorney, 305 Broadway.

Dalton, Mass.—Z. & W. M. Crane, Inc., has been incorporated with a capital of $2,000,000, to take over and operate a local paper mill for the production of writing papers, etc. William G. O'Connell is president; James F. Bacon, vice-president; and Theodore M. Pomeroy, Dalton, treasurer.

Brooklyn, N. Y.—The American Carton Corporation has been incorporated with a capital of $60,000, to manufacture paper boxes, containers and kindred products. The incorporators are D. L. Negel, C. B. McLain and S. Goldberg. The company is represented by H. W. Kiralfy, 565 Fifth Avenue, New York.

Wilmington, Del.—The Coins Card Co., care of the Delaware Charter Co., 904 Market Street, Wilmington, representative, has been incorporated with a capital of $40,000, to manufacture paper specialties.

Brooklyn, N. Y.—The Rutgers Paper Box Co., has been incorporated with a nominal capital of $5,000, to manufacture paper boxes and containers. The incorporators are J. A. Weiss, S. L. Turk and associates. The company is represented by I. B. Schavrien, 50 Court Street, Brooklyn.

Chicago, Ill.—The Chicago Tablet & Stationery Co., has been incorporated with a capital of $90,000, to manufacture and deal in school tablets, writing papers, etc. The incorporators are D. A. Heffner, George S. Melvin and W. R. Tannehill.

Financial

Grand Rapids, Mich.—The American Box Board Co., has filed notice of change of name to the National Box Board Co. The former organization has been dissolved.

Philadelphia, Pa.—The Bridge Paper Co., 1226 North Tenth Street, will operate under the direction of Nathan D. Isen, receiver, appointed by the local court.

Hartford, Conn.—The Merwin Paper Co., has filed notice of company dissolution under state laws.

New York, N. Y.—David Steinhardt and Bern Budd have been appointed receivers for the American Wodpulp Corporation, 347 Madison Avenue.

Otsego, Mich.—The Otsego Paper Stock Co., has filed notice of dissolution under state laws.

New York, N. Y.—The Premier Fibre Box Co., 136 West Twenty-first Street, has filed notice of company dissolution under state laws.

Norwich, Conn.—The Uncas Paperboard Co., has issued 13,490 additional shares of stock, increasing the outstanding capital to $1,350,000.

Plant Operations

Franklin, N. H.—The International Paper Co., has closed its local mill until further notice, releasing about 150 operatives. It is said that lack of orders has necessitated the curtailment. The other mills of the company in different parts of the country and Canada are running close to normal and are expected to continue on this basis. The demand for newsprint maintains at peak and all plants devoted to this line are on a capacity basis.

Newark, Del.—The order recently issued restraining Curtis & Brother, operating a local paper mill, from continuing alleged pollution of White Clay Creek, has been discharged by the Court of Chancery, with decision in favor of the company. A similar complaint against the American Vulcanized Fibre Co., with plant in the same section, has likewise been dismissed.

You Can Make the Week of April 7th either a Dull Week or A BUSY WEEK ! !
Waiting for Business at your Office
Getting Business at the Exposition

Move Your Office Where Business Is

DURING the week of April 7th practically everybody in the country who is interested in PAPER will be in New York. The American Paper & Pulp Association, the National Paper Trade Association and TWENTY OTHER ORGANIZATIONS representing various activities in the paper industry will hold conventions here during this week. Topping the events of this busy week will be the

SECOND ANNUAL
PAPER
INDUSTRIES EXPOSITION

which promises to have a record breaking attendance.

All these conventions and the Exposition will draw paper manufacturers from every part of the country and Canada. Following last year's precedent there will be a tremendous volume of business transacted at the Paper Industries Exposition. Large contracts will be placed and the ways paved for many others in the future.

Can you afford to remain at your office during Exposition week when all prospective purchasers will be at the Exposition placing their orders?

Your place during the week of April 7th should be at the Exposition with an exhibit and several of your salesmen meeting many new prospects and busy every minute securing a large amount of business, which the stay-at-home will never get. That's where things will be happening—that's where you can speed up for the present and build for the future—that's where they will *expect to see you.*

Choice exhibit spaces are still available. Write for diagram and costs.

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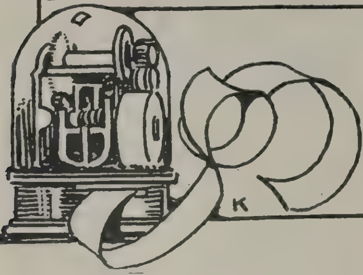

LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS	
FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.85 @ .95
Manila No. 1	.75 @ .85
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	50.00 @ 55.00
Chip	45.00 @ 50.00

Paper and Board

New York, January 29—Business in paper of most kinds was of rather routine character during the week. Demand developed in fair volume; it is apparent that consumers are seeking to satisfy their immediate wants only and that few orders are being placed against forward requirements, yet on the whole a moderately good movement of supplies from mills into consuming channels is in progress. Buyers are operating on a strict hand-to-mouth scale, but the fact is, judging from all indications, that the requirements of the average user of paper are on the increase, thus necessitating larger commitments than has been the case over the last month or two.

The situation that has developed in raw material recently seems likely to effect a stronger price position for paper in the very near future. It is true that wood pulp is still rather weak in price and that paper manufacturers are securing this commodity at comparatively cheap figures, but there has been a pronounced firmness in most other kinds of raw stock consumed in the paper mill. Rags are advancing at a rapid pace, old rope is strong, bagging is higher, and waste paper is holding on fairly high price levels. It stands to reason that this must ultimately make for higher prices for paper of many grades, and it is also probable that consumers of paper will soon realize that if matters in the raw material trade keep on as they now are they will lose out by holding off in buying, and thus lead to an influx of buying which in itself will serve to elevate paper values.

Demand for newsprint continues active. Publishers are absorbing their contract commitments, and transient demand is developing in a steady manner and in considerable volume. Print paper prices are firm to an extreme. Mills in general are sold up for an appreciable period and do not have to seek a market for scarcely any part of their output, which of course places newsprint in a strong technical market position.

Newsprint production in the United States in December totaled 117,790 tons, compared with 119,720 tons in November. Shipments from mills amounted to 116,826 tons, against 117,176 tons in November. Canadian mills produced a total of 95,726 tons in December, contrasted with 110,839 tons in the preceding month, while shipments were 100,624 tons, against 110,786 tons in November. These figures show that production was on a high level, considering the holidays in December and the curtailment of mills at the end of the year, also that mill shipments in the U. S. were only about a thousand tons below the production and in Canada were 5,000 tons in excess of the output.

In some quarters it is reported demand for book paper has broadened a little. Book paper mills are still anxious for business and are resorting to price shaving in some instances to get orders. Nevertheless the price tone is fairly steady, certainly it is steadier than it was several weeks ago. Coarse papers are moving in moderately good volume for this time of the year and mills as a rule are managing to keep occupied although few of them are running at full capacity.

Fine papers are enjoying fair activity and display a rising price tendency. Writing paper manufacturers are called on to pay much higher prices for their raw material in the form of rag stock, and are therefore marking up quotations on their products in some instances. Moreover, demand for bonds and ledgers is gradually increasing, giving manufacturers leeway to ask advanced prices.

Box boards are none too active. Demand is against direct needs, with consumers evidently using board in seasonably small amounts. Plain chip board is quoted at around $45 a ton f. o. b. New York, and news board at $50 per ton.

Quotations are as follows:

Bond	.09 @ .40
Ledger	.10 @ .35
Writing—	
Ex-superfine	.15 @ .35
Superfine	.13 @ .30
Tub size	.10 @ .20
Engine size	.09 @ .14
News—f. o. b. Mills—	
Rolls, contract	3.50 @ 3.75
Rolls, tranient	4.00 @ 4.25
Sheets, contract	4.00 @ 4.25
Sheets, transient	4.25 @ 4.50
Side runs	3.25 @ 3.50
Kraft—f. o. b. N. Y.—	
No. 1 Domestic	6.00 @ 6.50
No. 2 Domestic	5.00 @ 5.25
Manila—	
No. 1 Jute	8.00 @ 8.50
No. 2 Jute	7.00 @ 7.50
No. 1 Wood	4.50 @ 5.00
No. 2 Wood	4.25 @ 4.50
Book—f. o. b. N. Y.—	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Lithograph	8.25 @ 14.00
Coated & Enameled	8.00 @ 12.00
Tissue—f. o. b. N. Y.—	
White No. 1	.90 @ 1.00
Manila No. 1	.80 @ .90
White No. 2	.80 @ .90
Colored	.90 @ 2.00
Kraft	1.00 @ 1.25
Fiber Papers—	
No. 1 Fiber	6.00 @ 6.50
No. 2 Fiber	5.00 @ 5.50
Card Middles	4.00 @ 4.50
Common Bogus	2.00 @ 2.50
Boards, per ton, f. o. b. N. Y.—	
News	50.00 @ 55.00
Straw, in sheets	55.00 @ 60.00
Binder Boards	80.00 @ 85.00
Chip	45.00 @ 50.00
Manila Lined Chip	65.00 @ 70.00
Woodpulp	70.00 @ 75.00

SCANDINAVIAN PULP AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS

for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

Mechanical Pulp

Mechanical pulp is wanted in fairly good amounts and no further change has developed in prices. Most producers ask from $35 a ton upward at pulp mills for ground wood for prompt shipment, quotations depending on the air dry test and the freight to consuming points. Canadian manufacturers are said to have reduced prices to the $35 a ton level and domestic grinders have done the same in order to compete. Also, foreign pulp imported from Scandinavian sources is available at around $32 a ton ex dock New York or other American Atlantic ports. Indications are that some surplus supply has been accumulated by producers during the last few weeks when weather conditions have been favorable for grinding, which accounts for the softer price tone.

Foreign and Domestic Chemical Pulp

Paper and board manufacturers continue to puchase chemical wood pulp in a limited way. The orders coming in from consuming quarters show quite conclusively that buyers are covering their immediate needs only, and, to say the least, the demand is such as to fail to have influence of strengthening nature on prices. Moreover, there is still some pressure to sell noted, importers or domestic producers having pulp on hand which they are desirous of disposing of, which adds to the irregularity and uncertainty in prices.

Probably the most active kind of pulp at present is unbleached sulphite. Importers reported a fair number of sales of strong foreign unbleached at around 2.60 cents a pound ex dock New York, while foreign easy bleaching sulphite is selling at 2.90 cents on the dock and No. 2 unbleached sulphite at about 2.50 cents ex dock. Bleached sulphite is quoted at around 4 cents per pound on the dock New York for No. 1 foreign, and from 4 to 4.50 cents at pulp mills for No. 1 domestic. Kraft pulp is selling at an average of 2.60 cents per pound for Swedish kraft ex dock New York though some lower prices are named now and then on specific lots of pulp. Quotations ex dock New York and f. o. b. pulp mills are:

Sulphite foreign—			
Bleached No. 1..	3.80	@	4.25
Unbleached No. 1	2.60	@	2.85
Unbleached No. 2 .	2.50	@	2.65
Easy Bleaching	2.75	@	3.00
Sulphite, domestic—			
Bleached No. 1 ..	4.00	@	4.50
Unbleached No. 1	2.70	@	2.90
Unbleached news grade	2.50	@	2.75
Easy Bleaching	3.00	@	3.25
Mitscherlich, unbleached	2.85	@	3.00
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.65	@	2.85
Sulphite, screenings, refined	1.50	@	1.75

Domestic Rags

Prices of nearly all kinds of papermaking rags are rising at a rapid clip. Consumers are buying actively and are not hesitating to meet the advanced figures asked, indicating that they are in need of larger supplies, and dealers are taking full advantage of the market condition and are repeatedly marking up quotations. Roofing rags have soared in price to where sales of No. 1 packing have been recorded at 2.20 to 2.25 cents a pound f. o. b. New York, and No. 2 packing is selling at 2 cents a pound or very close to that basis New York. Old thirds and blues have advanced, sales of repacked blues at 3.25 to 3.35 cents at shipping points and of miscellaneous packing at 2.65 cents per pound having been reported. Old white rags are moving upward in value along with other grades, and new cuttings of various description are quoted at firm prices. No. 1 white shirt cuttings are scarcely available in sizeable quantities at less than 11 cents a pound f. o. b. New York, while fancy shirt cuttings are quoted by dealers at 6.50 cents, light silesias at 8.75 cents, blue overall cuttings at 9 cents, and washables at 5.50 cents. Prices on a f. o. b. New York basis are:

New Shirt Cuttings,			
No. 1	13.75	@	14.25
No. 2	6.25	@	6.75
Fancy Shirt Cuttings	6.50	@	6.75
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.25	@	4.50
White Lawns	11.00	@	11.25
New Muslins, unbeached	11.50	@	11.75
Light Silesias	8.50	@	8.75
Black Silesias	5.50	@	5.75
Overall Cuttings, Blue	8.75	@	9.00
Washables	5.50	@	5.75
New Black Mixed .	5.00	@	5.25
Soiled Whites, house	3.25	@	3.50
Soiled Whites, street	3.00	@	3.15
Thirds & Blues, repacked	3.25	@	3.40
Thirds & Blues, misc.	2.60	@	2.75
Black Cotton Stockings	3.75	@	4.00
Roofing Rags, No. 1	2.20	@	2.30
Roofing Rags, No. 2	1.90	@	2.00

Imported Rags

Foreign papermaking rags also are strong in price and in good demand. Sales of dark colored cottons at 2 cents a pound and higher ex dock New York are reported, and roofing paper manufacturers are said to be purchasing these rags freely. Blue cottons are gradually advancing, and all kinds of linen rags are firm and tending upward. Importers lay much

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Fibre
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Uniform quality, prompt shipments and market prices. Daily capacity of 600 air-dry tons.

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The Pickles Drying Regulator

Reasons why you should have it on your machine are: First, it regulates the drying of paper automatically, irregularities are eliminated; second, higher machine finished papers are attainable, because it is possible to maintain the proper quantity of moisture in sheet, as it passes to calenders; third, mills having tried it on one machine have ordered it for all their machines. Full particulars upon application to

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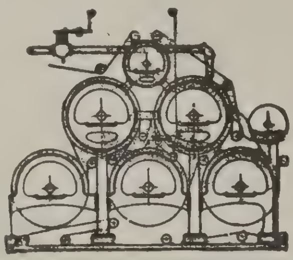

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BY ACTUAL TEST this felt will dry 33 per cent more paper, with ABSOLUTELY NO FELT MARKS IN THE PAPER.

TRIUNE
THREE PLY FELT for other paper

FITCHBURG DUCK MILLS
FITCHBURG - MASSACHUSETTS

stress on the high prices quoted from abroad, and assert that they are not receiving anything like normal amounts of rags from Europe. Ex dock New York quotations are as follows:

Lins., White, No. 1	13.00	@	14.00	German Linen, blue	5.00	@	5.25
Ger. Blue Cottons..	3.25	@	3.50	German Linen, grey	6.50	@	7.00
French Light Blues	3.50	@	3.75	German S. P. F.'s.	6.00	@	9.00
New Light Prints..	7.00	@	7.50	German Light Prints	4.00	@	4.50
New Unbleached ..	10.00	@	10.50	Dk. Colored Cottons	2.00	@	2.10

Bagging, Rope, Etc.

There is not a very large movement of No. 1 scrap bagging but roofing bagging is in good demand and moving higher in price. Sales to roofing paper mills at 1.10 cents a pound and more f. o. b. New York are reported, while No. 1 bagging is quoted at 1.25 to 1.50 cents per pound New York. Old rope is quotably firm and in steady call, with domestic manila rope quoted at 6.50 to 6.75 cents a pound, and foreign manila rope at about 6.25 cents ex dock at this port. Quotations f. o. b. New York are:

Gunny No. 1	1.50	@	1.60	Wool Tares, heavy .	1.50	@	1.60
Foreign	1.40	@	1.50	For. Manila Rope .	6.00	@	6.25
Wool Tares, light ..	1.40	@	1.50	Domestic Rope	6.50	@	6.75
Scrap Bagg., No. 1.	1.25	@	1.55	Mixed Strings	1.00	@	1.25
Roofing Bagging ..	1.10	@	1.20				

Old Paper

Several of the low qualities of old paper display a declining price trend but generally market levels are well maintained despite a rather slow demand from consumers. Board mills are not very active at the moment and consequently they are absorbing old paper in limited tonnage. Old folded news is quoted at 84 to 90 cents a hundred pounds f. o. b. New York, and No. 1 mixed paper at 65 to 70 cents New York. White shavings are selling at 3.75 to 4 cents a pound f. o. b. this city for No. 1 hard, and at around 3 cents for No. 1 soft shavings Old flat magazines are quoted from 1.50 to 1.75 cents a pound New York, depending on the packing, and old No. 1 kraft paper at 2.15 to 2.25 cents per pound. Prices f.o.b. New York follow:

No. 1 Hard White Shavings	3.75	@	4.00	Kraft No. 1	2.15	@	2.25
No. 2 Hard White Shavings	3.20	@	3.40	New Manila Cuttings	2.00	@	2.25
No. 1 Soft White Shavings	3.00	@	3.25	New Manila Env. Cuttings	2.75	@	3.00
Box Boards Chips .	.70	@	.80	Bogus and Mill Wrappers	.85	@	.95
No. 1 Colored Shavings	1.50	@	1.75	News, strictly overissue	1.10	@	1.15
Magazine flat stock.	1.50	@	1.75	Folded News	.85	@	.90
No. 1 Crumpled ...	1.25	@	1.35	No. 1 Mixed Papers	.65	@	.70
Solid Ledger Books	2.15	@	2.25	White Blank News.	2.25	@	2.35
Ledger Stocks	1.00	@	2.10	Common Paper	.45	@	.50

Twines

The twine market is characterized by fair activity of routine nature, with the strong position of raw material the leading market feature. Manufacturers maintain that the high prices ruling on fibres will eventually make for advances in twine though no changes of note have occured in the past week. Quotations are as follows:

Sisal Hay, pure ...	12.25	@	13.25	Jute Wrapping twine, A grade	19.00	@	
Manila Hay, pure..	16.25	@	17.25	Papermakers Twine.	10.50	@	
Sisal Lath Yarn ..	11.25	@	12.25	B. C. Hemp, 18 ...	.39	@	.40
Manila Rope, pure, ¾ inch diameter.	14.25	@	15.25	B. C. Hemp, 24 ...	.38	@	.39
Hardware Rope	11.25	@	12.25	B. C. Hemp, 36 ...	.37	@	.38
Jute rope, ¼ diam. and over, coils ..	12.00	@	14.00	America Light India— No. 6	14.50	@	
Sail twine, A grade.	19.00	@		No. 7	13.50	@	

Chemicals

Papermaking chemicals are meeting a fair demand though chief activity in the market at present involves shipments against contracts which paper mills have with manufacturers. Prices are quotably steady with no changes of note reported.

IMPORTS AT NEW YORK

Week of January 21-26

Paper

Str. Collamer, Bordeaux—American Tobacco Company, 500 cs. cigarette; from St. Nazaire—R. J. Reynolds Tobacco Company, 890 cs. cigarette; DeManduit Paper Corporation, 147 cs. cigarette.

Str. President Harding, Bremen—A. Frankan & Co., 4 cs. Adt Bros., 24 cs. pasteboard; Parsons & Whittemore, 706 rolls newsprint; American Exchange National Bank, 866 rolls newsprint; Order, 624 rolls newsprint.

Str. Veendam, Rotterdam—A. Vuyck, 46 rolls straw board; Schenker's, Inc., 20 cs.; Steiner Paper Corporation, 36 cs.; W. Van Doorn, 6 cs.

Str. Megantic, Liverpool—A. C. Dodman Jr. & Co., 34 bls. hanging; F. J. Emmerich & Co., 27 bls. hanging; Meadows, Wye & Co., 2cs. tissue.

Str. Pittsburgh, Southampton—J. Manheimer, 61 bls. filter; from Hamburg—Corn Exchange Bank, 10 cs.; F. & R. Trading Corporation, 8 rolls; Hensel, Bruckmann & Lorbacher, 10 cs.; S. Langdorf & Co., 21 cs.; W. Hartman & Co., 999 rolls wrapping and 15 cs. printing; International Acceptace Bank, 502 rolls newsprint; J. P. Heffernan Paper Company, 54 bls. wrapping; F. G. Prager & Co., 335 rolls hanging and 16 cs. pasteboard; Metropolitan Import & Mfg. Company, 31 cs. pasteboard; F. O. Nelson Company, 78 rolls newsprint; Chemical National Bank, 83 rolls newsprint and 17 bls. wrapping; Order, 142 rolls newsprint.

Str. Aquitania, Southampton—Bernard, Judae & Co., 1 cse.; F. J. Emmerich & Co., 36 bls. hanging; P. J. Schweitzer, 1 cse. cigarette.

Str. Hellig Olav, Christiania—American Exchange National Bank, 190 rolls newsprint; Order, 218 rolls newsprint.

Str. Samaria, Liverpool—F. C. Strype, 19 cs. tissue; B. F. Drakenfeld & Co., 20 cs. printing.

Str. Seydlitz, Bremen—Globe Shipping Company, 60 cs. photo; Independent Forwarding Company, 3 cs.; Perkins-Goodwin Company, 46 rolls printing; O. G. Hempstead & Sons, 5 cs.; Flexideal Company, 70 cs. pressboard; P. H. Petry & Co., 11 cs.; Hensel, Bruckman & Lorbacher, 23 cs.

Str. Chicago, Havre— Whiting-Patterson Company, 10 cs hanging; P. J. Schweitzer, 5 cs. cigarette; Gluckmann & Stranch, 7 cs.

Str. Colombo, Genoa—R. Cushman & Co., 2 cs. wrapping; Japan Paper Company, 15 cs.

Str. McKeesport, Rotterdam—Globe Shipping Company, 6 cs.; Wilkinson Bros. & Co., 1,079 rolls and 1,193 bls. wrapping.

Str. Florida, Copenhagen—Irving Bank-Columbia Trust Company, 480 rolls newsprint.

Wood Pulp

Str. President Harding, Bremen—H. Hollesen, 1,448 bls.; Bulkley, Dunton & Co., 1,615 bls. sulphite; Lagerloef Trading Company, 508 bls. sulphite.

Str. Pittsburgh, Hamburg—M. Gottesman & Co., 1,200 bls.; A. J. Bracher & Co., 225 bls.

Str. Hellig Olav, Christiania—J. Andersen & Co., 4,050 bls. sulphite; New York Trust Company, 125 bls. sulphite; Order, 3,870 bls.; from Copenhagen—Johaneson, Wales & Sparre, 500 bls. sulphite.

Str. Seydlitz, Bremen—Bulkley, Dunton & Co., 1,510 bls.; H. Hollesen, 2,348 bls.

Str. Florida, Copenhagen—National City Bank, 1,200 bls.

Old Rope

Str. Bristol City, Bristol—Brown Bros. & Co., 203 coils.

Str. Mar Negro, Barcelona—Bank of New York & Trust Company, 124 bls.; National City Bank, 73 bls.; W. Schall & Co., 27 bls.; Order, 36 bls.

Str. Veendam, Rotterdam—E. J. Keller Company, 56 bls.; Order, 44 bls.

Str. McKeesport, Rotterdam—Order, 62 coils.

Old Bagging

Str. Florida, Copenhagen—Goldman, Sachs & Co., 100 bls.

Rags

Str. Bristol City, Bristol—Guaranty Trust Company, 428 bls.

Str. Collamer, Bordeaux—Paterson National Bank, 68 bls.

Str. Mar Negro, Barcelona—Bank of New York & Trust Company, 82 bls.; L. H. Abenheimer, 260 bls.

Str. Giovanna Florio, Genoa—Order, 38 bls.

Str. Liberty, Dunkirk—Stone Bros. & Victor Galaup Company, 68 bls.; from Havre—Stone Bros. & Victor Galaup Company, 284 bls.; Brown Bros. & Co., 150 bls.

Str. London Mariner, London—Guaranty Trust Company, 29 bls.; Order, 40 bls.

Str. President Harding, Bremen—Chase National Bank, 207 bls.

Str. Veendam, Rotterdam—E. J. Keller Company, 201 bls. Atlas Waste Mfg. Company, 43 bls.; Stone Bros. & Victor Galaup Company, 15 bls.

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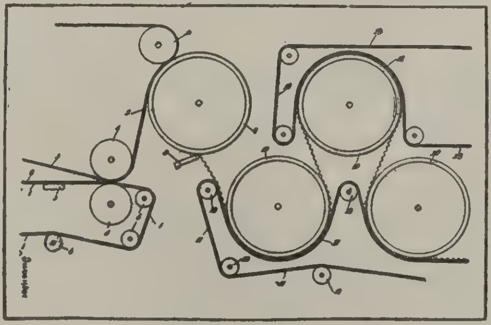

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VALATIE, N. Y., or OREGON CITY, ORE.

Str. Megantic, Liverpool—Albion Trading Company, 28 bls.
Str. Corson, Alexandria—Order, 58 bls.
Str. McKeesport, Rotterdam—Maurice O'Meara Company, 38 bls.
Str. Florida, Copenhagen—Goldman, Sachs & Co., 457 bls.

Paper Stock

Str. Mar Negro, Barcelona—Goldman, Sachs & Co., 266 bls.
Str. Liberty, Dunkirk—Mechanics & Metals National Bank, 46 bls.; Irving Bank-Columbia Trust Company, 107 bls.
Str. Veendam, Rotterdam—E. J. Keller Company, 14 bls.

Casein

Str. Southern Cross, Buenos Aires—Kalgfleisch Corporation, 867 bags.

Talc

Str. Giovanna Florio, Genoa—Italian Discount & Trust Company, 2,000 bags; C. B. Chrystal & Co., 300 bags; Kountze Bros., 410 bags.
Str. La Bourdonnais, Bordeaux—Hammill & Gillespie, 500 bags.

YOU ARE SAFE in assuming that your average customer knows nothing about the details of fine printing and that he looks to you for helpful suggestions.—*The Printers' Album.*

* * *

HEREIN LIES THE SECRET of successfully serving the public—creating or discovering something it *likes* and developing that like into a persistent *want* by forceful and persistent advertising.—*Advertising Fortnightly.*

* * *

IT IS A TRUISM to say that the man who gives more value than the letter of his contract calls for, is not going to have difficulty in getting another contract.—*Printers' Ink.*

* * *

IF EXPERIENCE is a very expensive teacher, it does not follow that "the other fellow's experience" cannot be taken advantage of at less cost.—*Successful Business.*

* * *

EVERY LETTER, every package, every article you sell, will carry with it valuable advertising that will sell more goods for you—and the space is free. Why not use it?—*The Wrightcroft Review.*

ALVAH MILLER TOM T. WALLER ARTHUR C. HASTINGS EDWARD A. WESTFALL NATHANIEL L. MILLER

H. G. CRAIG & COMPANY

PAPER MERCHANTS

—— MANUFACTURERS OF ——

NEWS - POSTER - HANGING - TISSUE - BAG - MANILA - SPECIALTIES

BOX BOARD - WOOD PULP

52 Vanderbilt Avenue New York City

Appleton Wires Are Good Wires

Fourdrinier Wires
Cylinder Wires
Save-all Wires
Washer Wires
of brass and bronze

Manufactured at Appleton, Wisconsin
Since 1896
By

APPLETON WIRE WORKS

EMPIRE SIZE AND CHEMICAL CORP.

Rosin Size — Foam Killer
Felt Soap

ALBANY, N. Y.

The

St. Regis Paper Company

and the

Hanna Paper Corporation

Daily Capacity
425 Tons

Newsprint
Butchers Manila
Packers Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite

Manufacturers of

TARZAN

Fibre Shipping Cases

General Sales Office
30 East 42nd St.
New York

Western Sales Office
620-621 McCormick Bldg.
Chicago, Ill.

STRIKING OFF THE BALANCE

PRACTICALLY every business man is striking off a balance for the year 1923. It is fundamental, of course, to any sort of successful business practice that a company should know accurately just how much financial progress has been made and whether the capital has been enhanced or dissipated.

A comparison of this statement with those of previous years will show with more or less accuracy the amount of money that has been made and the growth of the financial capital. This wisdom is from Wroe's Writings of January.

Such a statement does not tell the whole story, however. For the real capital of any business is the ideas on which it is founded and in accordance with which it is operated. The motive force is the intelligent application of these ideas. The real mission of financial capital is to make possible the effective application of good ideas.

It is a singular thing that while no good business man will knowingly permit his financial capital to be carelessly wasted, many are indifferent to the value of ideas which they do not themselves originate, and a few are hostile.

1924 may be a year when we will all have "to watch the pennies." In fact every year is that kind of a year to a growing business, but while we are determined to prevent waste of goods, time and money, let's resolve that no good idea shall go to waste because of our indifference.

For Nineteen Twenty-Four

A little more kindness and a little less creed;
A little more giving and a little less greed;
A little more smile and a little less frown;
A little less kicking a man when he's down;
A little more "we" and a little less "I";
A little more laugh and a little less cry;
A little more flowers on the pathway of life;
And fewer on graves at the end of the stife.

ORR FELTS
and JACKETS

Lowest Cost per Ton

If you judge felt values, not by what you put into the equipment, but what you get out of it—then you will specify ORR 3 stripe Endless Felts for ORR felts will produce the lowest cost per ton. They "stand up" under severe usage. Orr durability is acknowledged everywhere. Their strength and long life are as dependable as their reliability and quality.

In the 32 grades of Felts and Jackets we can match your most exacting demands. Tell us the kind of paper you desire to make, and we will send you samples of felts that will economically serve you and help you to produce paper at lowest cost per ton.

THE ORR
FELT & BLANKET CO.
PIQUA, OHIO

GREEN-BAY
WIRE WORKS

Green Bay
Fourdrinier
Wires

Can't Be Beat

MADE OF

**BRASS
AND PHOSPHOR
BRONZE**

You will have no slack edge trouble with our wires. Our seam will not cut or mark the lightest sheet. A trial will convince you that our wires will give you the best service.

Write us for prices and samples

GREEN BAY
WIRE WORKS
GREEN BAY
WISCONSIN

CLASSIFIED DIRECTORY

PAPERMAKING MACHINERY AND SUPPLIES

A handy reference for the busy Purchasing Agent of the Paper and Pulp Industry. Names listed in bold faced type are the regular advertisers in PAPER whom we can recommend for service and satisfaction.

ACID SYSTEMS

Stebbins Eng. & Mfg. Co., Watertown, New York.

AIR COMPRESSORS

Nash Engineering Co., South Norwalk, Conn.

ARCHITECTS AND ENGINEERS

CAREY—James L., Chicago, Ill.
FERGUSON—Hardy S., New York City.
HARDY—George F., New York City.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
WALLACE—Joseph H., & Co., New York and Montreal.

BEARINGS

LINK-BELT Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BELT CONVEYORS

LINK-BELT Co., Chicago, Ill.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOND PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.

BOX BOARDS

STANDARD Paper Co., Kalamazoo, Mich.

BRIMSTONE

UNION Sulphur Co., New York.

CARS

Pulp

Easton Car & Construction Co., 196 Fulton Street, New York City.
Chase Foundry & Mfg. Co., 2800 Parsons Ave., Columbus, Ohio.

CASEIN

California Central Creameries, Inc., 425 Battery. San Francisco, Calif.
Bird & Co., J. A. & W., 88 Pearl St., Boston, Mass.
King, E. & F. & Co., 367 Atlantic Ave., Boston, Mass.
Reardon Company, 127 Clinton, St. Louis, Mo.
Wiarda, John C. & Co., 91 Provost St., Brooklyn, N. Y.
Sheffield By-Products Co., Hobart, N. Y.
Atterbury Bros., 145 Nassau St., (French Imported) New York City.
Casein Mfg. Co., 15 Park Row, New York City.
Duche & Sons, T. M., (Imported), 376 Greenwich St., New York City.
Hamilton Company, 50 Church St., New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff, New York City.
Kalbfleisch Corp., The, 31 Union Sq., New York City.
Peek & Velsor, 8 Gold, New York City.
Scheel, Wm. H., 159 Maiden Lane, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Amalgamated Gum Co., (Vegetable for Wall Paper & Paper Coater Mfgrs.) Troy, N. Y.
Ferguson, Alex C., Jr., 460 Chestnut St., Philadelphia, Pa.
Rosin & Co., Penna. Bldg., Philadelphia, Pa.
Smith, Kline French Co., 431 Arch St., Philadelphia, Pa.
Union Casein Company, 822 Broad, Philadelphia, Pa.
Turnbull, J. G. Co., Orleans, Vt.

CHAINS AND WHEELS

LINK-BELT Co., Chicago, Ill.

CHEMICALS

Papermakers

du Pont, E. I. de Nemours & Co., Inc., Lithopone, Pigments & Heavy Chemicals Div., Wilmington, Del.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
American Woodpulp Corp., 347 Madison Avenue, New York City.
Battelle & Renwick, 80 Maiden Lane, New York City.
Burns Mfg. Co., 46 W. Broadway, New York City.
Cooper, Charles, & Co., 194 Worth, (Job), New York City.
KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.
National Sales Co., Cincinnati, O., (Bentonite).
Paper Makers Chemical Co., Easton, Pa.
PENNSYLVANIA Salt Mfg. Co., Chestnut St., (Bleach), Philadelphia, Pa.
EMPIRE Size & Chemical Co., (Rosin Size—Foam Killer—Felt Soap), **Albany, N. Y.**
Philadelphia Quartz Co., 121 So. 32 St., Philadelphia, Pa., Silicate of Soda.

CLAY

China

United Clay Mines Corp., Trenton, N. J.
Bernhan Chemical & Metal Corp., 309 Broadway, Job), New York City.
Bingswanger, H. P., 7 West 16, New York City.
Chrystal, Chas. B., Co., Inc., 99 John, (Imp.), New York City.
Drakenfeld, B. F., & Co., Inc., 50 Murray, New York City.
English China Clays Sales Corp., 33 West 42nd St., New York City.
General Mineral Co., Inc., 104 Spring, New York City, (Imp., Exp. & Mfrs. Agts.)
Hammell & Gillespie, 240 Front, New York City.
Higman Company, John W., 29 Broadway, New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff (Job), New York City.
Keystone Minerals Co., 41 Union Square, New York City.
Penn-Keystone Co., 41 Union Square New York City.
Roessler & Hasslacher Chem. Co., 709 6th Avenue, New York City.
Salomon & Bro., L. A., 216 Pearl, (Imptr., Exptr. & Dir.), New York City.
Scheel, Wm. H., (Dept. A.), 159 Maiden Lane, (Imptrs., Exptr. & Dir.), New York City.
Smith & Co., J. Lee, 23 Jacob, New York City.
Taintor Mfg. Co., H. F., 2 Rector, (Bolted), New York City.
Tennant Sons & Co., C., 76 William New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City
Vanderbilt, R. T. Co., Inc., 50 East 42nd St., New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Hardis Kaolin Co., Dillsboro, N. C.
Onondaga Pottery Co., (Vitrified), Syracuse, N. Y.
Excelsior Ball Clay Co., 31 East 13th, Cincinnati, Ohio.
National Sales Co., 31 East 13th, Cincinnati, Ohio.
Harshaw, Fuller & Goodwin Co., (Imptr.), Cleveland, Ohio.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Florida China Clay Corp., (Fla.), Easton, Pa.
Immaculate Kaolin Co., (For filling, coating & pottery purposes), Easton, Pa.
Peper Makers Chemical Co., (Eng.), Easton, Pa.
Williams, C. K., & Co., (Bolted), (Imptrs.), Easton, Pa.
Atlas Mineral Products Co., Mertztown, Pa.
Star Clay Co. (powdered & lump washed), Mertztown, Pa.
Fergusson, Alex. C., Jr., 460 Chestnut, Philadelphia, Pa.
Foote Mineral Co., Inc., 113 No. 19th, Philadelphia, Pa.
Nevins Co., Samuel, 109 So. 2nd, (Dried, Grd. & Bolted), Philadelphia, Pa.
Philadelphia Clay Co., 1201 Chestnut, Philadelphia, Pa.
Wayner, Chas. A. Co., Inc., 814 Noble St., Philadelphia, Pa.
Lyon & Bro. S. C., Bennington, Vt.
Horn, Crockett & Co., (Miners & Refiners), Brandon, Vt.
Dill-Coppage, Inc., 235 Pine (Imptrs. & Exptrs.), San Francisco, Calif.
Savannah Kaolin Co., Savannah, Ga.
Bennett & Davis, Inc., 327 So. LaSalle, Chicago. Ill.
Mepham, Geo. S., & Co., East St. Louis, Mo.
Cooley Ball & Sagger Clay Co., Hazel, Ky.
Kentucky Const. & Improvement Co., Pryersburg, Ky.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McHose Clay Co., Perth Amboy, N. J.
McHose, L. H., Inc., P. O. Box 345, Perth Amboy, N. J.
Such Clay Co., Perth Amboy, N. J.
Perrine, Hy. C., & Son, South Amboy, N. J.
Golding Sons Co., Trenton, N. J.

CLAY

Papermakers

Savannah Kaolin Co., Savannah, Ga.
Owyhee Chemical Products Co.,3946 So. Union Avenue, Chicago, Ill.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
Laclede-Christy, Railway Exch. Bldg., St. Louis, Mo.
Crossman Co., South Amboy, N. J.
Wright, Marcus S., South River, N. J.
United Clay Mines Corp., Trenton, N. J.
Carbola Chemical Co., Inc., 299 Ely Avenue, Long Island City, N. Y.
Binney & Smith Co., 81 Fulton, New York City, N. Y.
Chrystal, Chas. B. Co., Inc., 99 John, New York City.
General Mineral Co., Inc., 104 Spring, (Imptrs. & Exptrs., Mfg. Agts.), New York City.
Higman, John W. Co., 29 B'way, (Eng. & Amer.), New York City.
International Pulp Co., 41 Park Row, New York City.
Johns & Company, Inc., 50 Church, New York City.
PERKINS-GOODWIN Co., 33 West 42nd St., New York City.
Talc Products Co., 120 B'way, New York City.
Vanderbilt, R. T. Co., Inc.. 50 East 42nd St., New York City.
Whittaker, Clark & Daniels, Inc., 245 Front St., (Exp. & Impt.), New York City.
Excelsior Ball Clay Co., 31 East 13th St., Cincinnati, Ohio.
National Sales Co., (Colloidal Clay), Cincinnati, O.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Williams, C. K. & Co., Easton, Pa.
Star Clay Co., Mertztown, Pa.
South Carolina Clay Co., West Chester, Pa
Horn, Crockett & Co., Brandon, Vt.

CLAYS

Francesconi, J. C., & Co., 25 Beaver, New York City.
General Mineral Co., Inc., 104 Spring, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.

COAL AND ASH HANDLING MACHINERY

LINK-BELT Co., Chicago, Ill.

COGS

Menasha Wood Split Pulley Co., Menasha, Wis.

COLORS

Papermakers

King, E. & F. Co., 376 Atlantic Ave., Boston, Mass.
Hampden Paint & Chemical Co., Springfield, Mass.
Lucas & Spencer Co., (Pulp), Camden, N. J.
Sun Chemical & Color Co., Harrison, N. J.
Central Dyestuff & Chemical Co., Plum Point Lane, Newark, N. J.
United Color & Pigment Co., Evergreen Ave., Newark, N. J.
Janeway & Carpender, New Brunswick, N. J.
Debrook Co., Inc., 1105 Metropolitan Ave., Brooklyn, N. Y.
Clinton Metallic Paint Co., Clinton, N. Y.
Harmon Color Works, Inc.. (Pulp), College Point, N. Y.
Imperial Color Wks., Inc., Tait Paper & Color Industries, Inc., Glenns Falls, N. Y.
Tait Paper & Color Industries, Inc., Glens Falls, N. Y.
Aniline Sales Corp., 480 W. B'way, New York City.
American Aniline Products, Inc., 80 5th Avenue, New York City.
Ansbacher, A. B. & Co., 527 5th Avenue, New York City.
BACHMEIER & Co., 438 W. 37th St., New York City.
Binney & Smith Co., 81 Fulton, New York City.
Carbic Color & Chem. Co., Inc., 451-453 Washington, New York City.
Certified Chemical Corp., 80 Maiden Lane, New York City.
Ciba Co., Inc., Cedar & Washington, New York City.
Crescent Color & Chemical Works, Inc., 59th St. & 11th Avenue, New York City.
Devoe & Raynolds Co., Inc., 101 Fulton, New York City.
Doggett, Stanley, Inc., 1 Cliff St., New York City.
Heller & Merz Co., 503 Hudson St., New York City.
KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.
Laidlaw, Kelley & Co., Inc., 14 Platt, New York City.
Lavanburg, Fred. L., 100 William, New York City.
McNulty, Joseph A., 114 Liberty, New York City.
Martin Co., L., Liggett Bldg., New York City.
Metz, H. A. & Co., Inc., 122 Hudson, New York City.
National Aniline & Chemical Co., 40 Rector St., New York City.
Osborn Co., C. J., 101 Beekman, New York City.
Smith & Co., J. Lee, 23 Jacob, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses, New York City.
Wetterwald & Pfister Co., (Brunswick Color & Chem. Co.), 276 Spring, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front, New York City.
Palatine Aniline & Chem. Co., Poughkeepsie, N. Y.
Siegle, G. Corp. of America, Rosebank, N. Y.
Standard Printing Ink Co., 1638-1648 Providence, Cincinnnati, O.
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Hommel, O. Co., 211 4th Ave., Pittsburgh, Pa.
Williams & Co., C. K., Easton, Pa.
Wilhelm Co., A., Reading, Pa.

CLASSIFIED DIRECTORY—Continued

Keystone Color & Mica Co., (Wall Paper, Coated Paper & Scenic), York, Pa.

Pulp

Du Pont, E. I. de Nemours & Co., Inc., Wilmington, Del.
Hampden Paint & Chemical Co., Springfield, Mass.
Kohnstamm, H. & Co., 83-93 Park Pl., New York City.
National Aniline & Chemical Co., Inc., 40 Rector St., New York City.

CONSISTENCY REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

CONVEYORS AND ELEVATORS

LINK-BELT Co., Chicago, Ill.

COUPLINGS (Shaft)

LINK-BELT Co., Chicago, Ill.
Hudson-Sharp Machine Co., Green Bay, Wis.

DIGESTERS

Chicago Bridge & Iron Wks., 2036 Transportation Bldg.. (pulp), Chicago, Ill. .
Watson, Frye Co., Ltd., (paper & pulp mill, soda & sulphate), Bath, Me.
PORTLAND Co., (copper, paper & pulp mill), Portland, Me.
McNamara Bros. Co., Westport, Baltimore, Md.
Dillon Steam Boiler Wks., D. M., (paper & pulp mill, rotary), Fitchburg, Mass.
EASTWOOD Wire Mfg. Co., (papermaking), Belleville, N. J.
Reeves Bros. Co., 338 Rush Street, (pulp & paper mill), Alliance, O.
Tudor Boiler Mfg. Co., 715 E. 3rd St., (pulp), Cincinnati, Ohio.
Riter-Conley Co., 318 Oliver Bldg., (papermaking), Pittsburgh, Pa.
McAleenan Bros. Co., 25th & Railroad Sts., (pulp paper mill), Pittsburgh, Pa.
West Point Boiler & Tank Works, 23rd & Smallman, (paper making), Pittsburgh, Pa.
Petroleum Iron Works Co., Drawer 539 (pulp), Sharon, Pa.
Manitowoc Shipbuilding Corp., (paper mill, sulphate, rotary & soda), Manitowoc, Wis.

DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

DRIVES

Smidth & Co., F. L., 50 Church St., (Beater-Belt-Lenix), New York City.

DRYERS

Paper & Pulp Makers

Mintin, Ogden, Greenwich, Conn.
Smith & Winchester Mfg. Co., So. Windham, Conn.
Gordon, Robert, Inc., 1355 W. Washington Blvd., Chicago, Ill.
Rice Barton & Fales Machine & Iron Co., Worcester, Mass.
St. Louis Ventilating & Sheet Metal Co., 1306 Ann Avenue, St. Louis, Mo.
Carrier Eng. Corp., 39 Cortlandt, New York City.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Bartlett & Snow Co., C. OO French & Columbus, Cleveland, Ohio.
French & Columbus, Cleveland, O.
Cummer, F. D. & Son Co., Hanna Bldg., Cleveland, Ohio.
Kilby Mfg. Co., 4623 Lakeside Ave., Cleveland, Ohio.
Proctor & Schwartz, Inc., 7th St. & Tabor Road, Philadelphia, Pa.
Gordon Dryer Corporation, 275 W. Exchange, Providence, R. I.

EQUIPMENT

Crandon Mfg. Co., (special electrical, for pulp & paper mills), Portland, Me.

EVAPORATORS

Soda Pulp

Buffalo Foundry & Machine Co., 43 Winchester Avenue, Buffalo, N. Y.
Devine, J. P., Co., 1380 Clinton, Buffalo, N. Y.
Zaremba Co., 508 Niagara Life Bldg., Buffafflo, N. Y.
Angus Engineering Co., 10 Hanover, New York City.
International Process Co., 5 Beekman, New York City.
Odrway, Chales, 25 Church, New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Kestner Evaporator Co., North Philadelphia, Pa.

FELTS

Dryer, Jackets

FITCHBURG Duck Mills, Fitchburg, Mass.
F. C. HUYCK & Sons, (Kenwood Mills), Albany, N. Y.
Albany Felt Co., Albany, N. Y.
Appleton Woolen Mills, Appleton, Wis.
ORR Felt & Blanket Co., Piqua, Ohio.
WATERBURY Felt Co., Skaneateles Falls, N. Y.
Lockport Felt Co., Lockport, N. Y.
SHULER & Benninghofen, Hamilton, Ohio.

FILLERS

Papermakers

U. S Gypsum Co., 205 W. Monroe, (Terra Alba & Select), Chicago, Ill.
Macneal's Varnish & Color Works, 1600 Block Warner, Baltimore, Md.
Western Paper Makers Chemical Co., (Pearl), Kalamazoo, Mich.
American Chemical & Mfg. Corp., Kenilworth, N. J.
Carbola Chemical Co.. Inc., 229 Ely Avenue, (Fillers for every purpose), Long Island City, N. Y.
INTERNATIONAL Pulp Co., 41 Park Row, New York City.
Talc Products Co., 120 B'way, New York City.
Solvay Process Co., Syracuse, N. Y.
Lookout Paint Mfg. Co., Chattanooga, Tenn.

FILTERS

Pulp and Paper

Oliver Continuous Filter Co., 503 Market, San Francisco, Calif.
Redlich Mfg. Co., 637 W. Oak, Chicago, Ill.
Ordway, Charles, 25 Church, · New York City.
Permutit Co., The, 4th Ave. & 30th, New York City.
Kiefer, Kary Machine Mahcine Co., 919 Martin, Cincinnati, Ohio.
Loew Mfg. Co., 9100 Madison Ave., Cleveland, Ohio.

GRINDERS

Wood Pulp

Pusey & Jones Co., Wilmington, Del.
Stroud, E. H. & Co, 928-934 Fullerton Ave,, Chicago, Ill.
Holyoke Machine Co., Holyoke, Mass.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Carthage Machine Co., Carthage, N. Y.
Dilts Machine Co., Inc., Fulton, N. Y.
Glens Falls Machine Wks., Glens Falls, N. Y.
Sandy Hill Iron & Brass Wks., Hudson Falls, N. Y.
Brown Co., A. & F., 79 Barclay, New York City.
Bagley & Sewall Co., Watertown, N. Y.
Jeffrey Mfg. Co., 956 No. 4th, Columbus, Ohio.
Dayton Globe Iron Works Co., Dayton, Ohio.
Scott, Olin, Est. of, Bennington, Vt.

Marathon Paper Mills Company

CYRUS C. YAWKEY, President
WALTER ALEXANDER, Vice-Pres.
B. F. WILSON, Treasurer
C. S. GILBERT, Director
C. J. WINTON, Director
W. H. BISSELL, Director
D. C. EVEREST, Secy. and Gen'l Mgr.
P. M. WILSON, Ass't Secretary
J. R. RUSSELL, Mgr. of Sales

SULPHITE BOND, LACE PAPER, WAXING, SPECIAL WATERMARKED WRAPPINGS, M. G. DESIGN PAPERS, M. G. PLAIN PAPERS

Specialties in Bleached Sulphite Papers of all Grades. Quality and Appearance Combined in all Grades

SOLID AND BLEACHED LINED BOARDS FOR CARTON MANUFACTURERS PAPERS FOR REMANUFACTURE

EQUIPMENT

1 Cylinder Machine, Trim	100″
1 Fourdrinier Machine, Trim	120″
2 M. G. Yankee Fourdriniers, Trim	120″
2 Super Calenders	60″

Mills and General Office:
Rothschild, Wisconsin

DAILY CAPACITY

Unbleached Sulphite Pulp	200,000 lbs.
Bleached Sulphite Pulp	150,000 lbs.
Ground Wood Pulp	60,000 lbs.
Paper	200,000 lbs.

Sales Office:
1126 Conway Bldg., Chicago, Ill.

CLASSIFIED DIRECTORY—Continued

JORDAN FILLINGS

The Bahr Bros. Mfg. Co., Marion, Ind.

KNIVES

Wood Pulp Machine

Atkins, E. C. & Co., Inc., 402 So. Illinois, Indianapolis, Ind.
Simonds Mfg. Co., Fitchburg, Mass.
Coes & Co., Loring (inc.), Worcester, Mass.
Branch Saw Co., 3000 N. B'way, St. Louis, Mo.
Dilts Machine Co., Inc., Fulton, N. Y.
Lancaster Machine & Knife Wks., Lancaster, N. Y.
Cocker Mfg. Co., Lockport, N. Y.
Haring, Ellsworth, 116 Liberty, New York City.
Cleveland Knife & Forge Co., Cleveland, Ohio.
Worden Tool Co., (1854 Scranton Rd.), Cleveland, Ohio.
Simonds & Sons Co., A. A., Dayton, Ohio.

KRAFT PAPER

BROWN Company, Portland, Me.

LATHES

Truing, Pulpstone

Fulton Mach. & Vise Co., Lowville, N. Y.

MACHINERY

Barking

Fibre Making Processes, Inc., 6 N. Michigan Ave., Chicago, Ill.
Union Iron Works (Improved), Bangor, Me.
Portland Co., Portland, Me.
Waterville Iron Wks., (for paper mills), Waterville, Me.
Holyoke Mach. Co., Holyoke, Mass.
Carthage Machine Co., Carthage, N. Y.
Sandy Hill Iron & Brass Wks., (pulp mill), Hudson Falls, N. Y.
Trevor Mfg. Co., (168 Market), Lockport, N. Y.
Fulton Mach. & Vise Co., (slabs & edgings), Lowville, N. Y.
TOMPKINS-HAWLEY-FULLER Co., (Paper Creping), Valatie, N. Y.
Scott, Olin, Est. of, Bennington, Vt.
Valley Iron Works Co., (wood), Appleton, Wis.
Green Bay Barker Co., Green Bay, Wis.

Paper Combining

Jagenberg Machine Co., Inc., 133 W. 24th, New York City.

Paper Goods

Aicher Machine Works, 1634 Stockton (Slitting & Printing), San Francisco, Calif.
Specialty Automatic Machine Co.. Chelsea, Mass.
Rice, Barton & Fales Machine & Iron Co., (Pasting, waxing, trimming, etc.), Worcester, Mass.
Paper Working Machine Co., Ave. U & 56th, (Corrugated), Brooklyn, N. Y.
Vierengel, M., Machine Co., Inc.. 370 Troutman St., (special), Brooklyn, N. Y.
KNOWLTON Co., M. D., 26 Industrial, (corrugated), Rochester, N. Y.

Bridgeport Safety Emery Wheel Co., 106 Knowlton Street, Bridgeport,

Paper Laboratory

McKim Foundry & Machine Co., Lockport, N. Y.

Paper Cup

Ludington Machine Co., Waterbury, Conn.

Paper Cutting

Smith & Winchester Mfg. Co., So. Windham, Conn.
Child Acme Cutter & Press Co., 250 Devonshire, Boston, Mass.
McLauthlin, Geo. T. Co., 120 Fulton, (power & hand), Boston, Mass.
Hamblett Mach. Co., Lawrence, Mass.
Dillon Mach. Co., Lawrence, Mass.
Challenge Machinery Co., The, (Hand & Power), Grand Haven, Mich.
Swift, Geo. W., Jr., Inc., Bordentown, N. J.
Langston, Samuel M., Co., Camden, N. J.
American Type Founders, 4-6 Communipaw Ave., (lever & power), Jersey City, N. J.
CAMERON Machine Co., 57-61 Poplar, Brooklyn, N. Y.
Morgans & Wilcox Mfg. Co., (printers), Middletown, N. Y.
Fuller, E. C. Co., 28 Reade St., New York City.
Hoffman Type & Engraving Co., 112 East 13th St., (mnfrs., reps. & imptrs.), New York City.
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Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Elambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.
Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS

Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES

Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia, Pa.

RAGS

American Woodpulp Corporation, New York.
Keller Co., Inc., E. T., New York.
CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill.

ROPE DRIVE

LINK-BELT Co., Chicago, Ill

SCREENS

Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del.
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman, H. L. (centrifugal), Dayton, Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale, Pa.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill.

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS

Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS

Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE

Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific, Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.
Paper Makers Chem. Co., (combination), Easton, Pa.
Boley, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.
Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.
Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
MURRAY Mfg. Co., D. J., Wausau, Wis.
Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.
Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Co., (Cylinder; Hot Air), Cohoes,
Cohoes Iron Foundry & Machine N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.
Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA

Pulp

Mead Fibre Co., The, (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SPLITTERS

Wood

Grace, C. M. & Co., Huntsville, Ala.
Ripley, Lewis R., Harvard, Mass.
Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.
Ryther & Pringle Co., Carthage, N. Y.
Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Multnomah Iron Works, Portland, Ore.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works, Co., Appleton, Wis.
Smalley Mfg. Co., Manitowoc, Wis.

SPROCKET WHEELS

LINK-BELT Co., Chicago, Ill.

STOCK REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

STONES

Wood Pulp

Pusey & Jones Co., (Kollergang), Wilmington, Del.
Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.
Lombard & Co., 238 A Street, Boston, Mass.
JONES Bros. Co., Boston, Mass.
Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.
Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.
Empire Pulp Stone Co., Empire, Ohio.
C. & M. Quarries Co., Marietta, Ohio.
Smallwood Stone Co., Steubenville, Ohio.
American Stone Co., Wheeling, W. Va.
JONES Bros. Co., Barre, Vt.

SUCTION BOX COVERS

Menasha Wood Split Pulley Co., Menasha, Wis.

SULPHATE MILL EQUIPMENT

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.

SULPHITE FITTINGS

EASTWOOD Wire Mfg. Co., Belleville, N. J.

SULPHUR

UNION Sulphur Co., New York.

SULPHUR BURNERS

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.
TRIMBEY Machine Works, Glens Falls, N. Y.

CHAIN DRIVE SILENT

LINK-BELT Co., Chicago, Ill.

TANKS

Settling & Pulp Thickening

Chicago Bridge & Iron Works, 2036 Transportation Bldg., Chicago, Ill.
Eagle Tank Co., 2436 No. Crawford Ave., Chicago, Ill.
Johnson & Carlson, 848 Eastman, (Wood), Chicago, Ill.
New York Central Iron Works Co., Inc., Hagerstown, Md.
New England Tank & Tower Co., Boston Postal District, Everett, Mass.
Acme Tank Co., 41 Cortlandt St., (Wood), New York City, N. Y.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Hendrick Mfg. Co., 75 Dundaff St., Carbondale, Pa.
Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.
Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawer 539, Sharon, Pa.
Newport Foundry & Machine Corp., (Siphon), Newport, R. I.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.
Textile Finishing Mach. Co., Providence, R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill.

DE-INKING PROCESS

CASTLE & OVERTON, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

VALVES

Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.
WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

CYLINDER MOLDS

Appleton Wire Works, Appleton, Wis.
BLACK-CLAWSON Co., Hamilton, Ohio.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

WRAPPERS

Bread and Candy

WOLVERINE Paper Co., Otsego, Mich.

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PAPER

February 7, 1924

The Magazine of the Paper Industry

HOMAS J. KEENAN, F.C.S., Technical Editor
RUSSELL C. HUGHES, Publisher
ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

SINCE the last issue of PAPER appeared, Woodrow Wilson has died. While death was not unexpected, nevertheless it came as a shock to those in this industry as well as those in all others. In death only the good remains. It is well. The history of Woodrow Wilson is secure. He won his high pinnacle by unremitting energy, singleness of purpose and rare gifts of mind and heart. His words dignify and exalt any paper on which they are written. Great in life, Woodrow Wilson will be greater far in death.

* * *

With this number J. E. Willert takes hold of the new department, "Paper Products in PAPER." He is well fitted to handle the task with ability and thoroughness. He has a host of acquaintances in that part of the paper trade. His own experience as a manufacturer and as a salesman of the papers entering into paper products, as well as the specialties themselves, has been large. He is determined to publish the livest thing in that line which ever appeared in any magazine. But he too wants help. He wants the advice and the material aid of all his friends in the industry.

At the present time there is nothing in the trade publications that remotely resembles such a department. It should have the support of every one in that end of the game.

Not a big failure reported for a week. The sun is shining. It looks like the hard days will soon be over. Now if that rainbow doesn't lie.

* * *

Come on into the Paper Industries Exposition. The water's fine. Why should there be any hesitancy on the part of the papermaking companies when the promotion of papermaking in all its various ramifications is the very foundation stones of the exposition.

The arguments regarding why you should be among the others are many. You have probably heard them all. Everybody of consequence will be at the convention which will go on in the same week, that of April 9. The entire paper industry will be watching both the convention and the exposition. It is the trial time of the year.

The one drawback is the queer feeling of reluctance the paper companies and mills themselves have about coming in, although already there is a large list of exhibitors. The supply and machinery companies are entering in splendid array and are doing their share. All it requires now is for another large group of paper companies to put up good exhibits, showing the various ways and means of making paper. This will both inform the public and interest it in papermaking.

Before another 24 hours goes by, it is advisable to get your contract for space off to the Exposition Company.

Russell C. Hughes, *Publisher.*

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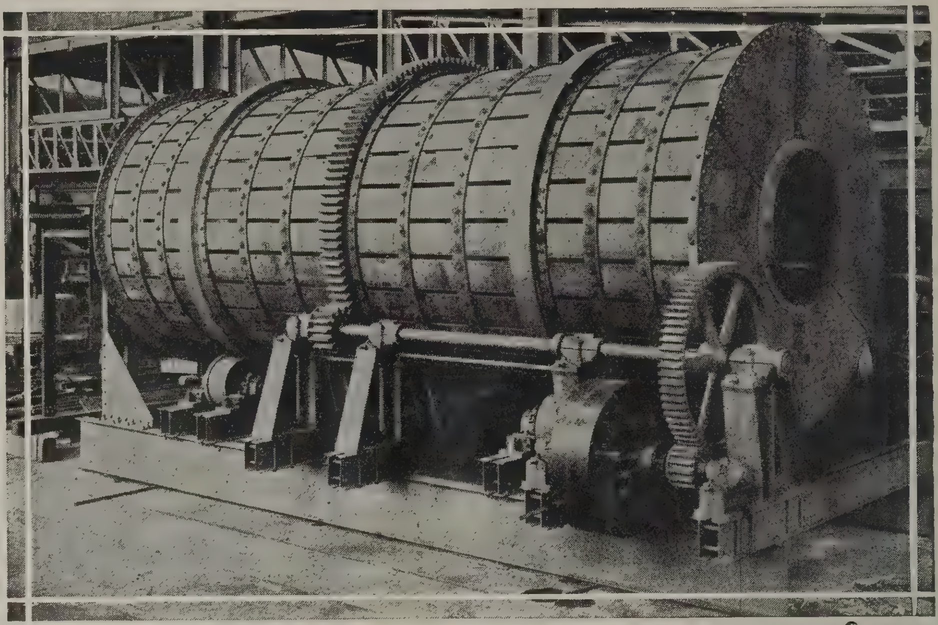
MURRAY



Sick of kicks about dirty pulp?
Tired of costly barking drum repairs?
Sometimes wish you had never put in a drum?

MURRAY BARKING DRUMS

are remarkably free from the faults of older machines

We'd like to tell you about them—
and MURRAY CHIPPERS *too!*

D. J. MURRAY MFG. COMPANY

Wausau, Wis., U.S.A.

THE COST OF BOILER FEED WATER

A New Angle on Modern Methods That Reduce Operating Costs

By James T. Beard, 2nd

IMPURE boiler feed water is an important source of unnecesary waste in the power department of the industrial plant, whether it be a paper mill or any other enterprise. Chemically pure water does not exist in Nature and all water will dissolve a certain amount of nearly everything with which it comes in contact.

Many plant managers and operating men are under the impression that their boiler feed water is pure and that any steps taken to remove impurities would be entirely unnecessary. This is largely due to the fact that their boilers have never been condemned by the inspector. It is also due to a false impression that scale in the boilers tubes is one of the necessary evils to be contended with in boiler house operation.

There are many cases, indeed, where the boiler feed water is of an excellent quality. There may be some cases, even, where any treatment at all would be like "carrying coals to Newcastle." If, however, the boilers must be cut out of service at reasonably frequent intervals for general cleaning and overhauling, it is fairly certain that the boiler feed is not all that it should be.

One operating engineer told the writer that his feed water was the very best. He never had to clean the tubes except once in three months and he replaced only two or three tubes a year in each boiler. I wonder what he would say if he could see a certain plant, where proper feed water treatment has practically eliminated tube renewals and boiler cleaning and where a boiler is never cut out of service except for inspection.

The majority of boiler troubles are usually directly traceable to impurities in the feed water used. These impurities are often the cause of leaky seams, leaky tubes, bagging of the metal surfaces, general weakening of the entire boiler construction, boiler explosions, leaky valve in the steam lines, engine trouble, and the like. Long continued use of improperly treated or untreated feed water has in some cases resulted in orders from the insurance inspector to cut down the operating pressure on the boilers affected.

The presence of sewage or an excessive amount of sodium carbonate, either naturally dissolved in the water or left there from the improper treatment, frequently cause boiler water to boil and foam violently. Due to the abnormal activity a large amount of moisture is carried out with the steam. If these "slugs" of water become trapped in the engine cylinder, they may cause serious damage and necessitate costly repairs.

Where there is an excessive amount of priming, as described above, appreciable quantities of salts are carried into the steam lines and deposited on the valve seats, often interfering with the proper closing of the line.

When impurities are carried with the steam into drier rolls of paper machines they will invariably coat the inner surfaces of the rolls, forming an insulating layer and preventing the proper drying of the paper. Under these conditions, the tendency of the machine tender is to open the steam valve a little wider. And the more steam flows, the faster the deposits form. In extreme cases, they will sometimes open the bypass of the steam traps and allow the steam free passage through the rolls to the sewer. Proper feed water treatment in these cases would go a long way toward making these wasteful practises unnecessary.

A LITTLE THING THAT GROWS

JUST because the water going into your boiler is not exactly what it should be seems to be a minor and trifling thing. But is it? Mr. Beard takes up in this article another phase of the question of fuel costs. And what is more vital than this. This is a subject for the power plant of the mill. Read it.

The most harmful and wasteful result of impurities in the boiler feed water, however, is the scale formation that is deposited on the internal boiler heating surfaces when the water is evaporated. These salts coat the inner walls of the shell and tubes with a heat-insulating layer that grows in thickness as the process continues.

This scale produces costly results in two ways:

First, since the scale deposits insulate the water in the boiler from the heat in the furnace, the boiler tubes must be made just so much hotter in order to generate the same amount of steam. Extra coal is required to do this—a definite and measurable waste. The greater heat, to which the metal of the boiler and tubes is subjected, produces greater strains and tends to lesson the life of the equipment. If the layer of scale has been permitted to accumulate to such a thickness that it will no longer let the heat pass through to the water, the tube itself must absorb the heat. These severe conditions are not unusual and cause the metal to blister, bag and even burst. They may even result in a disastrous explosion.

One More Expense

The second expensive result of boiler scale is the labor required to remove the scale, plus the loss of heat and service of the boiler, when it has to be cooled down for cleaning. Periodic cleaning, necessary as it is in some cases, has a weakening effect of the boiler construction, which materially lessens its life. This is due not only to the cleaning process itself, but also to the strain brought upon the various parts by the contraction during cooling and the re-expansion when again fired up.

When a boiler is cut out of service for cleaning, it must be allowed about 18 hours to cool off. The actual cleaning may take another 24 hours, or even more. After that it must be refilled and heated gradually, requiring perhaps 18 or 24 hours more. For practically three days, therefore, the plant is without the service of that boiler. The heat loss and coal waste is represented by the amount of fuel required to bring the boiler up to the line pressure again. The effect of scale, therefore, is to increase the coal consumption, decrease the steam generated by the boiler, decrease the capacity of the plant and to lessen the life of the equipment, to say nothing of introducing an element of danger into the otherwise safe operation of the plant.

The cost of boiler feed water, in terms of increased coal and labor expense, as well as decreased capacity, safety and life of the equipment, may be materially reduced by the proper treatment of the water, before it can do this damage. Unfortunately the fallacy is prevalent that feed water analysis is a job for the chemist and beyond the ken of the average man. With the help of the small water testing cabinets on the market today, however, the average intelligent operating engineer can be his own chemist, insofar as the feed water is concerned. The kit enables a rapid and fairly accurate determination of the impurities in the feed water. It also enables the engineer to prescribe the proper remedy for operating waste and other troubles resulting from such impurities.

May Be Treated in Boiler

After a proper analysis, it may be found that the water is such that it may be treated in the boiler itself, without the expense of elaborate water softening equipment. Many compounds are on the market for this purpose. Some act chemically to precipitate soluble salts. Others act mechanically to loosen the scale that has already formed on sludge settles to the mud drum and is blown out of the boiler at periodic intervals.

If the analysis of the feed water permits the use of this method, it is peculiarly adapted to small plants, where the cost of a more elaborate system would make feed water treatment too expensive. In view of its low first cost it is sometimes preferable to other methods, in spite of the heat loss and coal waste involved in blowing down the boilers.

The method just described, however, is not exact, in that it is impossible to accurately gauge the amount of treatment required by the water. The feed may, therefore, contain an excess of the boiler compound, or the amount of compound fed into the system would make feed water treatment too expensive. In view of its low first cost it is sometimes preferable to other methods, in spite of the heat loss and coal waste involved in blowing down the boilers.

The method just described, however, is not exact, in that it is impossible to accurately gauge the amount of treatment required by the water. The feed may, therefore, contain an excess of the boiler compound, or the amount of compound fed into the system may be insufficient for complete treatment. Where boiler compounds are properly selected and intelligently used, boiler troubles and coal waste are materially reduced and this condition is always reflected in the reduced cost of power.

Boiler feed water may contain such impurities that the method of treatment just described will not be practical. Or, it may be desirable, for other reasons, to treat the water before it is introduced into the boilers.

The simplest method, in such cases, is the heating of the water in an open type of feed water heater. Water that is temporarily hard, *ie.*, whose chemical analysis shows that heating will precipitate all its scale forming salts, may be successfully treated in this way. The heater is installed in conjunction with a settling tank and filter of suitable size, where the precipitated salts are removed before the water is fed to the boilers.

Hard Waters Do Not React

Waters that are permanently hard do not react to the heat treatment, however, and chemical water softeners must be employed. In one type of these softeners, the salts are precipitated by chemical action of certain reagents, which are added to the water in proportion to its needs. In the other type the hardness is removed by allowing the water percolate through a bed of material that absorbs the scale forming salts by a chemical interchange between the water and the softener bed.

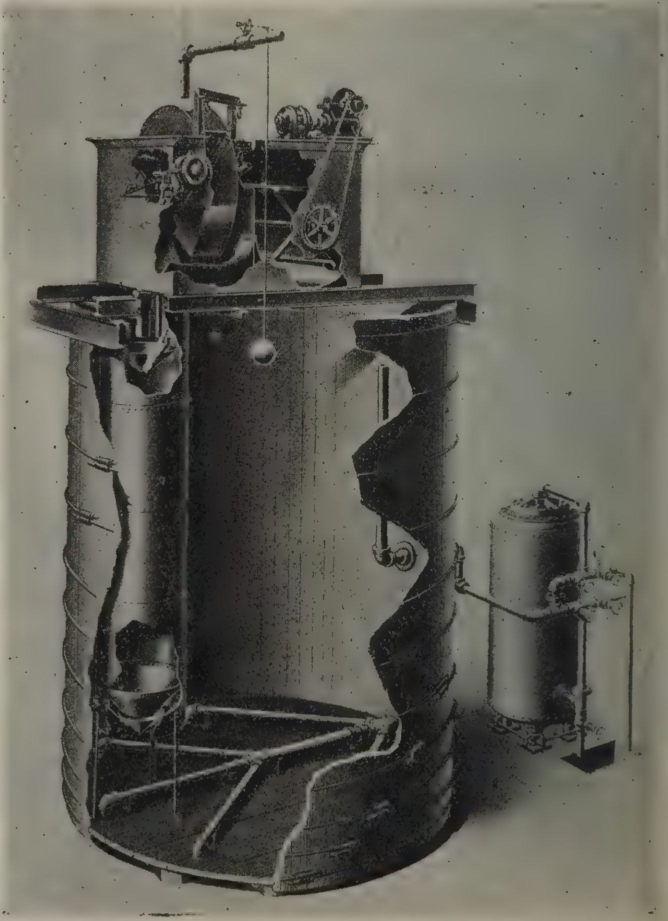
Precipitation softeners are of two kinds. The intermittent type is provided with two settling tanks. One tank fills with untreated water, receives its charge of chemicals, precipitates and settles the salts, while the other delivers the already softened water to the boiler feed line. The continuous type has but one settling basin, which is large enough to permit settling during the time it takes the softened water to flow slowly from inlet to outlet.

The latter type is frequently used in conjunction with open feed water heaters. Heating materially assists the chemical reaction and makes a smaller tank possible.

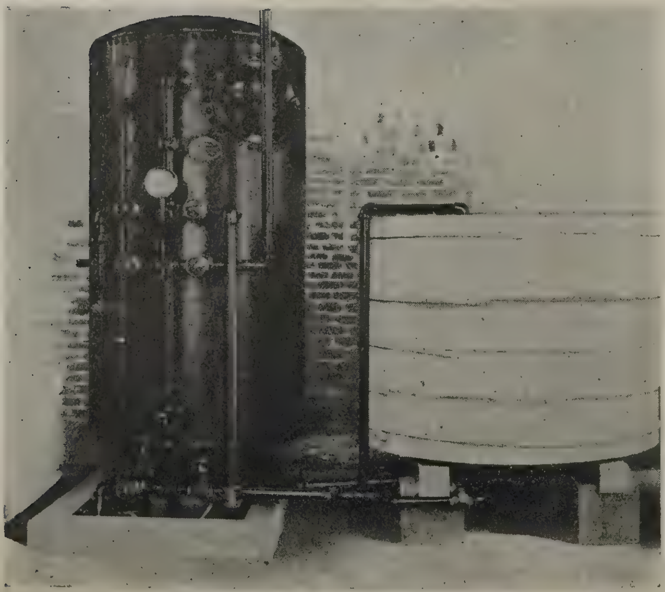
Intermittent softeners are adapted to plants where the percentage of impurities in the boiler water varies considerably from day to day. With this system frequent samples of the water may be readily tested and the treatment altered to suit the requirements.

With zeolite softeners, the feed water is allowed to percolate through a bed of zeolite material, which exchanges its sodium base for the calcium and magnesium bases of the salts in the water. The scale forming salts are

(Right) A Permutit Junior lime-soda water softener specially adapted to the conditions encountered in paper mills generally



(Below) Typical Permutit zeolite water softener for boiler plant service in paper mills. The steel tank contains Permutit material which softens the water, and the wooden tank holds a concentrated salt solution that regenerates the Permutit at stated intervals



thus removed and the water rendered suitable for boiler feed purposes.

A softener of this type can absorb only a certain quantity of scale forming salts, when it becomes saturated. A water meter is usually installed to indicate when this point is reached. It must then be regenerated. If the plant operates 24 hours a day two zeolite softeners are required. When one becomes saturated it is cut out and the other is used, while the first one is regenerated by passing through it a solution of sodium chloride, or common salt.

Just an Illustration

Proper feed water treatment renders a very definite return in terms of lower fuel, labor and power costs. A certain plant was operated 24 hours a day, steam being supplied by one 300-hp. return tubular boiler. Boiler feed water was taken from a large river nearby. Boilers were blown twice a day. Every three weeks it was necessary to shut down the plant, to clean the boiler and tubes. During the end of the three-weeks period the boiler developed a very low efficiency, due to a scale 1/16 in. in thickness. When a suitable softening system had been installed, the scale formation was immediately reduced and it was unnecessary to clean the boiler oftener than once every three months. The actual cost of boiler cleaning alone was reduced one-fourth, to say nothing of the gain in boiler efficiency and fuel saving.

Water from artesian wells is apt to be very bad. An interesting example is offered by a 900-hp. boiler plant, which took its supply of boiler feed from such a source. It was necessary to blow down the boilers every hour and this loss was very high. Boilers were cleaned every Sunday, making a three-weeks' cleaning period for each boiler in the plant. Scale varied from 1/16 to ½ in. in thickness. With proper treatment of the feed water in this plant scale was practically eliminated, saving the regular weekly labor and shutdown losses. In addition nearly $1,000 dollars was saved annually during the summer overhauling. Tube replacements, moreover, had previously cost $4,000 yearly and with treated water they were entirely eliminated.

Fuel saving by feed water treatment is usually quite considerable. A 3450-hp. plant, consisting of 6 boilers and operating 24 hours a day at 150 per cent of rating, recently installed a water softening system. Prior to that time the boilers had been cleaned 12 times a year and each time the scale had been from 1/16 to ¼ in. thick. The feed water was taken from the city mains. During the year following the installation of the water softener (and up to the present time) it has not been necessary to clean a single boiler. The fuel saving as the result of the elimination of scale actually amounted to from 1200 to 1600 gallons of fuel oil daily.

The mere fact that a water softening system is installed, however, does not automatically eliminate operating troubles nor reduce fuel bills. The equipment must have proper supervision and intelligent handling, if best results are to be attained.

How It Works Out

Some time ago the writer was associated in an advisory way with a 2000 hp. boiler plant, where a modern water softening system was installed. In spite of this fact, scale formation and boiler troubles were excessive. There were only five boilers in the plant, and it was not unusual to have two out of service for cleaning at the same time, thus reducing the capacity of the plant to 60 per cent its normal value. Additional capacity was needed and a new boiler was ordered.

At about this time the writer was asked to make an investigation and see what could be done until the new boiler could be delivered and installed. Samples of feed water were taken at his suggestion from various points in the system and analyzed. The results showed that the water at its source and at the softener inlet was very bad. The softener discharge was very good, but the water entering the boilers was very bad again.

The answer was obvious. Untreated water was entering the system at some point between the softener and the boilers. It was suggested to the "chief" that a bypass valve might be open somewhere, but he said there was no bypass. The superintendent was appealed to and he ordered every inch of the feed system be explored until the bypass was found. When it was finally discovered, the valve was found to be wide open. Not long after this incident, the order for the new $15,000 boiler was canceled.

Proper feed water treatment is, therefore, a potent factor in the attainment of low fuel, labor and power costs, a necessary consideration in maintaining continuous and reliable plant production, and a valuable asset in decreasing maintenance costs and in increasing the life of the equipment in the boiler house of the industrial power plant. If an intelligent analysis of the plant conditions indicates the need for one of the systems described, the proper handling of such an installation will return dividends that are really worth while in the matter of reducing costs in the power department.

* * *

Increase Dividend Rate

Directors of the Standard Paper Company at Kalamazoo, Mich., at the annual meeting during the week voted to increase the dividend rate from 6 to 8 per cent and to make the amounts payable quarterly. Bartlett C. Dickinson was re-elected president. The other officers are: Vice president, James H. Dewing; secretary-treasurer, Alexander Clark; general manager, John F. Byrne; directors, the above and A. E. Dunwell, J. A. Wheeler, H. S Humphrey and Clare H. Sterns.

New York Trade Notes

Joseph Reichlen, formerly representative in Philadelphia for the McLaurin-Jones Company, manufacturers of fancy and non-curl gummed papers of Brookfield, Mass., is now associated with Mead, Patton & Company, Inc., importers of and dealers in wood pulp at 342 Madison Avenue, New York. Mr. Reichlen is on the sales staff of the latter concern.

* * *

Daniel M. Hicks, Inc., importers of and dealers in papermakers' supplies, announce their removal from Room 606 to Rooms 809 and 811 of the Fifth Avenue Building, 200 Fifth Avenue, New York, where much larger quarters are provided. The concern's telephone numbers are Gramercy 2437-2438 and 2439.

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The United Paper Mill Supply Company, Inc., packers of paper mill supplies of Philadelphia, has opened a branch office at 154 Nassau Street, New York, Room 624.

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The Waste Merchants Association of New York, whose membership includes all of the paper stock dealers and packers in Greater New York, and whose annual dinner is one of the events of Paper Manufacturers' Week in New York each April, has selected Wednesday, April 9, as the date for its yearly banquet this year. The dinner will be given as usual in the Hotel Commodore, and will be followed by a high-class vaudeville entertainment by an array of talented performers. Walter R. Martens, of George W. Millar & Company, Inc., 284 Lafayette Street, New York, is chairman of the dinner committee.

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The Continental Paper and Bag Mills, Inc., announce that they will remove their offices during the latter part of this month from 16 East Fortieth Street to the Pershing Square Building, 100 West Forty-second Street, New York. The International Paper Company, which controls the Continental by majority stock ownership, moved to the latter address last year.

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A petition in bankruptcy has been filed against the United States Paper Manufacturing Corporation, of 17 East Forty-second Street, New York, by the following creditors: State Bank, creditor for $5,000: Bulkley, Dunton & Company, $10,000, and S. D. Leidesdorf & Company, $200. Judge Winslow appointed Charles A. Marshall receiver under $10,000 bond. No statement was issued concerning the concern's liabilities and assets.

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The New York Division of the Salesmen's Association of the Paper Industry has decided to give a special executive luncheon on Wednesday, February 20, which will take the place of the usual Monday luncheon for that week. Members from all parts of the country are invited. Vice President R. D. W. Ewing for the New York Division has named the following committee to make arrangements for the annual convention on April 8, 1924, in New York: F. N. Countiss, chairman; R. K. Baker, E. C. Chadwick, G. A. Keeney, Jr., E. G. Lloyd, W. F. Heath, Chester M. Robbins, J. W. Quimby and G. M. Wetmore. Mr. Ewing and J. L. Fearing are ex-officio members of the committee. In addition the following were named on the committee from other divisions: George K. Gibson, Chicago; F. W. Main, New England; Robert T. Houk, Jr., Ohio, and D. H. Ross, Kalamazoo.

New Developments in Canadian Fuels

Here Are Facts on the Fuel Problem That Will Interest Every One Connected With the Industry

By B. F. HAANEL,

Mines Branch, Department of the Interior, Ottawa

This paper, read before the Technical Section, Canadian Pulp and Paper Association, Montreal, January 23-24, was in response to numerous inquiries during the year regarding additional news on the fuel question. Mr. Haanel knows the fuel question in Canada, as well as in other countries, and what he says is engrossing to everybody.—The Editor.

THE serious fuel shortages which occurred in 1918 and again in 1922 served to direct public attention to the unfortunate position occupied by the central provinces of the Dominion regarding an assured supply of coal suitable for domestic purposes, and to point out the necessity for rendering this area less dependent or altogether independent.

The realization of the gravity of the situation which would exist if foreign exports of coal were entirely cut off, led to the appointment of Parliamentary Fuel Committees and the Dominion Fuel Board. The latter was empowered by Order-in-Council to conduct investigations with a view to finding a solution or solutions of the existing fuel problem. The Dominion Fuel Board has now been functioning for very nearly a year and has underway several important investigations which it is likely will result in the improvement of the fuel situation in central Canada. But, while this body has been able to indicate possible partial solutions of the problem, it has been unable as yet to show how this portion of Canada can be rendered wholly independent of imported coals.

"The Acute Fuel Area"

As has been frequently stated in various papers and reports, which have been prepared by the Dominion Fuel Board, the only section of the Dominion which really would suffer acutely, if imported coals were altogether cut off, is that comprising the provinces of Ontario and Quebec, and this section has been aptly termed "The Acute Fuel Area." It is with the exception of Quebec, almost wholly dependent on the United States or other foreign sources for its fuel supply, not only for domestic, but also for industrial purposes, and it is, therefore, chiefly with this area that the Dominion Fuel Board, and the principal investigations which it has undertaken is concerned.

The fuel shortage which occurred in 1918 also had the effect of inducing the Federal Government, in association with the governments of Saskatchewan and Manitoba, to create the Lignite Utilization Board, and in association with the government of Ontario to create a Joint Peat Committee for the purpose of conducting special investigations relating to the conversion of the lower grade fuels, lignite and peat, into a product suitable for domestic purposes. The Peat Committee recently completed its work and has issued a favorable interim report.

The subject of this paper "Recent Developments in the Use of Canadian Fuels" rather limits the writer regarding information concerning fuels which might be placed before the Association. Such a title would be very appropriate for a paper on fuels written for a European or United States Technical association, since the larger amount of fuel research work is naturally carried on in those countries which are densely populated and highly industrialized. The necessity for utilizing fuels in the most efficient manner in such countries is manifest, but in a country like Canada, which covers a wide stretch of territory and which comparatively speaking, is sparsely populated, and yet at the same time possesses enormous quantities of fuel, the necessity for practising the most efficient methods is not so apparent.

This applies to Canada as a whole, but unfortunately, the most thickly populated portion of Canada, and at the same time the most highly industrialized, lies within the "Acute Fuel Area" and in this area a real need for the introduction of efficient methods for the utilization of fuels and the practice of rigid economies actually exists.

The dependence of this area on foreign sources of fuel is not so apparent in connection with industrial fuels as it is with fuels for domestic purposes, since the fuel almost wholly used for the latter is American anthracite, and the price of this coal is steadily advancing, its quality deteriorating and its annual production scarcely keeping pace with the demand, and moreover, its export may at any time be entirely cut off. This is not the case with the industrial fuels, such as, cooking coals, gas coals and steam raising coals. These can be obtained in large quantities from the United States and at comparatively low prices. Moreover, the absence of supplies of native industrial coals in Ontario and Quebec is mitigated to a large extent —so far as power requirements is concerned—by the large hydro-electric developments which now makes possible the delivery of large quantities of energy equivalent on a heat unit basis to several million tons of coal.

The Continuous Supply

The problem, therefore, narrows down practically to that of assuring a continuous supply of fuels for domestic purposes, and it is in this connection that the more important research work has been conducted with a view to devising processes for converting the lower grade fuels into a product suitable for domestic purposes, and also convert the higher grade bituminous coals into an acceptable domestic fuel.

Recent developments in the use of fuels which will be discussed, pertain to the manufacture or preparation of coals—in their raw state unsuitable for domestic purposes—into a satisfactory product and the substitution of Canadian coals for industrial and domestic purposes. They may be enumerated as follows::

1—The elimination of anthracite coal, and to a certain extent American bituminous coal, in Manitoba, by the capture of this market by Alberta coal operators.

2—The regaining by Nova Scotia coal operators of the pre-war St. Lawrence market.

3—The successful development of machinery for manufacturing peat fuel according to the Air-dried-machine-peat process.

4—The proposed introduction of pulverized fuel in a central heating plant at Winnipeg and in a power plant in Ontario.

5—The development of a process for converting low grade Saskatchewan lignites into a high grade domestic fuel, by means of carbonizing and briquetting.

6—The erection at Walkersville of a plant by Henry Ford for treating bituminous coal according to a new and novel low temperature carbonization process.

7—The introduction of by-product as a domestic fuel in place of anthractie.

1—Prior to the war, and for a few years thereafter, the province of Manitoba used imported anthracite almost exclusively for domestic purposes and imported bituminous coal for industrial purposes. The efforts made by Alberta coal operators to introduce Alberta coals into Manitoba for domestic purposes especially have met with complete success. Manitoba today imports but a very small portion of her total domestic fuel requirements from the United States, and it appears that Alberta bituminous coals are also being successfully introduced for industrial purposes. The coals which Alberta supplies to Manitoba for domestic purposes are the high grade lignites found in the Drumheller and Lethbridge districts. These lignites when shipped have a moisture content of approximately 10 or 15 per cent and a comparatively low ash content and a heating value in the vicinity of 10,500 B.T.U. per pound. The deterioration of the coal is not excessive in transit when the haul is short, but for long hauls it is advisable to ship the coal in box cars.

The High Cost of Hauling

Efforts to introduce Alberta coal for domestic purposes into the province of Ontario, have not met with success on account of the high cost of hauling from mine to destination. The greatly reduced special rate in train load lots which the President of the Canadian National Railways granted for a few months in the year for the transportation of these lignite coals did not in the first year of its operation result in the development of a large amount of business. So as yet Alberta coal does not play an important role in the solution of the fuel problem of the "Acute Fuel Area." Efforts are still being made to create a market for these coals in Ontario and no doubt the special rate will be repeated for limited periods during each year. Time alone will disclose the success or failure of such efforts.

Lignitic coals suitable for domestic purposes, must undergo a very thorough screening at the mines before loading onto cars, in order to reduce to a minimum, the quantity of fines. This naturally entails a large wastage at the mines, since these fines are of little use for industrial purposes and are certainly not suitable for domestic purposes in that state. In order to convert the fines into a domestic fuel, briquetting would have to be resorted to and successful briquetting could not be accomplished without first submitting the fuel to heat treatment. The cost of manufacturing in relation to selling price and the limited quantity of briquettes for which a market could be found would not warrant such processing of the mine screenings.

2.—Regarding the re-gaining of the St.

Lawrence pre-war market, which during the war was partially lost, is sufficient to say that the province of Quebec, at least, is able to absorb a large quantity of the coal which can be annually mined in Nova Scotia, but the quantity which is mined in Nova Scotia and which can be mined with the present equipment is limited, and even though the Nova Scotia mines increase the production to the highest level which was attained before the war, it is questionable whether the quantity of fuel thus mined would supply the requirements of Nova Scotia and those of Quebec.

In the near future, we shall probably witness the production of coal in Nova Scotia on a much larger scale and the shipment of this coal to Quebec and certain points in Ontario, which can be economically served by water transportation, or those points which are not too far distant, by rail, from the mines. It is, however, scarcely probable that Ontario can ever depend to a very large extent on Nova Scotia bituminous coal for industrial and domestic requirements.

3.—The successful development of machinery for manufacturing peat according to the Air-dried-machine-peat process, which is the result of the investigation conducted during the past five years, by the Joint Peat Committee, appointed by the Federal Government and the Government of the Province of Ontario, makes available the large fuel resources now lying dormant in the many peat bogs which are strategetically situated throughout the more inhabited portions of these two provinces.

Facts About Peat

Peat manufactured according to the Air-dried-machine-peat process produces a fuel which is entirely satisfactory and very desirable for domestic purposes. This fuel can be used to great advantage and more efficiently than the higher grade coals, such as anthracite or even metallurgical coke, in the early spring and late fall in hot air furnaces, hot water furnaces, and during the entire year, in kitchen ranges and fire places. In the course of this investigation the Peat Committee through the employment of a new type of pulverizer, namely, a swing hammermill shredder, succeeded in materially increasing the apparent density of the peat blocks, and this has had a very beneficial effect on the burning qualities of the fuel. The cost of loading on car one ton of fuel produced by a manufacturing unit of a capacity of 20,000 tons of peat per season of 100 days, operating 20 hours a day, was determined by the Peat Committee to be $3.50 including all expenses, and the peat manufactured in the course of the investigation, which amounted to several thousand tons, was sold at $5.00 per ton f. o. b. cars.

A company has been formed and has taken over the plant on the bog at Alfred, Ontario, which was operated by the Peat Committee, and this company will remodel the plant according to the recommendations, which the Peat Committee considered to be essential for conducting commercial operations. The fuel produced by the company at the Alfred plant will practically all be sold for domestic purposes, and the writer has been informed will be available for next season's requirements. However, a much wider field will be opened up for the utilization of peat fuel for industrial purposes when the manufacture of the fuel has been well established and large quantities are available.

The chemical analysis of the various samples of peat representative of the bogs in the provinces of Ontario and Quebec so far investigated by the Federal Department of Mines show that the average nitrogen content is very high—about 2 per cent of the absolutely dry peat. This should be kept in mind when the utilization of peat for the production of power either through the media of a steam generator and steam engine or a gas producer and gas engine is considered. If it is desired to generate power, the most efficient method to employ is that which makes possible the maximum recovery of the nitrogen in the form of ammonia or ammonia compounds. When peat is gasified in a Mond by-product recovery producer, the nitrogen content of the fuel is largely recovered in the form of ammonia and this in turn is converted into ammonium sulphate, a valuable fertilizer for which the demand is considerable. When peat is burned in a producer of this type, approximately 75 per cent of its nitrogen content is recovered as ammonium sulphate, and, when the credits for the sale of this are allowed for, the power gas generated can be disposed of very cheaply. It is not probable that the demand for peat as a fuel for steam raising will ever assume any importance, it is too valuable a fuel for other purposes.

4.—The utilization of solid fuels in the powdered form for metallurgical and industrial purposes in general is gaining great importance, especially in the United States where large power plants are now in operation burning fuel in the powdered form. The advantages of using fuel in the powdered form are:

1.—Complete combustion.

2.—Possibility of using coals high in ash.

3.—Possibility of using the lower grade fuels such as lignite and peat to greater advantage than when they are burned in the solid form according to conventional methods.

4.—Decrease in labor cost due to a reduction in the number of firemen required.

5.—Ease of regulation to suit working conditions.

Improvements are continually being made in the methods and apparatus for burning powdered coal and this system is now said to be very nearly as simple and easy to operate as the mechanical stokers so largely employed for burning coal in large steam plants.

A very large field appears to exist for the generation of steam by burning coal in the powdered state in the prairie provinces where the only fuels met with are lignites, some, for example those of Saskatchewan, being of low grade. When the demand for power becomes of sufficient magnitude in that portion of Canada, it may be found that these lignites can be most efficiently used in the powdered state without any expensive preliminary treatment, such as artificial drying and pulverizing to the degree of fineness which is found necessary with bituminous coal.

But a much more important field for the application of powdered fuel appears to the writer to exist in the generation of steam on the locomotives of the transcontinental railways traversing the prairie provinces where the burning of lignite coals is now prohibited during the summer season on account of the fire hazard caused by the emission of dangerous sparks when lignite coal is burned in the ordinary manner on grates. The writer has been informed that locomotives for burning in the powdered state the low grade coal of Brazil are in successful operation on the railways in Brazil. If the low grade coals of the Western provinces can be burned in locomotives in a similar manner, the quantity of fuels now imported from the United States for railway purposes can be materially reduced and moreover, the power developed in locomotives considerably increased. An investigation to determine the feasibility of utilizing fuels in the powdered form on locomotives, the writer believes will disclose great possibilities.

5.—The carbonization and briquetting of the low grade lignites of Saskatchewan with a view to producing a domestic fuel to displace anthracite coal in Manitoba and portions of Southern Saskatchewan, it was believed would open up large fields for the exploitation of the low grade coals of Saskatchewan and those of Southern Manitoba, and eventually displace the anthracite coal annually imported for domestic purposes in Manitoba and portions of Saskatchewan. At the time the investigation was begun by the Lignite Utilization Board to develop a process for carbonizing and briquetting the Saskatchewan lignites, a real need existed for finding a satisfactory substitute for anthracite coal which was continually increasing in cost to the consumer, but as stated above, before the investigation was completed and it is not completed yet, the domestic fuel market of Manitoba was captured by the coal operators of Alberta. So the field which now exists for the application of a successful method of carbonizing and briquetting lignites is uncertain. In connection with the process developed by the Lignite Utilization Board and the one which that Board is now employing, namely, the Hood-Odell Carbonizer, it is of interest to note that the by-products recovered are of small importance and do not have a bearing on the cost of the finished fuel.

6.—The process above described may be termed a low temperature carbonization process. This and the process devised by Pirron and Caracristi are the only two low temperature carbonization processes which have been attempted in Canada. The latter is being installed at Walkerville, Ontario, at the Ford plant, and will, the writer has been informed, be put in operation in the near future. Large quantities of bituminous coal will be carbonized daily at this plant for the main purpose of recovering tar oils and other by-products. The carbonized residue will be used in the powdered form for generating steam.

The most important claim made for the Pirron-Caracristi process is that very large quantities of tar oils can be recovered and that with it high volatile coals will prove a valuable source of oil which can be refined for motor and other purposes. In brief, the Pirron-Caracristi process consists in carbonizing coal in a more or less finely divided condition on a moving table which floats on a bath or molten lead. The temperature at which carbonization takes place is, therefore, uniform and easily controlled. It is also claimed that the time of carbonization is reduced to a minimum.

In connection with low temperature carbonization it may be interesting to note that a car load of peat fuel, manufactured by the Peat Committee at Alfred, was sent to the Longford plant of the Standard Chemical Company, to determine whether peat could be successfully carbonized in retorts specially designed for distilling hardwood. The results of the test, conducted there, demonstrated that peat was an excellent fuel for that purpose, that the by-products obtained were satisfactory, with the exception, principally, of alcohol which was of lesser quantity, and that the larger quantity and high quality of the peat charcoal produced almost offset the decrease in the quantities of alcohol, acetic acid, etc. The conclusion arrived at was, that when hardwood becomes too scarce for distilling in this manner, peat will be in demand as a substitute.

7.—The processes most generally employed throughout the entire civilized world for carbonizing coal employ high temperatures. By-product recovery coke oven in which all of the coal carbonized in the United States, Europe and Canada is coked, employs a high temperature. With this process the maximum yield of coke is produced, a large quantity of by-products and a large quantity of gas of high heating value.

With a view to finding a substitute for the anthracite annually imported into both Ontario and Quebec for domestic purposes, the Dominion Fuel Board undertook an investigation to determine the feasibility of erecting by-product recovery coke plants at strategic points in Ontario and Quebec for manufacturing a domestic fuel from Canadian fuels when and where possible, and from coals imported from the United States. With such a process not only is it possible to produce a highly satisfactory domestic fuel, but also a large quantity of gas in addition to other by-products. The gas can be successfully employed for domestic and other purposes in place of the gas now generated in gas retorts. The results of this investigation, when completed, may show that a considerable portion of the anthracite now annually imported into Ontario and Quebec can be replaced by by-product oven coke and that the gas generated in the by-product recovery plants, if erected, can be satisfactorily and profitably disposed of to existing gas companies. A ready market exists for the other by-products such as benzol, tar oils, and ammonium sulphite. When plants of this type are put in operation a fuel equal in every respect to anthracite will be available for domestic purposes at a price considerably lower than that at which anthracite is now being sold. It should be borne in mind when considering the value of coke for domestic purposes that the quality of the anthracite now annually imported is deteriorating, consequently, the heating value is lower and will become lower, whereas suitable coals for coking purposes low in ash can be procured in abundance from the United States and from Nova Scotia Collieries at a comparatively low cost.

Through the exploitation of the peat resources of Ontario and Quebec on a large scale, the establishment of by-product coke ovens at strategic points in Ontario and Quebec, and the utilization of low grade western fuels in the powdered form as a fuel for railway locomotives, a very substantial reduction may be looked for in the importation of both domestic and industrial fuels.

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EDUCATIONAL WORK BEING PUSHED

Wisconsin Pulp and Paper Industry Has Advanced by This Method

By B. T. McBain

THREE seasons ago the Nekoosa Edwards Paper Company pioneered in the work of the Wisconsin University Extension Division and started a few evening classes; but without much success. The next year they profited by what they termed their mistakes and experience with the result that of 131 men starting the work, 78% finished and received diplomas.

This year, there are classes in Chemical Pulp and Paper, also in Steam and Electricity at Port Edwards and Nekoosa and other mills are taking up the work. There are classes now at Mosinee among the employees of the Wausau Sulphate Fibre Co. and the Rothschild with Marathon Mills employees, also the Kimberly employees of the Kimberly-Clark Co. so that today there are about 300 paper mill workers taking University work through the Extension Division of the University of Wisconsin.

Each class has its own Instructor and they meet at least once each week. Assignments are prepared at Madison and forwarded in time for the meetings each week and the questions therein must be answered in writing and returned to Madison each week for checking.

Recently Marshall Graf of Wausau, Field representative of the University of Madison and Prof. Curan of Madison held a Kraft Pulp class at Port Edwards which was attended by Nekoosa workers as well.

Prof. Curran outlined the work of the year and what is to follow and evidently the 1924-25 class will be of even greater size than the ones now being held, for in 1924 the work of the paper mill will be treated in detail and many more of the workers have expressed themselves as wanting to avail themselves of the opportunity offered to better themselves in their chosen life work.

Prof. Elliott comes up from Madison to Port Edwards each week and takes charge of the steam class, which is made up of 48 Nekoosa and Port Edwards men.

The Salesman's Forum

Here's a Famous One

Everywhere that papermaking machinery is used, this cheery, inspiring face is known. He has been throughout the Eastern States and Canada and he is not only a worthy representative for his company, and a good fellow—but he sells machinery for the Cameron Machine Company of Brooklyn. At present he is convalescing rapidly after an illness of nearly two months' duration.

W. E. BLAUVELT

Mr. Blauvelt has traveled this territory for several years and is well known to the trade, particularly about the mills. His extensive experience with paper working machinery of all kinds qualifies him to advise on many of the questions which trouble the mill man. Although he enjoyed a good year in 1923, from a sales standpoint, Mr. Blauvelt is confident that once he is back in harness he will be able to do even better in 1924.

During his illness, the territory has been covered by Mr. J. B. Venturini, of the Cameron sales staff.

Look for him.

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Buy Timber Tracts

Various pulp and paper interests have purchased timber tracts in New Hampshire and Vermont during the past few weeks from Newman & Wheeler. The sales include 2,700 acres in the towns of Benton and Warren, N. H., largely spruce; 7,800 acres of hard and soft woods in Ludlow and Andover, Vt., and 5,600 acres in Washington, N. H. It is understood that immediate cutting operations will be started on these new tracts by the purchasers.

NOTHING NEW IN THE BIG MERGER

Expect $30,000,000 Bond Issue Will Finance New Proposition

THERE is nothing new in the negotiations that have been conducted with a view to the merging of the Laurentide, Belgo and St. Maurice pulp and paper companies. It is quite evident that those promoting the merger have not yet convinced the Laurentide interests that it would be to their advantage to enter. This view seems to be held by the market generally, for it is significant that Laurentide stock rose when reports got around that negotiations were off for the time being.

It is expected that if the deal goes through there will be a $30,000,000 bond issue and the syndicate handling it would probably be headed by the National City Company, which has been conducting the merger negotiations. Canadian bond houses would be asked to assist in placing the issue, but it is expected that the greater part of the money would be secured in New York. If the deal should go through, the Laurentide Company would be the most important factor. It was founded by Sir William Van Horne, an American, has total assets of $35,000,000 and its only outstanding security is $28,000,000 of common stock. Its chief benefit from the merger would be the enhancement of its timber resources through the acquisition of the unexploited limits of the other companies. The Belgo-Canadian Company was founded by Belgian capitalists. Its total assets are over $21,000,000, and its outstanding securities consist of $8,000,000 of bonds, $4,000,000 of preferred stock and $8,500,000 of common. The St. Maurice Company is the Canadian subsidiary of the Union Bag and Paper Corporation. Its only outstanding security is $9,874,000 of common stock. The St. Lawrence Paper Mills are a Canadian concern. It has a daily capacity of 160 tons of newsprint. It has issued $1,500,000 of preferred shares and $40,000 of common stock; a bond issue of $2,500,000 has been authorized but not issued.

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Hatch Ends Contract

Raymond S. Hatch, who has been general manager of the waxed and greaseproof paper plant of the Hamersley Manufacturing Company, Garfield, N. J., for the past three years, is no longer connected with that firm, his contract having expired. He has no definite plans for resuming work and is taking a well earned rest. He intends to run up to Canada for a while and do some investigating at one of the Quebec mills. Mr. Hatch was chemist at the Crocker-McElwain mills in Holyoke, Mass., before going with the Hamersley Manufacturing Company, where he succeeded W. H. Gesell.

* * *

Fred C. Clark Resigns

Fred C. Clark, formerly in charge of the Paper Section of the Bureau of Standards, Washington, D. C., but more recently identified with the Pejepscot Paper Company, Brunswick, Me., has resigned as vice president and general manager of the plant there and is looking for a new connection.

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No Longer With Hamersley

R. P. Hill, who was associated with "Ray" Hatch in the management of the waxed and greaseproof paper plant of the Hamersley Manufacturing Company at Garfield, N. J., is no longer with that firm. He is not communicative about his future movements.

New Record in News Print

Production of 2,824,000 Tons in North America Sets New Record—Nine Per Cent More Than 1922

By R. S. KELLOGG

Secretary, News Print Service Bureau

Despite Competition

The following article which is part of the report of R. S. Kellogg, Secretary of the News Print Service Bureau, made at the annual meeting of the Bureau in Montreal, Canada, Friday, January 25, presents an amazing record of achievement for the news print mills of the land.

That the mills produced nine per cent more news print paper this year than last, against all the foreign competition, and business depression, is a remarkable commentary upon this branch of the industry and the Service Bureau. Here are facts presented that should be read by every papermaker or paper dealer.—The Editor.

THE production of news print paper in North America hung up a new record in 1923, the total for the United States and Canada surpassing 218,000 tons or nearly 9 per cent the previous high mark of 2,530,000 tons in 1922.

The United States mills produced 1,485,000 tons of news print or 37,000 tons more than in 1922 and also more than any previous year except 1920 when the total was 1,512,000 tons. In 1920, however, the output of the regular news print mills in the United States was supplemented by perhaps 80,00 tons from the so-called marginal mills, which have not contributed so heavily to the news print supply since that time of abnormally high prices.

The rapid development of news print manufacture in Canada is strikingly shown by the fact that the output last year was 1,263,000 tons or 181,000 tons more than in 1922 and 455,000 tons or 56 per cent more than in 1921.

In addition to these totals for the United States and Canada, 64,000 tons of news print was produced in New foundland and 12,000 tons in the one mill in Mexico that makes news print, thus giving a production of 2,824,000 tons for the North American Continent or two-thirds of all the news print paper produced in the world.

In addition to this record-breaking production, with over 80 per cent of Canada's news print marketed in the United States, some 200,000 tons of Scandinavian, German and Finnish news print paper was sent to the publishers in Uncle Sam's domain in 1923, compared with 133,000 tons in 1922 and 135,000 tons in 1921.

As the production figures suggest, the consumption of news print paper in the United States reached a new high record in 1923. In round numbers it was 15 per cent more than in 1922 and 28 per cent more than in 1920.

Adding imports to domestic production and deducting the small amount of exports, there was 50 lbs. per capita of news print paper available for consumption in the United States in 1923 than in 1922 but still 21 per cent increase of 230 per cent in per capita consumption in 23 years explains why the United States uses more print paper than all the other countries of the world combined.

Advertising as usual was an important factor in determining the quantity of news print used in 1923, but influential also were the large sizes of the daily and Sunday issues and the growth in circulation. There are some 60 newspapers in the United States, each having a circulation in excess of 100,000 copies. During 1923 these dailies averaged 27 pages and the Sunday issues 101 pages—sizes never before attained.

There are more than 22,000 newspapers in the United States and Canada of which some 18,000 are monthlies and country weeklies while the circulation of the 2,000-odd English language dailies is approximately 31,000,000 for the week-day issues and 21,000,000 for the Sunday issues. A well-known newspaper has increased in circulation from 93,000 copies to 584,000 copies of its daily issues since 1903 and from 196,000 copies to 932,000 copies for the Sunday issues in the past 20 years, and this is by no means an isolated example of newspaper growth. There is now a copy of a daily paper published for every family in the United States and Canada. The daily newspaper habit is well-nigh universal north of the Rio Grande.

The total volume of newspaper advertising in the leading cities of the United States showed an increase in 1923 over 1922 of 7 per cent and of 2 per cent over the 1920 record figure. The newspapers fared even better than the magazines in the advertising field, since the volume of advertising in the National periodicals was 19 per cent more in 1923 than in 1922 but still 21 per cent behind the 1920 total.

The large volume of advertising, both periodical and newspaper, planned for and to be expected during 1924 is a matter of common knowledge. It looks as if the time were not far distant when the total yearly expenditure for advertising by means of the printed page in North America would be one-billion dollars.

Paper manufacturing in North America is a billion and a half dollar industry with the production of news print making up a very respectable proportion of the total investment and further notable developments under way. There were 10 new machines with a total daily capacity of 670 tons which came into production in 1923, and four more of 385 tons capacity are scheduled for this month. The North American news print mills now have a rated capacity of 10,000 tons daily with further substantial additions under way for the latter part of the year and for 1925, so that there should be no need for any newspaper publisher to go abroad for his supply of white paper.

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They Were There

At the last meeting of the Superintendents' Association, Tom Harvey, of the Gardner-Harvey Paper Co., Middletown, Ohio, spoke on "How to Make Ourselves More Valuable to the People Who Employ Us." A very good crowd was present. Among those were E. H. Gilman, Bryant Paper Co.; E. T. A. Coughlin, Allied Paper Mills; Professor Hayward, U. of M.; Alex McVie, Maiser, Joe Loughead, Western Paper Mill Supply Co.; George McGuire, Bryant Paper Co.; Jacob Parent, Western Board & Paper Co.; Herb DeYoung, Allied Mills; Albert Lindners, Allied Mills; George Pountain, Allied Mills; Alfred Bryant, Bryant Paper Co.; E. L. Mongrieg, U. S. Rubber Co.; Mr. Wilcox, U. S. Rubber Co.; Mr. Burns, Eddy Paper Corporation; Frank Johnson, Allied Mills; A. G. Whightman, Hawthorne Paper Co.; Vern Hotelling, Watervliet Paper Co.; Clarence Thorne; Watervliet Paper Co.; Mike Redmond, Kalamazoo Paper Co.; Jake Kuss, Allied Mills; Emil Yahnke, Standard Paper Co.; N. M. Brisbois, Sutherland Paper Co.; Mr. Foxglover, Clarence Harter, Rex Paper Co.; Bernard Benson, William Gray Co.; Mr. Burroughs, Harry Urich, MacSimBar Paper Co.; Mr. Aitstin, Wolverine Paper Co.; Mr. Sevard, Michigan Carton Co.; C. G. McClellain, Kalamazoo Vegetable Parchment Co.; W. A. Yule, Kenwood Felts.

* * *

Lathrop & Trotter Cincinnati Representatives

Lathrop and Trotter is the new firm name of the Cincinnati representatives of the Conveyors Corporation of America, 326 West Madison Street, Chicago, Illinois, Mr. Jay C. Lathrop having associated with himself Mr. L. E. Trotter. The offices of the firm are 733 Union Trust Bldg., Cincinnati, Ohio.

The new firm will handle the sale of American Steam Jet Ash Conveyors, American Air Tight Doors, Cast Iron Storage Tanks, and other power plant equipment in Cincinnati and the surrounding territory.

* * *

Granted a Charter

The Nipigon Corporation, Limited, has been granted an Ontario charter with power to construct and operate pulp and paper mills and to engage in the manufacture of pulp, paper, and paper products, together with lumbering operations. The authorized capital is $50,000 and Hamilton, Ont., lawyers are mentioned as the incorporators.

J. B. Dillon Says

Denver, Colo.

DEAR FOLKS:

One would have to be very much prejudiced, or awful envious if they did not admit that PAPER is improving, a la Coue. Edition after edition it shows in better condition. Congratulations.

Cordially and Sincerely yours,

J. B. DILLON.

Good Business to Protect Your Employees

The Safety First Problem in the Paper Mill Explained in a Thorough Manner

By H. F. OBERMANNS,
Hammermill Paper Company,
Erie, Pa.

A GREAT deal has been said and done under the mantle of safety work in recent years and yet in the final analysis the principal reason for getting these things done is that it is good business. It is good business to protect and safeguard the life and health of your employees, because an injured or crippled employee cannot do as efficient work as one who possesses all his limbs. A man whose attention is continuously called to the unsafe conditions and surroundings of the machinery with which he has to work, cannot do perfect work and the employee who has to take the place of an injured man has to be educated, for which large sums have to be paid until he has reached the efficiency of his predecessor. There is, of course, the human element which must not be overlooked.

I just made the statement that safety work must pay and yet there are many paper plants as well as thousands of employees in the country, who do not believe in it and who simply do a minimum amount of safety work just because the law requires it or because they find that by doing so they are able to get a somewhat cheaper insurance rate.

In our own plant we have recognized the value and importance of proper safety work and while it has to be admitted that great improvements can still be made, we feel that in paper mills at least, and the writer has seen a great many of them in this country, ours can be considered a very well-guarded plant. However, guarding pieces of mechanism is perhaps the smallest feature entering into real safety work. A guard will not offer in a great many instances, 100 per cent protection, it will not prevent accidents unless the man himself is imbued with the proper safety spirit and here again what can you expect of the man if he finds that his immediate superior looks upon safety work only as a necessary evil. The real value of safety work can only be obtained if together with proper and efficient guards, everyone in the organization from the lowest to the highest earnestly strive to eliminate accidents which are wasteful in time, money and materials to the company as well as to the employee.

It is not the object of this article to go into detail as to the type of guards recommended and I shall only take a hasty trip through the plant, dwelling on the most important factors from the safety standpoint, in each department.

WOOD YARD. Enormous quantities of wood have to be handled in the course of a year, sometimes under very unfavorable conditions. In the spring the sap of the wood has not completely dried, making the logs slippery and hard to stand on or to handle. Summer rains very often increase this difficulty and in winter the logs frozen or encrusted with ice from which the pick used in handling the wood very often slips, do not materially aid to make this job any safer. Very little can be done in this particular department in the line of safety guard and the best protection and insurance against accidents is a safe employee.

WOOD ROOM. A great deal of what has been said about the Wood Yard is also true of this department, although numerous mechanical appliances are in use in the Wood Room which unless properly guarded, are decidedly dangerous. One of the worst sources of accidents in a Wood Room are the old type disc barker, which fortunately owing to their wasteful operation, are gradually disappearing. Wherever they are used, however, they should always be used in connection with a mechanical attachment which holds and rotates the stick of wood against the barking disc. In mills making fine grades of paper it is necessary to trim and clean the logs by means of hand hatchets and here again extreme caution on the part of the operator is the only safeguard that can be offered for his protection.

ACID PLANT AND DIGESTERS of the Sulphite Mill offer numerous sources for possible injuries. The gases developed in such a plant if given in concentrated doses, are very suffocating and gas masks of the best type should be available at such location where they are readily available. Chip Bins and Blow Pits of the Digesters must be safeguarded in such a way that operators finding it necessary to conduct work in either will be promptly notified before a Digester is either filled or blown. In another part of the Sulphite Mill bleaching powder or liquid chlorine is used in fairly large quantities. This gas is much more poisonous than the sulphur-dioxide gases used in the acid plant and proper precautions have to be taken particularly where liquid gas is used. The best recommendation in this connection is to have gas masks available also water hoses wherever the possibility exists for a leak to develop.

PAPER MILL. The Paper Mill as a rule offers few hazards largely because papermakers as a rule are skilled operators who during their many years of preparation for their trade have become fully aware of the dangers connected with their occupation. A modern paper machine, however properly equipped with guards wherever possible, offers few hazards. The paper machine calender perhaps is still nipping off finger tips and no man except the operators entrusted with this particular job should be permitted to handle paper at this point. Perhaps the most dangerous part on the paper machine is the reel particularly in mills where the old type upright reel is still in use. This is positively dangerous and inasmuch as the point between reels cannot be guarded it should be eliminated. The various types of drum winders particularly those revolving in such a direction as to offer a "nip" on the operator's side also have to be operated with the utmost care.

I purposely do not mention safeguarding clutches, pulleys, shafts, set screws et cetera as these things should be taken care of in any factory whether paper mill or otherwise.

In closing I want to say a word regarding a factory organization such as a Safety Committee which can be of wonderful benefit. Such an organization should consist not only of the Superintendents and Executives of the plant (it is important that these should faithfully attend) but it should include men selected from the ranks of the operators as well. This mill committee should be changed at frequent intervals so as to give everyone a chance to serve on the Committee and in order to keep interest alive among the operators. A safety committee consisting of the executives of the plant can easily decide where guards should be put and how they ought to be made but that part of the Safety Committee consisting of the operators will see to it that the guards will stay where they are put. A Safety meeting in an industry should be considered as a meeting of first importance and you will soon learn that where safety work is considered as work of serious importance the men in the plant for whose benefit this work is largely conducted, will follow in complete harmony with this program.

Does This Strike Home?

Finding of Federal Trade Commission Reports Pacific Coast Association Violating Law

THE Federal Trade Commission has issued findings of facts and an order in the case against the Pacific States Paper Trade Association and various local associations of wholesale dealers of paper and paper products located in the Pacific Coast territory. This case was submitted to the Commission upon a signed stipulation of facts entered into by the various associations upon which oral argument was had before the Commission.

The Commission finds that these local associations and their members are engaged in fixing prices for their products in a manner that restrains, limits, and lessens competition in interstate commerce. The members of the associations named in the order are found to sell approximately 75% of the paper and paper products in the Pacific territory, exclusive of roll newspaper. The local associations named as respondents in the order are: Seattle-Tacoma Paper Trade Conference; Spokane Paper Dealers; Portland Paper Trade Association; Paper Trade Conference of San Francisco; and Los Angeles Wholesale Paper Jobbers' Association. provides that—

Eight Conclusions

Findings of the Commission contain eight conclusions of unfair practices on the part of these associations. The order to cease and desist is confined to these eight conclusions. The order provides that—

(a) The Spokane Paper Dealers discontinue fixing prices for paper in interstate commerce.

(b) The Spokane, Portland, San Francisco and Los Angeles associations and their officers and members, cease and desist from using the association price lists or other uniform price devices for soliciting or making sales in interstate commerce.

(c) All of the respondent local associations cease and desist from compiling, printing and distributing price lists which fix prices for shipments of paper in carload quantities known as "mill shipments" from one state to purchasers in another state.

(d) The Seattle-Tacoma, Spokane and Portland local associations and the Pacific States Paper Trade Association and their members, cease and desist, through the mediums of the so-called Northwest Paper Dealers or in any similar manner, from "discussing uniform terms, discounts and prices, agreeing upon prices by resolutions or otherwise, or employing any similar device, which fixes or tends to fix the prices at which paper or paper products shall be sold in interstate commerce, or which is designed to equalize or make uniform the selling prices, terms, discounts or policies of such respondent jobbers in the sale of paper or paper products in interstate commerce."

> *A MOOT SUBJECT*
>
> ***This article is an indication of how the government stands on the association question. It is the report of the Federal Trade Commission, practically in its entirety. Association cannot fix prices or appear to fix prices. That is certain. PAPER is publishing this article because it is extremely apropos to the recent ruling of Attorney General Daugherty on association work.***

(e) All of the respondent associations and their members cease and desist from conspiring or combining to hinder or prevent by intimidation, coercion or any similar means, the American Writing Paper Company or any other manufacturer from making sales of paper or paper products at any price or upon any terms such manufacturer may select.

(f) and (g) All of the respondents cease and desist from combining or conspiring in any way whatsoever to hinder or prevent any wholesaler or dealer from purchasing paper in interstate commerce directly from the manufacturer or from any one else selling or desiring to sell such product, or from seeking to hinder or prevent by intimidation or coercion, withdrawal or threatened withdrawal of patronage, any concern from buying or selling paper in interstate commerce at any price or term which may be agreed upon between the seller and purchaser.

This Was the Method

Method by which the respondent sought to control the distribution of paper in the Pacific coast territory and control prices therein was as follows:

All of the five local associations published and distributed price lists compiled by suitable committees of the respective associations. Agreements exist between the members of each local association for the maintenance of these prices within the state in which the association is located. Each association has provisions in its by-laws for the maintenance of these prices; some of these provide for a submission of reported infractions of selling regulations to the secretary for suitable action, which may consist of fines, reprimands, etc. All of the price lists contained fixed prices for carload shipments of paper under what are designated as "mill shipments," which include shipments to customers in one state from mills located in another state. While the agreements with reference to the association price lists were made for sales within the state in which the association was located, such members of the association as did business without the state habitually carried the association price list and used same in quoting prices and making sales without such state.

Each local association has a certain territory which is naturally contributory to it, and in which its members have an advantage over those of other members in the sale of their products. Wherever two associations were located in the same state, agreements were made between these associations definitely dividing the territory. These agreements also extended to the matter of prices and solicitation of business. Such division existed in the State of Washington between the Seattle-Tacoma and Spokane Associations, and in the State of California between the Los Angeles and San Francisco Associations. Further unification was brought about through regional meetings. The two associations in California met together as a California group. The three associations of Seattle-Tacoma, Spokane and Portland met as the Northwest Paper Dealers.

The associations and the members acting jointly and in concert attempted to confine the distribution of paper to what they termed legitimate channels of distribution and to induce or compel manufacturers to sell only to so called "legitimate dealers." In seeking to carry out this policy they made use of the boycott, threatened boycott and promises of increased patronage of manufacturers. The wholesalers who were designated by the respondents as legitimate were entitled to membership in the local association and the Pacific States Paper Trade Conference. The so-called "illegitimate dealers" were not admitted to membership.

In 1920, an effective boycott on the part of practically all of the respondents against the American Writing Paper Company of Massachusetts, was carried out, the effect of which compelled the American Writing Paper Company to adopt the practices demanded by the respondents. The findings state that the American Writing Paper Company shipped a large stock of paper to San Francisco and proceeded to sell it direct to the retail trade and to users of paper, and also fixed prices at which this paper was to be sold by wholesalers; the prices so fixed being lower than those established by the San Francisco local associations. All of the respondents who dealt in fine paper objected to this practice on the part of the American Company and boycotted the products of the Company. Subsequently an agreement was made with the American Company which was satisfactory to the resopndents.

* * *

AUSTRIAN PAPER POSITION PRECARIOUS

Faced By Loss of Contiguous Markets, Industry's Prospects Are Not Encouraging

SINCE the autumn of 1922 the Austrian paper industry has been in a precarious position, says Consul H. W. Helngartner in a report from Vienna, and it becomes more evident daily that it is faced by a loss of its markets in the neighboring countries. Exports to Czechoslovakia, which in spite of the developed paper industry in that country, used to purchase many special kinds of paper in Austria, have grown exceedingly difficult owing to defensive measures on the part of the Czechoslovak industry. Yugoslavia has established its own paper industry on a special basis of protectionism, and regular business with Hungary, formerly one of the most important paper markets for Austria, has become more and more intermittant by reason of difficulties connected with transactions in foreign exchange. The same difficulties and protectionist duties hamper Austria in other eastern states, and the drop of the Polish mark has undermined business in that quarter. The economic catastrophe in Germany has also closed the German market and furthermore flooded the Austrian, as well as other markets, with cheap German products.

The prospects of the Austrian paper industry are therefore far from satisfactory, and it seems evident that a slack market must be counted upon for some time to come. Recent trade treaties with Italy and France have revived trade with those countries, but it is not of sufficient volume to offset the losses in other neighboring countries. In order to find a market for its surplus production the Austrian paper industry has been obliged to turn to overseas markets.

* * *

Taking Trip in U. S.

Michael Herb, vice president of the Westminster Paper mills of New West Minister, British Columbia, has been spending a few days in Appleton, Wis., on business. Mr. Herb is representing the company on an extensive business trip through the United States and Canada. He made the trip to this part of Wisconsin partly to see his mother, who lives at the home of the Rev. Paul Herb, at Stockbridge.

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

W. D. TOLAND

Kalamazoo Vegetable
Parchment Co.,
1915 West Main Street,
Kalamazoo, Mich.

J. K. and the K. K. K.'S

Jacob Kindleberger says the five o'clock whistle is merely a signal to quit working with the hands and begin with the head.

Not so very long ago, a few minutes after five p. m., as he planned his evening sermon, Boom! went all the guns of Parchment Town right out on his front lawn.

"Now what have I done to the K. K. K.'s?" he exclaimed, getting greatly excited. "While I don't usually have much to say when I'm out, I must surely have let something slip and now they are getting even with me."

Beating the family to the front door, there was the whole klan, hundreds strong, with flaming red torches and all.

"Every bad deed I ever did since rag-picking days in Ohio," said Jacob, "came into my consciousness that moment."

"Come out and show yourself!" commanded a voice from the crowd. J. K. recognized his friends. His fears subsided and he accepted a proffered ride to the Community House surprise party on himself.

As he and his good wife climbed into the waiting auto, with its gay parchment trimmings, J. K. admitted: "Well, boys you had me scared—that's one on me."

Link-Belt Company Reduces Prices

"Production," is it is generally applied, is a wonderful thing, It is a "by-product" of machines—a consequence of the multitude of inventions that have come forward during the past forty or fifty years.

A concrete instance of what production can mean in the matter of selling price comes from the Philadelphia plant of the Link-Belt Company, where the "Cub" portable loader has been placed on a production basis and where, as a result, an initial reduction in price of over 16 per cent was made.

Now, with the popularity of the machine thoroughly proved, the Link-Belt Company still further reduces the price of this portable belt conveyor, equipped with a two or three phase, 60 cycle motor and fitted with the underneath raising and lowering mechanism to $485.00.

* * *

Make Greater Production

The Monarch Division of the Allied Paper Paper Mills are changing their cutters around in their finishing room, in order to make greater production possible. Also, in the coating division, they have torn out all their old coating machines, five in number, and are using this place for sorting. They have moved two cutters and one trimmer into this room, known as the old coating room, and are casing their paper here.

CANADA FEELS EFFECTS OF FLOODING

Angus McLean Tells His Opinion of the Year and What It Will Bring

CANADIAN manufacturers of pulp and paper are feeling the effects of the flooding of the United States market by Scandinavian pulp and paper with the accompanying low prices. Angus McLean, president of the Bathurst Company, controlling pulp and paper mills at Bathurst, N. B., a concern that is controlled by United States capital speaks thusly on this question:

"There are very large supplies of foreign pulp coming from Scandinavian countries, and this pulp is being sold at ridiculously low prices so that the Canadian manufacturers of pulp today are really manufacturing and selling their product under cost, in trying to meet this foreign competition. If this thing continues there is no future whatever for the pulp business and conditions for this year will look anything but hopeful. There is only one thing that may alter the position and that is if the United States continues to boom and our friends in the Scandinavian countries make up their minds that they cannot continue selling their pulp at the ruinous prices that have prevailed for the past year.

"The only remedy for us as producers is to inaugurate so efficient an organization that we can cut down our cost of production. But this can only be done by a general lowering of costs all around. This would include wages, and other expenses such as taxes and compensation. These must be reduced to the very lowest basis. My slogan for 1924 would be 'efficiency, and more efficiency and still more efficiency.' We cannot emphasize this too much. We must have a material lowering of costs of production in order that we can sell our products and meet this competition, and still make a profit. At today's cost of production it is not possible to do this. The cost of this winter's cutting and logging will be heavier than that of last winter."

The Bathurst Company is one of the most important pulp and paper manufacturing concerns in eastern Canada. Majority control of the board of directors is with United States pulp and paper men, most of the eastern and New England states being represented on the directorate. The company owns vast tracts of pulpwood lands, and has built tidewater docks, and a hydro-electric development station on the Nepisiguit River, this power service to operate the company's plants.

* * *

Pine Seedlings Grow Rapidly

Southern pine seedlings require an oversized bed in the nurseries of the Great Southern Lumber Company at Bogalusa, La., where the Southern Forest Experiment Station of the U. S. Department of Agriculture has for some time been permitted to carry on investigations in nursery practice and reforestation.

Because of the large size obtained by the southern pine seedlings in a year's time, the sides of the frames around the beds have been made from 12 to 14 inches deep, as contrasted with the 4-inch frames used in most other localities.

* * *

Taking Risks

The city editor was looking over the new reporter's manuscript.

"I notice," he said, "you use the phrase 'puzzled to death.' I should like to have you tell me how a man can be puzzled to death."

"Well, he might be 'riddled with bullets,'" answered the new reporter.

That nearly cost him his job, but his youth—and his good record up to that time—saved him.—*Chicago Tribune.*

PAPER PRODUCTS

Conducted by J. E. Willert

FIBOPAK IS MAKING NEW CONTAINER

Chance Part of Surplus Box Board May Be Used

THE situation created by the surplus mill production of the box board, which is now estimated as high as 30%, will be much remedied by the successful manufacture and distribution of new products, in the opinion of leaders of the industry.

The line of the Fibopak Company, 400 N. Michigan Ave., Chicago, represents an encouraging movement in this direction. The Fibopak container is a seamless, waterproof box, or basket, made of paper board. It is a laminated structure composed of several blanks, which are folded into shape, placed together with adhesive between the layers, and compressed into finished form under great pressure. The walls and botton are integral and the material and strength to resist stresses are proportioned in conformity with the structural design. For most purposes they are waterproofed after completion by impregnation with paraffin wax.

According to the wish of the purchaser, the covers are either sealed directly to the side walls of the box, or are held in place by wire fasteners which permit of field closing of baskets, accommodation to "bulge" pack, and ready examination of contents without destruction of covers or fasteners. This latter feature is a very valuable one in connection with the shipment of products which require inspection upon arrival at destination.

In the shipment of fruits and vegetables the Fibopak container undoubtedly has its greatest field for usefulness. This is true not only with respect to the shipment of these products from farm and orchard to point of consumption, but also in connection with their deposition in cold storage warehouses. In addition, the container can be successfully used for the shipment and storage of plants, fresh fish, meats, candy, hardware and many other products. Also, it can fill miscellaneous needs such as display and delivery baskets for stores and carrying baskets for use in factories.

The Fibopak container, of course, will have to compete with the old style wooden containers in all these fields. It cannot be produced for less than the wooden containers, in most cases, however, the other advantages are such that in the long run, through increased sales, better prices and less breakage, it really comes at a lower price. Fibopak is lighter, and therefore the freight charges are less. It is easier to handle in the field, since there is no nailing. It is easier to load, transfer and stack, which means a saving of money in warehouse charges. It protects contents much better in storage, since it is possible to stack the containers much higher without crushing bottom layers. It protects contents better in transit. (This has been proven by nation-wide tests on long hauls and many transfers with various commodities.) It lends a better appearance to the product in the retail market, making it possible to get better prices.

The Fibopak Company is a Delaware corporation with 100,000 shares of no par value common stock. The company started its operations January 1st under a license agreement with the patentees giving it the exclusive right to manufacture and sell the Fibopak packages covered by these patents.

Julian Armstrong, well known to the paper mill and supply trade for many years, has entered into a contract with the Fibopak Company to sell its 100,000 shares of stock, and it is understood that much of this stock has already been subscribed by paper board manufacturing interests. The outlook for the success of the company is most encouraging, according to Mr. Armstrong, and in this view he is supported by all of the paper board manufacturers who have gone into the merits of the proposition.

Twiller Sales Talks

When the arugment starts the sale begins. Be an argument beater, that's what a salesman is for.

An order-taker is just a camp follower. Be the pioneer and build a business.

Help your customer by knowing his customers' wants.

Don't be a confidence man, be a confident man. It makes sales.

Success consists of cleanly finishing your job. So make your sales clean.

* * *

A Step Forward

The present prosperity of the United States Steel Corporation revealed in their report for the last three months of 1923, showing an earning of nearly $50,000,000, indicates a step toward a general improvement in trade and finance.

This coupled with the reduction of taxes, which seems now certain to take place, along with the possibility of the reduction affecting the year 1923, will certainly be beneficial to the consumption of paper products, as the large amount of this business comes from the source which will be most affected by reduction of taxes.

* * *

Production Increased

The production of the Rex Paper Company at Kalamazoo, Mich., was increased by twenty per cent, according to the annual report just announced by the secretary. The machine was speeded up and a Stickless system for the automatic control of drying was installed. This necessitated speeding up of the beaters and an extension in the power plant. Both the paper mill and the coating mill are operating at full time. All officers and directors were re-elected as follows:

President, Merrill B. King; vice president, Clarence Bradford; secretary, Harry C. Bradford; treasurer, R. V. McCulfor; directors, all the officers and Helen R. King, Kalamazoo; H. H. Creamer, Minneapolis; and W. G. Irwin, Columbus, Ind.

MAKING TOYS OF FIBER NOW

New Outlet for Pulp is Found by Pine Tree Company

MANUFACTURE of fibre toys at South Gardiner, Me., is rapidly becoming an important industry and furnishes a valued outlet for a part of the pulp of the Pine Tree Pulp Company which started business in that city two years ago. Dolls, teddy bears, rabbits and similar articles are being turned out in quantities and are largely used in supplying the demand for carnival toys.

The concern obtains sufficient pulpwood on the Kennebec River to supply it for at least ten years, all contracts subject to renewal assuring a supply of 6,000 cords of pulpwood per annum and this supply is augmented by supplies picked up on the river from other sources. Business is steady, and because it receives its power from the Central Maine Power Company, it is not dependent upon water power.

By shipment from docks alongside plants, goods are laid down for New England customers at $6 as against $10 to $15 from Canadian mills.

* * *

Collins Buys Firm

The Union Cordage & Paper Co., 312-14 South Eighth Street, St. Louis, Mo., has been purchased outright by Joseph P. Collins, who has for years been a Department Manager of the Graham Paper Co. Associated with Mr. Collins, and part owner is H. J. Collins, who was also connected with Graham Paper Company for several years, in the capacity of salesman for their Kansas City branch house.

The experience and training that both owners have had in the paper jobbing business brings to this concern a most valuable asset.

Joseph P. Collins is a brother and H. J. Collins the eldest son of Martin J. Collins, Vice President of the Graham Paper Company, who has been connected with this concern for forty years.

They will handle Toilet Paper, Towels, Wrapping Paper, Bags, Twine and Paper Specialties.

* * *

New Kraft Mill

A new paper mill with a capacity of ten tons daily will start operations on May 1, at Merrill, Wis., according to present plans of the officers of the Kraft Paper Company. Buildings under construction for the new plant, which will be located at Tomahawk, are gradually nearing completion and machinery is being installed. The company owns several other paper mills in central Wisconsin.

* * *

Continental Paper to Sell Bonds Soon

Continental Paper and Bag Mills, Inc., which is controlled by International Paper Company by majority of stock ownership, is expected to do new financing by issuing $6,000,000 twenty-year first mortgage bonds to be offered in this market shortly.

This and That in Paper Products

The Paper Bag Manufacturers on January 29 announced a 10% advance on bags.

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In conversation with some of the representatives of the leading mills the feeling is apparent that because business is coming in good volume there is every reason to be optimistic about the future.

* * *

The Union Bag & Paper Co., have established a Western Sales Office in Chicago and Arthur B. Collins, formerly manager of grocery sales in their New York Office, is now manager at Chicago.

* * *

The Fonda Container Co., of Utica, New York has filed notice of an increase of capital from $75,000 to $150,000.

* * *

Mr. J. E. Schorsch, of Schorsch & Co., paper bags, New York City, is now in Florida and will return in two weeks, when Mr. H. Kurniker will go to Florida for four weeks. They report a very firm condition in the paper bag market.

* * *

A new corporation by the name of Wamsco Paper Products Co., Inc., 214 Fulton Street, New York City, Irving Wamsker, President & Treasurer, Charles Wamsker, Vice President has been formed. They will manufacture adding machine paper, index cards, etc.

* * *

The Public Service Cup Company, of Brooklyn, N. Y., report a fine demand for their Lily Cups and dishes. New sizes and packages are being added in response to a continuous demand.

* * *

Mr. Jesse Newman of the Paper Utilities Co., Inc., 220 Fifth Avenue, N. Y. City report that they are introducing new lines that are very much in demand with the Soda Dispensers.

* * *

Demand Glazed Paper

Increase in the demand for machine glazed paper is seen in the orders placed with the Beloit Iron Works of Beloit, Wisconsin, makers of paper machines for special types of machines from mills engaged in the manufacture of that commodity. New mills making this grade of paper have come into the market during the past year, and at the present time the above company is working on three such machines to be shipped to different producing regions.

Machine glazed papers are made in sulphite and sulphate, and some are made partly of sulphite and groundwood. This grade is highly finished on one side, the other side being rough finish.

Comparison Competition Cooperation

By J. E. Willert

WE live by comparison, our conclusions are reached, our judgments are formed, our decisions are made all by comparisons.

It would be impossible to know whether a thing was small unless you had something big to compare with it, whether you were moving fast unless there was something slow or permanently fixed to decide by, whether a quality was fine unless there was a coarse quality to judge by, or to reach a conclusion in the reverse.

Beauty is created by ugliness, joy by sorrow, brightness by dullness and so on all through the gamut of life's movements.

Drab would be existence were it not that changes were continually happening, ambitions were incited, uplifting of thought and grasping for better things daily taking place.

This urge for betterment caused competition, the passion which makes one endeavor to outstrip and go beyond his fellow.

The whole fabric of business is saturated with competition caused by comparison of quality, of service and of attractiveness.

Applying the test of comparison to the commodities offered for sale, the buying public compel a competition of quality, service and attractiveness among manufacturers and storekeepers.

Manufacturers wrap around their product every incentive within their power to induce the storekeeper to purchase from them. Storekeepers recognizing the comparisons made by the public compete in the privileges of comfort and ease in shopping that they offer.

Proper comparison brings about healthy competition.

There is, however, a malignant condition fastened in our industrial body, it is hidden and subtle, it resorts to the camouflaging of quality by seeming attractiveness, it studies to mislead by deceitful representations of service, trusting to the forgetfulness of the people to enable it to come again. Lacking responsibility it is without fear, vagrant in its movements it has no necessity of stability—a derelict full of danger.

Cooperation is the policeman that will remove this bandit of business. Stability linked with responsibility compelling fair representation, inviting just comparison and equitable competition will completely outlaw and imprison crooked dealing.

Large industries have joined hands in associations, cooperating for the elimination of unfair methods in dealing, the improvement of qualities and service, the inspiration of confidence and the establishment of a fine dignity.

It was said in the olden day, "No one of us lives to himself." This is an undeniable truth. The hermit life is contradictory and degenerating, this is true both in individual and business life.

The influence that goes out from an individual, fraternity, business firm or corporation is either for good or evil. It creates a positive condition that has to be met by a counteracting condition and the evil or the good will win according to which is the most powerful.

Cooperation is the harmonizing and synchronizing of the separate influences that go out so they will develop into a community of interest that will bring a positive good to all.

A fair comparison engendering a healthy competition governed by a fine cooperation causes an unlimited growth to any industry.

RECALL CLOSING ORDER WHEN POSTED

Nashwaak Pulp and Paper Company Will Keep on Operating Full Time

ALTHOUGH a notice was posted in the pulp mill of the Nashwaak Pulp and Paper Company, a subsidiary company of the Oxford Paper Company, that the mill would operate four days weekly, the order was suddenly cancelled. Several large orders were received, that will keep the mill operating on full time for at least another month. This mill was shut down for three months, during the spring and part of the summer, and during the idle period repairs were made to much of the equipment. The pulp and paper mills of the eastern Canada district seem to be bearing up under the slump better than the mills of Maine and northern New England. In a number of northern New England mills, operation on a part time basis have been in effect for several months, and indications are for a continuance of the part time operation for another month at least, in some instances.

All of the eastern Canadian mills are operating on full time, although it has been reported at divers times that some of the mills would be placed on part time. No shutdowns are anticipated. The smaller pulp mills seem to be prospering, there apparently being a ready market despite the influx of Scandinavian pulp. Indications are that a movement by concerted effort in coping with the foreign competition will be started in the very near future. The ball has been started rolling and the first step will be to secure a reduction in cost of production. This will mean a cut in compensation taxes as a start. A general ten per cent cut in wages is also meeted by the pulp and paper executives. It is believed that the reduction of compensation taxation and the cut in wages, would assist materially in lowering the cost of pulp production. Otherwise it is deemed hopeless to compete with the Scandinavian pulp at the figures set by the Europeans. However, some of the executives are hoping that the Scandinavian pulp producers will crack under the strain, and increase their prices, thus allowing more equal competition, by Canadian and United States pulp manufacturers. That the cost of pulp production as well as paper production in eastern Canada is too high is the concensus of opinion, among pulp and paper men. Instead of decreasing, the cost of production has increased since the deluge of Scandinavian pulp and paper started in America.

* * *

Gets Out Booklet

An interesting booklet on hand and stoker-fired turbine blowers has been prepared by the L. J. Wing Mfg. Co., of 358 West 13th Street, New York city. This is a publication of 24 pages and will be of interest to all who have use for forced draft equipment. It contains considerable engineering data, not only on the application of these blowers to hand-fired boilers, but also goes into considerable detail in discussing the application of these blowers to underfeed and chain grate stokers, showing how they simplify stoker installation. The booklet is well illustrated throughout.

* * *

Henry Lindenmyr & Sons, paper jobbers of 32 Bleecker Street, New York, are distributing among their customers attractive and useful sample cabinets, made of polished oak and mahogany woods, and containing samples of bristols, blanks, tags and blottings. These cabinets display 33 lines of paper and board, and contain almost 300 individual samples which are indexed for quick use.

NEW DEVELOPMENTS IN PAPERMAKING

Manufacture of Corrugated Cardboard

The machine which is seen in the accompanying illustration and which is patented in French Patent No. 561,918 is for the purpose of manufacturing corrugated cardboard. This machine permits the manufacture of all sorts of corrugated papers as well as cardboard in a single operation.

Ordinarily two machines are required for this purpose, as the corrugations may be simple or double. In other words the simple corrugated paper consists of a sheet of corrugated paper which is glued to a smooth sheet, while the double corrugated paper consists of a sheet of corrugated paper glued to two smooth sheets of paper, one on either surface. One operation consists in giving the sheet of corrugated cardboard a single surface by gluing a single sheet of smooth paper on it, while a second machine is required to glue a second sheet of smooth paper on the opposite side of the corrugated sheet.

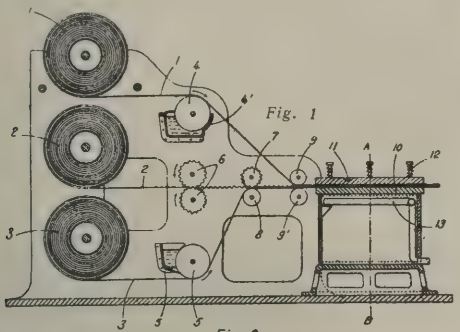


Fig. 1

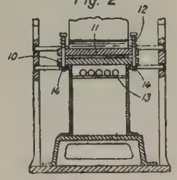


Fig. 2

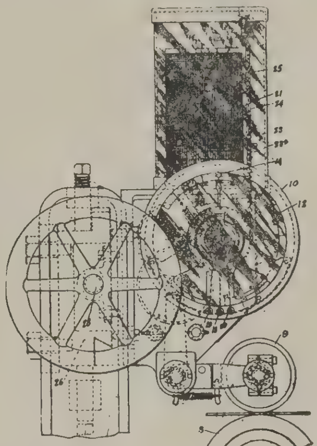
In the present invention these two operations are carried out in a single machine. The machine consists of a suitable superstructure for holding three rolls of paper, as shown at 1, 2 and 3. The paper sheet which is unrolled from roll number 1 is glued on its under side by passing over the roller 4 which turns in a glue bath 4′. In the same manner the sheet of paper which unrolls from the roll 3 is glued on its upper side by means of the roller 5 which turns in the glue bath 5′. The sheet of paper from the roll 2 passes between two channeled or grooved rollers 6 which gives it the well-known corrugated form. The three sheets of paper are then passed between the rollers 9 and 9′, then it passes over a press 10 which is heated in a suitable manner. Thus for example it may be heated by means of a row of burners as in 13.

The three separate layers of paper are pressed together on the press 10 by means of the plate 11 and the pressure is regulated at will. This can be accomplished by means of the screw bolts 12.

As can be seen from the giure it may sometimes be desirable to exert a preliminary pressure on the sheets 2 and 3 before the three sheets are pressed together to form the finished product. This is accomplished by arranging a pair of rolls 7, 2 in front of the rollers 9, 9′. Of these rollers 7 is grooved in such a manner that its grooves fit into the corrugations that have been produced by the rollers 6. The roller 8 has a smooth surface.

Paper Manufacturing Process

The machine that is seen in the accompanying figure illustrates a process of manufacturing paper which is patented in United States Patent No. 1,479,786. This process consists in delivering the raw material to the wet end of the machine in substantially the quantity required to form a paper web of predetermined thickness. The web that is formed in this manner is caused to come in contact with a metering instrument so as to actuate the same to produce indications to make a record of the mean thickness of the paper showing the plus and minus variations therefrom. In this way the thickness of the paper is automatically regulated.



Purificaton of Cellulose

The process which is patented by Dr. C. G. Schwalbe in German Patent No. 379,268 is concerned with the purification of cellulose and the change which is thereby effected in its physical properties and is an addition to a former patent, German Patent No. 369,606.

The process in the latter patent is modified in that the cellulose or half-stuff is first heated with oxidizing agents, then thoroughly washed, and heated under pressure at a temperature of approximately 100 degrees C. for an increased period with solutions of the alkaline-earth, magnesium oxids, or the like. Suitable oxidizing agents are nitric acid, nitrous acid, hypochlorous acid, permanganates, perchlorates, perborates, sodium peroxide, hydrogen peroxide, sodium hypochlorite, bleaching powder.

As an example cellulose is heated with a half a per cent solution of nitric acid to a temperature of from 30 to 40 degrees C. for a period of two hours. Then the acid is thoroughly washed out of the cellulose and the product is neutralized with excess of lime water for eight hours at a pressure of four atmospheres, as described in the main patent. The product is cooled and washed and any lime present is neutralized with acid. The treatment with the oxidizing agents alters the exterior of the cellulose not only by oxidation but also by hydrolysis, and facilitates the purifying action of the alkaline-earths.

Satin White for Coating Paper

United States Patent No. 1,470,765 describes a process for the manufacture of satin white for coating paper. A solution of alum is added to hydrated lime and the mixture is thoroughly ground in a pebble mill. Water is then added to produce a comparatively thin suspension which is allowed to settle, the excess of water being drawn off. Size, glue or the like is then added, together with some caustic soda, and the whole is reground. A satin white which is completely free from grit is obtained in this manner. If it is not to be used to coat paper immediately, the size is not added but the paste is filtered on a vacuum filter and the residue is dried. When required it is mixed with twice its weight of water, treated with size and alkali, and reground.

PRODUCTION DROPPED 7 PER CENT IN DECEMBER

However the Drop is Seasonable and Was Not Unexpected Report Says

PRODUCTION of paper by identical mills reporting to the American Paper and Pulp Association and cooperating organizations showed a drop of about 7 per cent in December from the November production, according to the monthly statistical summary of the paper and pulp industry. This drop in the last month of the year is seasonal and was smaller than anticipated.

The tonnage summary is prepared by the American Paper and Pulp Association with the cooperation of the Binders Board Manufacturers Association, Newsprint Service Bureau, Tissue Paper Manufacturers Association, Wrapping Paper Manufacturers Service Bureau and Writing Paper Manufacturers Association. The figures for December follows:

Grade	Number of Mills	Productions Net Tons	Shipments Net Tons	Stocks on Hand, End of Month Net Tons
Newsprint	66	117,790	116,826	23,669
Book	63	59,446	61,006	27,019
Paperboard	107	84,646	82,787	34,082
Wrapping	85	41,579	35,744	55,197
Bag	31	6,445	6,851	6,394
Fine	85	28,921	20,011	39,530
Tissue	46	9,022	8,270	8,829
Hanging	10	5,376	5,765	2,870
Felts	18	12,971	12,878	2,412
Other Grades	61	12,409	13,144	18,034
Total	—	370,605	363,282	218,036

The statistical table below gives the number of mills reporting to the American Paper and Pulp Association and the U. S. Pulp Producers Association, and the data as to production of the various grades pulp in December.

Grade	Number of Mills	Productions Net Tons	Shipments Net Tons	Stocks on Hand, End of Month Net Tons
Ground Wood Pulp	107	105,886	5,294	58,889
Sulphite, News Grade ..	39	37,248	2,947	18,170
Sulphite, Bleached ...	17	16,522	2,372	3,658
Sulphite, Easy Bleaching	5	3,009	441	811
Sulphite, Mitscherlich ..	6	4,876	444	1,333
Sulphate Pulp	12	11,333	1,681	7,305
Soda Pulp	11	11,164	3,318	2,275
Other than Wood Pulp .	2	110	58	186
Total all Grades	—	190,148	16,555	92,627

* * *

Manufacture of Compound Paper Sheet

A non-splitting duplex of compound paper, which, when coated on one side only, as in the manufacture of art paper, etc., does not curl, even after immersion in water and re-drying, is made by uniting, by means of a water-insoluble adhesive, such as tanned or formalized gelatin, or rubber solution, a newly-formed wet web of sized or unsized paper with a sized or unsized sheet which has been dried and finished in the usual manner. The two webs, after interposition of the adhesive, are superimposed and passed through the ordinary wet presses or through a special press before or between the drying cylinders, depending largely on the character of the coating composition which is to be applied subsequently.

For example, the greater the tendency of the coated paper to curl, the higher should be the moisture content of the wet web when the compound sheet is formed. If desired, the adhesive, for example, gelatine solution, may be applied to and allowed to dry on one side of the dry web, so that the compound sheet is cemented together during its passage over the drying cylinders.

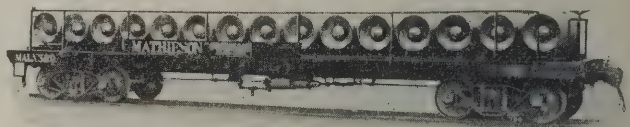
In a modification of the process two finished dry webs, both fully sized or of different degrees of sizing, may be united together by a waterproof adhesive to give a non-splitting duplex paper or one of the sheets may be moistened with more or less water before being stuck to the dry sheet to produce a paper which will not curl when subsequently coated. In all cases the compound paper may be after-sized if necessary, and when coated the composition should be applied to that surface of the paper which was dry when the compound sheet was formed.

This process is patented in British Patent No. 205,118 by the Associated Paper Mills, Ltd.

MATHIESON CHLORINE TANK CAR APPROVED

Interstate Commerce Commission Rules Multi-Unit Car a Tank Car

THE Mathieson multi-unit chlorine gas tank car, designed and operated by the Mathieson Alkali Works, Inc., is held entitled to the same freight rates and privileges as any tank car, by decision of the Interstate Commerce Commission. The Commission completely upholds the contentions of the Mathieson Company and the "Safety First" principles embodied in this car design. The multi-unit car assures full compliance with the law by cleansing and accuracy in loading, and greatly increases the safety factor in handling and transportation by separating the units into fifteen containers carrying exactly 2,000 pounds each, as compared to a single unit chlorine tank car which carries fifteen tons in a single tank. The requirements of the law that containers carrying chlorine must be loaded on accurate scales, and approved plant practice of thorough cleansing and inspection of each container at the manufacturer's works is, with certainty, observed by this type of equipment. The reduction of the hazard is also an important factor. The certainty of the consumer that he is getting exactly 2,000 pounds of liquid chlorine in each container can not be accomplished by any other type of equipment.



When the Mathieson Company voluntarily went to the expense of designing and placing in service this multi-unit car over two years ago, the railroads held that it was not a tank car, and attempted to assess charges far in excess of those applying on the Class V tank car, ignoring the advantages to themselves, their employees, and the public at large from a "Safety First" standpoint. In the interest of both the producer and the consumer, therefore, the Mathieson Company appealed to the Interstate Commerce Commission that this discrimination be removed, that the industry might be able, economically, to use this equipment. While this case was pending, the Mathieson Company assumed the excess freight charges on every movement, in many cases three times the charges on a single unit tank car.

It is believed that this voluntary action is a far-sighted step in the interests of the general public safety, of the producer of chlorine, of the consumer, and of the carriers. By this favorable decision, the Mathieson Alkali Works has been upheld by the Interstate Commerce Commission, which body is responsible for the public safety in the transportation of any hazardous article. The Mathieson Company has performed an important beneficial service to the entire electrolytic alkali industry. All large chlorine consumers such as the pulp and paper industry will materially benefit in their ability to secure, in a safe, economical and convenient manner, one of their most important raw materials.

* * *

PAPER INDUSTRIES EXPOSITION

THE finest collection of watermarks ever collected is planned as an educational feature of the Second Paper Industries Exposition, to be held at the Grand Central Palace, New York, the week of April 7th, and scores of letters have been sent by the management asking mills and big corporations to assist in collecting a representative series of special watermarks, particularly those on paper made for large business organizations which have either the firm emblem, names, symbols or picturization of the firms' products marked in the paper. A good start has already been made on the collection, those already secured including a number of early religious marks, several early regal marks and quite a collection of modern watermarks in the stationery of business firms.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

PRIVATE REFORESTATION ADVANCED

Progress Is Being Made for Replacing Those Forests That Are Being Cut Down

ARTICLES have recently appeared in the newspapers and trade journals which describe in interesting detail the progress of reforestation in the western portion of the United States. The most conspicuous and comprehensive/of these is probably the illustrated article by Mason and Stevens appearing in the *Lumber World Review*, which undertakes to treat of the historical aspects of the movement as well as the present annual progress. Contrary to the opinion so often expressed by a certain element who see in the lumberman's axe and the forest fire the only real causes of timber shortage, that nothing material is being done by private enterprise, the fact is that many timberland owners, (and these include prominent paper and pulp men) have initiated and are still promoting movements looking toward reclamation. These movements are being backed up with improved methods cutting.

The term "reforestation" should be used in the broad sense, for it may be accomplished through natural reproduction as well as through artificial reproduction, and only land that has become so devastated as to be incapable of natural restoration need be reclaimed by the artificial method. We have a huge area which must be reclaimed, if at all, by artificial reforestation. We have some land, chiefly on mountain tops, that has been burned down to bed rock and which even artificial reforestation will not reclaim. While we are laboring with the great area that can and should be restored to forest growth we should stress in all places the value of working plans which will encourage the forest lands to naturally restock themselves. Nature is wasteful with her seed, but she can cast it in such great quantities and over so wide an area that the man-made forest often appears like a city garden in comparison to the natural plantation on the mountain slopes extending over an area of many square miles.

In the western United States, much the same thing has happened in relation to reforestation that took place in the East and especially in New England during the period following the Civil War. It will be recalled by the "oldest inhabitant" that in the 60's and 70's many pine plantations were made in the East, and there was a boom in reforestation. Then came the opening of the great forests of Michigan, Minnesota and Wisconsin, and for a time the partial overstocking of the lumber market. Reforestation declined for a number of years, and not over fifty mature plantations remain today as examples of that early reforestation movement. These plantations, however, give us some very valuable figures on American artificial forests, figures on which we can estimate the economic value of tree planting in the section where the plantations have been grown. PAPER published in the fall of 1923 a statement based on measurements of a dozen or more of these mature plantations. What happened in the West when the second great reclamation movement came on was, in brief, as follows: Around 1907 a large part of the privately owned timber came into the hands of the present owners, and during this time the active discussion of the imminence of a timber famine had much to do with the buying of timber lands. But the demand for western timber did not develop as had been anticipated, and about 1917 the timber owners became aware that they were carrying a decidedly heavy economic burden without the opportunity to dispose of it with profit.

There was some discussion of reforestation prior to 1920, but the idea was considered fantastic. It was recognized that reforestation in many places was necessary, but the concensus of opinion was that it should be carried on as a governmental function. The C. A. Smith Co. and later the Coos Bay Lumber Co., in Oregon, were practically the only corporations which during this time had any interest in the movement, and lack sympathy and co-operation caused even those enthusiasts to eventually drop it.

The fundamental change in the situation occurred about the year 1918 and was in considerable measure the result of the World War. The nation-wide discussions promoted by Foresters Graves and Greeley had an important bearing, and these discussions were followed by the work of various committees, private and governmental, and by the introduction of legislation with which we are all now fairly familiar.

It may be said that private reforestation in the West had its real beginning in the redwood region, and that the Union Lumber Company was the first to adopt definitely a policy of managing its lands for perpetual reproduction. This took place in 1921, and the following corporations should be credited with having followed immediately thereafter: Pacific Lumber Co., Little River Redwood Co., Glen Blair Redwood Co., and Mendocino Lumber Co.

A little later the following companies joined the movement: The Casper Lumber Co., the Northern Redwood Co., the Holmes-Eureka Lumber Co., the Albion Lumber Co., the Dolbeer & Carson Lumber Co., the Bayside Redwood Co., the Elk River Mill Co., the California Barrel Co., McKay & Co., the Metropolitan Redwood Co., Percy Brown and the Hobbs-Wall Co. In Humbolt County, California, practically all of the operators and the principal non-operating timberland owners have organized the Humbolt Redwood Reforestation Association to further the movement.

These are by no means all of the corporations that have now set themselves to the task of producing perpetual supplies, but in the pages of PAPER will be found from time to time statements in regard to the progress made by these and other promoters of private enterprise, and such information as can be given to encourage and assist those who are endeavoring to do their share toward solving one of this country's fundamental problems.

ELECTS REPRESENTATIVE MEN

Lumber and Pulp Men, and Federal Officials Are Conspicuous

THE statement of Colonel H. S. Graves, reelected president of the American Forestry Association, said that he would be forced to relinquish the presidency as soon as the legal requirements have been met was the unexpected feature of the annual meeting of the American Forestry Association at New York, January 23. A special committee headed by Nelson C. Brown had been active in preparing the program, and an attendance including the best known forestry enthusiasts of the east was recorded.

The result of the mail ballot for officers was announced as follows:

President—Henry S. Graves, former chief, U. S. Forest Service, now dean of Yale Forest School, whose new duties as provost at Yale will force him to relinquish this office.

Vice-presidents—W. W. Atterbury, vice-president Pennsylvania Railroad; Charles S. Barrett, Georgia, president Farmers Union; Daniel C. Beard, New York, National Scout Commissioner, Boy Scouts of America; John W. Blodgett, Michigan, president National Lumber Manufacturers Association; George Cornwall, Oregon, publisher, *The Timberman;* Charles Deering, Illinois, director of International Harvester Company; Samuel Gompers, Washington, D. C., president, American Federation of Labor; David L. Goodwillie, Illinois, chairman, National Forestry Policy Committee, National Chamber of Commerce; Anson S. Goodyear, New York, president, Great Southern Lumber Company of Bogalusa, La.; George Bird Grinnell, New York, explorer; William Kent, California; Mrs. Maud Wood Park, Washington, D. C., National League of Women Voters; Gifford Pinchot, Governor of Pennsylvania; Filibert Roth, Michigan, former dean of forestry, University of Michigan; Harvey N. Shepard, Massachusetts, president, Massachusetts Forestry Association; B. H. Snell, New York, member of Congress; Henry Van Dyke, New Jersey, author; Henry C. Wallace, Iowa, Secretary of Agriculture; John W. Weeks, Massachusetts, Secretary of War; William Allen White, Kansas, editor; Mrs. T. G. Winter, Minnesota, president, General Federation of Women's Clubs.

Directors—Ernest B. Dane, Massachusetts, and George H. Myers, Washington, D. C., for one year; Justin R. Swift, Pennsylvania, for three years; William P. Wharton, Massachusetts, for four years; Joseph H. Pratt, North Carolina, Mrs. John D. Sherman, Illinois, and Henry W. Shoemaker, Pennsylvania, for five years.

Treasurer—George D. Vass, Washington, D. C., vice-president Riggs National Bank.

* * *

Announce New Color

E. I. du Pont de Nemours & Company announces the development of a dyestuff known as Lithosol Claret B. It is used by the lake trade in the preparation of maroon lakes for paint and color varnish, printing lakes, and in pulp lakes for wall paper and coated paper.

New Forest Association

A drive is to be made in the State of Wisconsin during the month of February, at the end of which time the charter will be closed, to get all of the pulp and paper mills of the State represented in this new forestry Association.

The membership fee is based upon the consumption in cords or per 1000 log feet consumed by any one mill during the previous year, which for the purpose of membership at the present time would be 1923.

There are now represented in this Forest Protective Association a large number of the mills including all of the larger ones, except one, and totalling a consumption of over 600,000 cords per annum.

Three of the State Commissions are very much interested in this work and at the present time there is a bill in the United States Senate, presented by Senator Charles McNary of Oregon, which if passed and proper legislation is passed in the State of Wisconsin will bring about in a short time the replenishing of the State's wood supply and insure the present pulp and paper mills in Wisconsin a continuous supply of the proper grades of pulp wood.

It is part of the work of the Wisconsin Forest Protective Association to aid in the bringing about of proper education and legislation to the end and with the aid and interest the State officials are taking in this important work to keep Wisconsin in its present position in the wood producing industries of the United States. Such end is assured if all those in said industries who should be interested will help by putting their shoulder to the wheel.

The Madison section of the Society of American Forestry located in Madison, Wisconsin, is doing its part to bring about the desired results and working not only with United States and State officials but also with Mr. D. C. Everest, President of the Wisconsin Forest Protective Association.

* * *

Mississippi Declines Reforestation Bill

Economy was the authorized destroyer of the reforestation bill, which died, as it did two years ago, in the Mississippi state legislature. The bill proposed fire prevention, reforestation and a state survey of the conditions, the cost of the work to be met by a tax on the lumber cut. The legislative committee decided against the bill on the ground that it provided new jobs, while the legislative policy is to economize in existing state expenditures, and not incur new liabilities.

* * *

Canada Provides Trees

The reforestation movement in Canada which has centered largely in the large pulpwood producing regions, is being extended to other portions of Canada. At Welland, Ont., it was announced, for instance, that the government will provide free of charge enough trees to any individual to plant two acres a year for four years, this being to encourage the development of farmers' woodlots. In larger quantities the government will sell trees at $4 per thousand. For windbreaks 500 trees will be provided without charge.

* * *

Redwood Owners Adopt Policy

Progress in forestry in the redwood region of California is shown by the fact that a definite program of conservation and reforestation has been adopted by 65 per cent of the owners of redwood timber. Two companies have established private nurseries for the reproduction of timber in the redwood belt, and the barren wastes will become fine forests of second growth. Meanwhile, several fine stands of the primeval giants are being saved for permanent forest parks.

JACK PINE INDUSTRY IS SPEEDING UP

Most Despised of Trees Is at Last Coming Into Own

THAT most despised of all trees, the scrub of the Wisconsin forest, a type of timber looked upon for years as worthless, Jack Pine, has at last come into its own.

The Kraft pulp and paper mills of the State have at last found a method of working up this kind of timber into a very strong paper, the equal of that foreign paper known as Kraft which originated in Norway or Sweden some eight or ten years ago.

Many new Kraft mills have been built in the Southern States during the past few years to use the big long leaf and other varieties of Southern pinewood, but the paper made from this Southern fast grown fiber does not compare with that made from Wisconsin Jack Pine according to the pulp experts who have worked in both grades of timber.

There are now four Kraft pulp mills in Wisconsin, two in Michigan and one in Minnesota. There are now in course of construction one in Michigan and one in Wisconsin, making a total of about 350 tons per day and when the new mills are completed this will be increased to very nearly 450 tons every 24 hours.

Other woods are used in the manufacture of Kraft Pulp in these States, namely hemlock, balsam, spruce and tamarack; but Jack Pine is now used in greater quantity than any one of the others for this grade of pulp.

The farmer who has kept a wood lot now knows the wisdom of his action. Many the sand farm in Central Southern Wisconsin which otherwise would be an entire failure, pays its owner good returns from this winter crop of Jack Pine timber, cut and hauled to the pulp mill or railroad siding at a time of the year when he has nothing to do on the farm except the regular farm chores of the winter months.

* * *

Michigan and Minnesota Compete

Minnesota is 30 years ahead of Michigan in its forestry possibilities according to a statement prepared by specialists of the Lake States Forest Experiment Station, after a study of the conditions. But the investigators have expressed themselves rather more bluntly: "Michigan has 30 years the start of Minnesota in the destruction of its forestry resources." In Minnesota there are fine stands of jack pine, now valuable for pulpwood, but once despised, while Michigan's southern sections are lacking in this species. Reforestation in Michigan, however, is to be increased by the Federal Service, and the present rate of planting is 1,000 acres a year and will be increased to 4,000 or even 5,000 acres a year. The cost is only about $4 per acre, owing to the lack of brush.

* * *

Government Restricts Christmas Trees

The importation of Christmas trees which has been extensively discussed by those studying reforestation. has met a check from the United States Department of Agriculture, which has restricted the importation of all such trees from the regions of Canada contiguous to the districts where the gipsy moth has been working havoc. Similar restrictions are placed on interstate commerce in Christmas trees involving American states subject to the gipsy moth. This is the result of the January 4th hearing before the Federal Horticultural Board, announced in the January 2nd issue of PAPER.

New Forests for Old

Significant evidence of the value of scientific reforestation and of protecting from fire second-growth stands of timber, as shown by comparing the yield of new growth with actual cuttings of virgin forests in the vicinity, is announced by the U. S. Forest Service. In the Shasta National Forest in California a representative plot consisting of forest land cut over 35 years ago and since untouched by fire shows present yields of 4,100, 9,800 and 17,200 board feet per acre for trees respectively 25, 30 and 35 years old. The latter figures, as it happens, are almost identical with those for timber now being cut on fire-thinned virgin forest in the neighborhood, where a lumber company is engaged in logging operations. As reported in yield studies just completed by S. B. Show, silviculturist of the Forest Service, the second growth in question is understocked, rather than overstocked, and while it will never run up to the 75,000 board feet per acre figure that older, fully stocked stands in this region attain, the fact that already in 35 years it has equalled in productiveness virgin stands considered profitable for logging well illustrates the capacity of western yellow pine for rapid and profitable growth.

That these trees have already begun a ruthless struggle for light and for crown domination is shown by present measurements. These indicate that in the last ten years height growth has been greatly accelerated, in contrast to the slower diameter growth. As this continues the result will be a natural thinning out of the less vigorous trees through their inability to exist under the dense shade of their more vigorous and so more lofty neighbors. Thus the next-ten-year period will find fewer trees with a larger average diameter and the yield for all trees distributed more profitably among those of greater girth.

* * *

Forest Succeeds Wheat Field

There is a fine illustration of the possibilities contained in abandoned farm lands in the production of profitable forest crops to be found near Chestertown, N. Y. About half a mile west of the village there is a piece of land known as the Remington lot which during the Civil War was cultivated and growing wheat. There was a fringe of old growth white pine trees around this lot. The year after the Civil War the price of wheat did not pay for raising it, and the owner of the land let it go back. White pine gradually seeded in this forty acres until the whole area was covered with a natural heavy reproduction.

This lot now is visited by about every group of foresters that comes into the Adirondacks, for after fifty-seven years, there is a magnificent stand of clear, bold, tall white pine with diameters running from 10 to 21 inches and heights in many cases over 100 feet.

In the summer of 1923, several quarter-acre plots were measured to get an estimate as to what the stand would show in board feet. One plot showed a stand per acre of 67,120 f. b. m. and another 56,400. This is a remarkable stand of white pine as the seeding in and growth have all taken place within fifty-seven years. Many of the trees show an annual growth year after year of three feet in length.

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Howe Heads Canadians

The annual meeting of the Canadian Forestry Engineers resulted in the election of Dr. C. D. Howe of the University of Toronto as president; G. H. Prince, New Brunswick provincial forester as vice-president; J. R. Dickson, Dominion Forestry Branch as secretary and Clyde Leavitt, Board of Railway Commissioners, as treasurer.

News from New England

TWO-THIRDS OF NORMAL CUT THIS YEAR THROUGHOUT MAINE

Great Northern Paper Company Will Have a Cut of 200,000 Cords for the Season

THE pulpwood cut in Maine for the season 1923-24 will be but about two-thirds of the normal cut, the shortage in cut being because of the large reserve brought over from last year, rather than because of any unfavorable conditions in logging. In fact the conditions to date have been unusually good. There has been sufficient snow and not too much and there has been plenty of labor available and at present at a lower rate than has been the case since the war.

The season's cut of pulpwood by the Great Northern Paper Co. will be approximately 200,000 cords, which is a falling off of 400,000 cords from the cut of last season. The Great Northern, and in fact most of the companies operating in Maine have been carrying over large quantities from other seasons but have been using the reserve, doubtless in the belief that expenses of operation will lessen. In the early fall wages for woods laborers were up to $3 a day but since Jan. 1 there has been so great a supply of labor that the price for common work in the woods has dropped to $2 a day.

The Great Northern at present is employing less than the usual number of men and horses, having about 2,500 men on the payroll and 1,500 horses. A number of tractors are being used in the woods by the company and while Fred A. Gilbert, general manager of woods operations and timber lands says their use does not show any saving in expense, there is an advantage in the matter of employment of men. The company is using 900 horse power in tractors and a man with a tractor can do more work than a man with a team.

The Great Northern mills are running at full capacity with the exception of the plant at Madison where changes and improvements are being made, but one machine being in operation.

The increasing demands of the Great Northern mills at Madison had outgrown the old hydraulic development and more than a year ago the start was made on a new hydro-electric plant which has now been completed. A canal has been dug connecting the dam and power house, a large amount of excavating being necessary. A reinforced concrete guard wall has been put diagonally across the canal to catch debris and sheer it away from the power house. A mechanical raking device has been installed for cleaning the trash racks.

Five turbines set on vertical shafts, each of 1,500 h. p. have been arranged for each driving a 1,500 k.v.a. electric generator. Only four of the five units have been set, these supplying all the power needed at present; but the fifth will be held in reserve. Each turbine operates under a head of 20 feet. They are the high speed type, guaranteed to give 90 per cent efficiency; and are set in flumes of the scroll type, built of concrete as is the whole substructure of the power house.

The generators are also placed on vertical shafts and two of them have at the upper end of the shafts, exciters for starting purposes. There are, furthermore, two motor generators set on the floor for exciting the main generators under ordinary running conditions.

The switch board is in the gallery floor. The main switches are located in a room above the gallery. A storage battery is used in operating the switches when starting. It is from this room that the 23,000 volts are transmitted across the river to the mill. The power house is 189 feet in length. The flume gates and trash racks are housed in a gate house adjacent to the generator room.

The design of the enterprise was made by Hardy S. Ferguson of New York and is the latest in hydraulic and electrical evolution. The construction has been under the supervision of E. W. Prouty, the local engineer. The electrical equipment has been furnished by the General Electric Co. and the turbines were built by William Camp & Sons Ship and Engine Co. of Philadelphia.

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Paper Market Improves

Heavy buying of paper stock in New England by New York and Connecticut mills has resulted in a decided improvement in the paper market in Boston and other New England points and a slight increase in prices. Mixed paper and folded news were in greatest demand with $13 for mixed and $18 for news being paid. Most of the news was consigned to Connecticut. As a result of the demand, prices went from $12.50 to $13,00. Even $13.50 was paid in some instances. Books has remained at $1.75 to $1.85 with a few sales reported at $1.90. Soft white shavings are obtainable at $2.75 f.o.b. Boston and No. 1 Manila papers are bringing $1.70 to $1.75 shipping point.

Unbleached and kraft pulps show no important improvement in prices. Fair unbleached pulp sold to a New England mill brought 2.55 and a little higher grade Scandinavian pulp brought 2.65. Fair krafts are bringing 2.50. Easy bleaching sulphites show improvement at 2.90 docks and are as high as three cents for best grades. Norwegian ground woods are available at $33 per ton docks at Boston.

* * *

Mrs. Connable Dies

Mrs. Julia K. Hosford Connable, who died in Paris early in the week, was the wife of Frank Lee Connable, vice president of the du Pont Powder Co., and the daughter of Isaac B. Hosford, organizer, with others, of the International Paper Company and organizer and president of the St. Croix Paper Company, who resides in Chapel Hill, N. J. Mrs. Connable was born in Massachusetts 40 years ago and had residences in New York, Wilmington, Del., and Miami, Fla. The remains will be brought to Mt. Auburn cemetery, Cambridge, Mass., for burial in the family lot.

HERE'S GOOD NEWS FOR THE END OF WINTER

Fitchburg Paper Mills Operating Full Time This Winter

PAPER mills at Fitchburg, Mass., are operating full time and are having difficulty in keeping abreast of orders, according to officials of the companies, which is in contrast to the mills in some other New England communities where plants are being curtailed.

At the Fitchburg Paper Company a decided improvement in business is reported with an increase in orders, with a practically normal crew at work and the mills now on full time.

The Falulah Paper Company has been operating its mills with full crews since January 1 and conditions are said to be brighter than at any time for many months.

Crocker, Burbank & Co. mills have been operating with a fair sized crew, the entire crew being retained at full time. Officials declare the 1924 outlook to be the brightest in years, with better business all round, particularly if the new changes in the federal taxes are put into effect.

The mills of Louis Dejonge & Co. are running full time but with a crew slightly below normal, and have been so operating since last July. They expect to put a full crew at work within a short time.

* * *

Making Repairs

General repairs, renovations and improvements are being made by a special crew at the plant of the Skowhegan Paper Company's plant at Skowhegan, Me., preparatory to reopening the mills. The mills closed several months ago but orders are now on hand so that it is planned to open with a slightly less than normal crew which it is expected will be increased to a full crew to operate full time.

* * *

Increases Its Capital

The Uncas Paperboard Company, Inc., of Norwich, Conn., has been granted an increase in its capital stock to $1,350,000 by issuing 13,490 additional shares of stock. The company plans upon making extensive enlargements and will greatly increase its production.

* * *

Ice Holds Up Work

Work at the plant of the Westfield Paper Company at Woronoco, Mass., has been more or less unsettled owing to the large flows of ice in the river from which the company derives its power, interfering with the operation of the mills. On two occasions recently it has completely cut off power for operation for two or three days at a time.

* * *

Director of Great Northern

Sheldon E. Wardwell, prominent Boston attorney of 84 State Street, Boston, has been elected a director of the Great Northern Paper Company where he succeeds Col. E. H. Haskell of Newton, Mass., recently deceased.

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Morris Manes, 138 Church street, North Adams, Mass., is planning to build a one-story paper mill, 60x200 feet, at Pownal, Vt.

* * *

The Malden Paper Stock Company, Malden, Mass., is a new corporation, capitalized for $5,000. Charles Fine and Samuel Werlin head the concern.

BUSINESS OF AMERICAN WRITING IS STEADILY IMPROVING

Bonds Being Absorbed and Decision of Federal Trade Commission Brings Optimism to Company

INTEREST in paper circles in the vicinity of Holyoke, Mass., centered about the American Writing Paper Company during the past week. The first favorable information came from a meeting of the bondholders committee that met in Boston. It was announced that approximately 55 per cent of the bonds had been turned over to the committee and a definite program of action will be announced within the next two weeks.

The decision of the federal trade commission declaring the Pacific Trade Association to be engaged in a business of price fixing and ordering the corporation dissolved, added new energy to the paper manufacturers of Holyoke especially to the American Writing Company which found competition in the west to be keen. Although the American Writing Paper Company was named as one of those entering the protest to the federal commission, S. L. Willson, president of the American Writing Paper Company denied that the company had entered any protest. Proceedings were instituted against the Pacific Trade Association early last summer and according to President Willson, the name of the company he represents may have been used to expedite matters. He denied emphatically that anyone connected with the firm had entered a protest in the name of the company.

The American Writing Paper Company has received word that their bid was the lowest for government bond paper to the volume of 4,300 tons. The Carew and Hampshire Paper Companies located in South Hadley Falls were also among the lowest bidders for government paper. The new orders are expected to keep the mills of Holyoke and South Hadley on a full week schedule for the next two months.

RE-FINANCING OF FIRM OUT

Parker-Young Company Offering $2,500,000 *Bonds Now*

THE Parker-Young Company, pulp and paper manufacturers at Lincoln, N. H., and Livermore Falls, N. H., are offering $2,500,000 first closed mortgage 6½ per cent sinking fund gold bonds for the purpose of retiring $1,282,000 mortgage notes and substantially all of the company's floating debt.

The Parker-Young Company was incorporated in 1917 and is successor to the Parker-Young Company founded in 1843. Later it also absorbed the Henry Paper Company of Lincoln. The company operates pulp and paper mills at Lincoln, N. H., and a ground wood mill at Livermore Falls, N. H., owns approximately 70,000 acres of timber land in the Pemigiwassett Valley, developed water power at Lincoln and Livermore Falls, about 20 miles of logging railroad, practically the entire village of Lincoln, N. H., and incidental properties. In addition the company and its subsidiaries own other timber lands in New Hampshire, Vermont and Florida, two modern saw mills, three mills manufacturing piano sounding boards as well as mills producing boxes, shooks, tables, interior finish and veneer.

The total net assets of the company, excluding good will and other intangible values, and its subsidiaries, shown by the consolidated balance sheet of Aug. 31, 1923, is $7,886,404 with net quick assets of $3-176,220. The average consolidated net income of the company and its subsidiaries for the past five years, after deducting depletion and depreciation but before federal taxes amounts to $815,231.

It is expected that through the new financing plan the company may make additional improvements and expand its present business considerably.

* * *

Buys New Machine

The Crown-Willamette Paper Company mill at Oregon City, Oregon, has placed an order for a large new paper machine with the manufacturers. As soon as the machine is received and installed the Crown-Williamette Paper Company paper mill at Lebanon in the same state is to receive the paper machine now in operation in the Oregon City mill. This larger machinery will enable the Lebanon paper mill to turn out paper five times as fast daily as it is doing at the present time. It is now manufacturing 20 tons daily and with the means to increase the output to five times these figures the mill will have a capacity of 100 tons daily.

With an increased capacity for the manufacture of paper the Lebanon mill will double the working force at the mill which is the largest industry of the town. The town of Lebanon will benefit by the additional workers who will be attracted to it by the chance of work in the paper mills.

The Lebanon paper mill began the manufacture of paper in 1892 and it has been manufacturing paper ever since. It has with the exception of one incipient strike some years ago the trouble being quickly adjusted, had no labor troubles.

* * *

Lets Contract

The Columbia River Paper Mills Company will extend the paper mill building now being erected at Vancouver, Washington, 100 feet on the east side and has let the contract for this additional work to the Austin Company. This firm is putting up the main paper building at the present time and expect to have it finished by March 1, 1924, and the new contract by May 1, of the same year. The size of the completed building will be 490 by 80 feet.

* * *

Unjust Rates

Freight rates on wood pulp originating in British Columbia and shipped from Seattle to the Camas, Washington paper mill between October 1, 1919 and April 30, 1921 were unjust and unreasonable the interstate commerce commission has decided. Reparation was awarded.

* * *

Workman Drowned

Albert Huneault, of Wrightville, Que., was drowned when he was hurled into the river through a waste flume from one of the pulp mills of J. R. Booth, Limited, Ottawa, in whose employ he had been for many years.

* * *

The Narragansett Card & Paper Co., 131 Washington street, Providence, R. I., is a new concern, headed by Harry L. LeMay of 170 Courtland street, Providence.

In the Far West

HUGE AMOUNT OF TIMBER TO BE CUT

Much Timber Thrown Open in Colorado for Cutting

WHAT is said to be the largest amount of timber ever offered for cutting in the state of Colorado, was announced by Allen S. Peck, district forester of the United States forest service, Denver, January 24. The timberland is in the vicinity of Dolores Colorado, on the Denver & Rio Grande Southern railroad, seventy-five per cent of it located in the boundary of the Montezuma national forest and twenty-five per cent privately owned.

It is yellow pine and there are 400,000,000 feet of yellow pine, and it is estimated that it will require 18 years to perform the work, there being 118,391 acres, and never before has the state offered so much timber over such a long period. Mr. Peck says:

"Since no cutting has ever been done in this area, there is a large accumulation of over-mature timber which, considered as a crop, is ripe for cutting now. None of these over-mature trees can be left at this time, since they would succumb to rot and insects before the growth of new material would justify the next cut.

Trees representing 15 to 20 per cent of the volume of the stand more than ten inches in diameter will be reserved for seed trees and as a basis for another cut, which will insure the perpetuation of the forest. When young trees of a size sufficient to be reasonably safe from fire are not present, seed trees will be saved to insure the next crop. Every tree cut will be marked by a forest ranger and the cutting will be done under his direct supervision.

"Fire breaks will be established along the logging railroad, and such other precautionary measures effected as will protect the entire region from forest fire danger."

* * *

WATER POWER & PAPER CO. ELECTS OFFICERS

Annual Meeting Held at Offices at Wisconsin Rapids, Wisconsin, on Thursday, January 24

OFFICERS and Directors of the Consolidated Water Power and Paper Company of Wisconsin Rapids, Wisconsin, who served during the past year were all re-elected at the annual meeting of stockholders of the company held at the offices of the Company on January 24th. Only routine business was transacted at the meeting, following which a light lunch was served to those in attendance.

Officers Re-elected

The officers of the Company are:

George W. Mead, President
R. L. Kraus, Vice-President
George B. Berkey, Vice-President
Isaac P. Witter, Treasurer
E. P. Redford, Secretary.

These officers with Theo. W. Brezeau, constitute the Board of Directors.

The annual meeting of the Thunder Bay Paper Co., Ltd., of Port Arthur, Ontario, Canada, the Canadian timber holding and pulp manufacturing subsidiary of the Consolidated, was also held the same day. The officers and directors of this Consolidated Company are virtually the same as those of the Consolidated.

SENATOR McNARY MAKES HIS STAND PLAIN

Makes Known Just How He Stands on the Important Question

SENATOR McNARY, of Oregon, after a research extending over nine months, advocates; Extensive additions to national forests and other public forests; a large increase in federal financial and administrative cooperation with the states in protection of all forests from fire; and revision of state taxation relating to forests.

Senator McNary would recommend the extension of public forests in the water sheds of navigable streams, both for protecting the stream flow and for timber production; and the removal, as far as practical, of risks and handicaps from private timber growers.

He states that the federal government owns 54 per cent of the Pacific coast forest area. That the protection against fire is fairly well developed. The re-forestation, outside the redwood area of California is not receiving the attention from the federal government and private timber owners which its relative importance demands from them.

Senator McNary would increase the current federal aid appropriations from $400-000 to $2,700,000 a year for these objectives. An immediate annual expenditure of $3,000,000 he claims in his report would greatly aid in conserving our forest area, the last big stand of which is on the Pacific coast.

Lumber production in this forest was above normal for the year 1923, and for the first two weeks in January, 1924, the dull season in lumber work, there was an increase of one per cent above normal. Lumber dealers are making plans for large business in their industry this year.

The west coast will be depleted of its forests in a few years unless an intensive re-forestation campaign is carried on. That the owners might the better protect their existing timber holdings and do re-forestation work on larger areas Senator McNary recommends the deduction from taxable income of all expenditures made by timber owners for fire protection and for re-forestation. These deductions are at present limited to forest fire patrol services.

* * *

Pushing Mill Building

The Austin Company is pushing the work on the paper-mill building of the Columbia River Paper Mills Company at Vancouver, Washington. W. F. Hammer, superintendent, states that it will be completed some time in February. The steel frame work is all in place, the hollow tiling on the walls is nearly completed and the sheeting on the roof has been finished.

Resting on a hollow base the side walls of the main room are constructed of glass for a height of seventeen feet. Paper manufacturers now recognize the value of ample light in their mills and are demanding architectural plans which will give them plenty of natural light. In this respect the Vancouver paper mill conforms to the latest models of paper mill architecture.

The two digesters will be finished about the same time as the paper mill is completed.

* * *

To Have Experiment Forest

The University of Idaho forest school has secured a square mile of state forest land for use as an experiment school forest. The land has been cut over, but is to be replanted for laboratory study of forest growth problems.

AMERICAN PAPER STOCK ASSOCIATION FORMED IN CHICAGO

Joseph Monheit is Chosen the First President of the New Organization

THE American Paper Stock Association was organized at a meeting of representative dealers held in this city January 31st at the Lexington Hotel. The following officers were elected:

President—Joseph Monheit
Vice-president—John V. Spachner
Secretary-Treasurer—Francis Hughes

The following members were elected to serve on the board of governors, for the full term, or until their successors shall have been duly elected and qualified: Messrs. Winnemann, Silberman, Charak, Sherman, Wilcox, Rizzo and Pushker.

The purpose for which the Association is formed is to promote social and friendly relations among its members, to promote uniformity of trade customs and usages; to uphold the principles of justice and equity in trade; to protect its members against illegal practices; to establish and maintain definite standards in the grading and packing of paper stock; to be devoted to the interests of the paper stock industry and to discuss and act upon any matter that may be of general interest to its members.

The headquarters of the Association, it was decided, shall be in Chicago. The membership of the organization shall be confined to corporations, firms and individuals who are wholesale dealers in, or packers of paper stock.

On motion of the chair, the Secretary was instructed to communicate with the Secretary of the National Association of Waste Material Dealers for advice regarding the progress made in the matter of obtaining a lower minimum weight of shipments of paper stock.

To Issue Statements

Following considerable discussion as to the manner of publishing information regarding current market values of paper stock, it was moved and carried that the chair appoint a committee of three, which shall have sole authority to issue official statements for the Association regarding the market value of paper stock. The chair appointed Messrs. Hughes, Spachner and Sohm to serve on the committee.

The next meeting of the Association will be held Feb. 22nd, in the Green Room of the Lexington Hotel, Michigan Avenue at 22nd St., at 2.00 P. M. Luncheon will be served to members, reports of committees received and other business transacted.

The following membership committee was appointed: Messrs. Mendelson, Hughes, Sohm, Spachner and Follansbee.

Committee on Specifications: Charak, Spachner, Pushker, Wilcox and Sherman.

A constitution and by-laws was adopted by the Association.

The revenue of the Association will be provided by initiation fees, annual dues and assessments, where same are necessary for work in hand.

The initiation fee is $50.00 and annual dues are $100.00, payable in quarterly installments, on the first days of January, April, July and October.

The regular meetings of the Association will be held on the last business day of each month. An annual meeting will be held on the last business day of January of each year, at such time and place as may be designated by call.

Members Enthusiastic

Members of the paper stock trade throughout the country, judging from local comment and letters received by Secretary Francis E. Hughes, are exceedingly enthusiastic over the formation and plans of the American Paper Stock Association. Indications for a heavy national membership by the end of the present year are numerous.

The following written applications have been received and accepted:

Levine Waste Paper Co.
Sherman Paper Stock Co.
A. Simon & Co., Inc.
Milwaukee Waste Paper Co.
The Kansas City Waste Paper Co.
Industrial Paper Stock Co.
U. S. Paper Supply Co.
Francis Hughes Co.

The following concerns renewed their verbal pledge to join the Association, made previously, and agreed to take at once the necessary steps to qualify for membership:

Missouri Paper Stock Co.
Alexander Wayne Co.
Federal Paper Stock Co.
S. Silberman & Co.
Continental Paper Grading Co.
Chicago Mill Paper Stock Co.
Northern Paper Stock Co.
Rocco Rizzo Sons & Co.
Ajax Waste Paper Co.
Sangamon Paper Grading Co.
Consumers Paper Stock Co.
Gumbinsky Bros. & Co.
Aetna Waste Paper Co.
Higgins & Henry
Cook County Paper Stock Co.
Mendelson Bros. Paper Stock Co.
Western Paper Stock Co.
Pioneer Paper Stock Co.
B. Park Paper Stock Co.

Plan Special Luncheon

The New York Division of the Salesmen's Association of the Paper Industry has decided to hold a special executive luncheon, Wednesday, February 20, which will take the place of the usual Monday luncheon meeting for that week. Members from all parts of the country are invited.

Vice President Ewing for the New York Division named the following committee to begin plans at once for the annual convention on April 8, 1924:

F. N. Countiss, Chairman; R. K. Baker; E. C. Chadwick; W. F. Heath; G. A. Keeney, Jr.; E. G. Lloyd; J. W. Quimby; Chester M. Robbins; G. M. Wetmore; R. D. W. Ewing, ex-officio; J. L. Fearing, ex-officio. In addition, the following were named on the committee from other divisions: G. K. Gibson, Chicago; Robert T. Houk, Jr., Ohio; F. W. Main, New England; D. H. Ross, Kalamazoo. The committee will meet within a week to begin its work.

* * *

Hornibrook Dies

The death took place in Toronto a few days ago of Ralph B. Hornibrook, aged 41 years, son of J. T. Hornibrook, director and secretary-treasurer of Brown Brothers, paper dealers and manufacturing stationers, Toronto. Deceased was born in Toronto and for years had been accountant for a big shoe firm in Toronto.

The Editorial Page

WOODROW WILSON

IT would be levity for even a trade paper to ignore the death of Woodrow Wilson this week. While Woodrow Wilson was not conspicuously indentified with the paper industry, he was always eminently fair to it when it came up in the routine of governmental events. It is not as trade representatives that the men in the paper industry think of Woodrow Wilson. It is as men.

Since time began no man has had a bigger place in the world than Woodrow Wilson. As president of the United States during the war years he wielded a power such as no tyrant ever had—and he wielded it wisely and well.

Woodrow Wilson was a noteworthy governor and a noteworthy president before the war. It was the war that transfigured him, that brought him the transcendent glory such as no man ever had before. Its first two years, dreadful though the spectacle was, failed to disturb his official calm. A man of peace, a student of American history, his thought seemed only of preserving for his country a correct attitude of neutrality. Intellectually, not morally, he weighed the issues as they affected America; and so weighing them adopted the course that for long kept us out of war, more follower than leader of public sentiment not always easily read aright. Of the real man he was, Mr. Wilson had revealed but little.

The call for action rent the veil. He who had declared no consciousness of greater evil on one side than the other now summoned the hosts of righteousness utterly to destroy the abominable thing that had wrought grievous wrong upon earth. From that moment till victory was attained he labored to make effective the furious energy, long pent up that, brushing aside every obstacle, sent our unmilitary armies swarming across the ocean in overwhelming numbers.

In their first endeavors to figure to themselves the significance of the death of ex-President Wilson, the people will fix their minds upon that in him which commanded the admiration of his fellow-countrymen and, at last, that of the whole world. They will dwell upon his high intellectual gifts; they will recall his strength of character and firm-set will; they will delight to think that his rise from obscurity to the position of the greatest political power on earth was typical of what America is and can do for her valiant sons. And a note of universal human spmpathy is sounded in expression of sorrow at Mr. Wilson's passing from the earthly scene.

As a great newspaper has said, Woodrow Wilson is not dead. The mind was the man, and it lives. The word was the man, and it did not perish with the racked body, any more than the Gettysburg Address was snuffed out by Booth's bullet. The man, who in Washington led with masterly ability the intellectual forces in the great war will not be forgotten; nor will the power of his work and words diminish with passing years.

The leader is lost. The cause lives. It is an American cause, in harmony with the role this Nation has played for years in substituting peaceful arbitrament for the test of slaughter. He shattered the Divine right of Kings and tumbled their thrones in ruins, and the Nation that anciently had forsworn Kings and Empires was led by evil counselors to desert in the face of the enemy.

A great man has passed. A man endowed to play upon a great stage a great part. Manfully he fought. Generously he will be judged by all Americans who in his unblemished integrity, dauntless courage and exalted purpose recognize priceless virtues.

His clear, concise words, his energetic, steadfast acts, his high intention will live imperishably in the hearts of his countrymen.

Through the Middle West

Wonder About Dam

Experts have been engaged by the city of Eau Claire to determine what effect the new dam with a 32 foot head which the Dells Paper and Pulp Co., Appleton, Wis., proposes to build will have on the city's water plant. The original dam, which was built by the city in 1877, was leased to the Dells Company for 99 years and the company now proposes to replace the present dam with a 26-foot head with a new structure having a 32-foot head. The dam will cost about $1,000,000.

Recently the paper company suggested to the city that it proposed to build the dam to provide a 26-foot head but that it would be well to construct the piers and groundwork so the head could be increased to 32 feet if the demand for power ever warranted the additional construction. The city approved this under certain conditions which the company accepted. The paper company now proposes to erect the dam with a 32-foot head at once. It is believed the additional 6-foot head will result in flooding the city water plant and will cause other damage. Experts have been engaged to determine the damage that will be caused. The paper company will be asked to pay for moving the waterworks plant, if that is necessary.

* * *

40 Ton Mill to Start

Manufacture of paper in the 40 ton mill which is being built by the Tomahawk Kraft Paper Co., near Appleton, Wis., will be started about May 1, according to word from the company. Machinery is being installed and will be ready for use by the latter part of April. Rapid progress is being made in construction. Practically all of the exterior work has been finished.

Additional equipment will be installed as it is required. The company will require about 25,000 cords of pulpwood a year with the first installation.

This mill will manufacture kraft paper and a new sulphate mill is now being built for the manufacture of this kind of pulp. The capacity of this sulphate plant will be forty tons per day.

A new dam and power house has been built to furnish power for the pulp and paper mill. The power house is so equipped that its operation will be automatic.

All modern machinery and the latest labor saving devices are being installed. These new mills will give employment to about 200 men.

* * *

Mead Again President

George W. Mead was re-elected president of the Consolidated Water Power and Paper Co., at the annual meeting of directors last week. Other officers re-elected are: R. L. Kraus and George P. Berkey, vice presidents; E. P. Redford, secretary; I. P. Witter, treasurer. The officers and T. W. Brezeau are the directors.

Officers of the Thunder Paper Co., Ltd., the Canadian timber holding subsidiar of the Consolidated Company, were re-elected at a meeting held the same day. Reports of officers of both companies were presented at meetings of stockholders.

George McMillan, one of the oldest stockholders in the Consolidated Company, now living in Florida, sent a box of oranges which was distributed after the business meeting of stockholders.

GEORGE E. BARDEEN PASSES AWAY

One of Best Known Papermakers in United States Dies

GEORGE EDWARD BARDEEN, of Kalamazoo, Mich., one of the best known paper manufacturers of the United States, died Saturday, January 26, at his winter home in St. Petersburg, Fla., following an extended illness over a period of years. Mr. Bardeen had a premonition of death several weeks ago and planned to return to Otsego to die and was only deterred from doing so because of reports of the northern cold waves in the last month.

Mr. Bardeen was born at Fitchburg, Mass., November 10, 1850. While he was still a little boy, his mother married the late Samuel A. Gibson, recognized as the founder of the paper industry in the Kalamazoo valley. Mr. Gibson, on coming to Kalamazoo, accepted the presidency and general management of the Kalamazoo Paper Company, in which position he gave a valuable training to his stepson.

In 1887 Mr. Bardeen resigned the secretaryship of the Kalamazoo Paper Company to organize the Bardeen Paper Company of Otsego, recently absorbed by the Allied Paper Mills, Inc. He was instrumental in organizing a number of other paper companies in the Kalamazoo valley and was an official or director in many of them. At the time of his death he was president also of the Kalamazoo Stove Company and the Globe Casket Company. He was an official or director of more commercial concerns in Kalamazoo than any other man.

He was one of the active promoters of the Belvidere Resort Association, a summer resort organization at Charlevoix. Despite his successes in the business world, he was intensely democratic and was personally popular with his employes. One of his most enthusiastic undertakings was to give Otsego a winning ball team and to march at the head of the nine on numerous occasions.

* * *

Given a Surprise

President Fred M. Hodge of the Kalamazoo Paper Company and his wife were the guests of honor at a surprise dinner given by the executives of the mill in honor of the silver anniversary of Mr. Hodge's election to the presidency of the company.

The event was followed by the annual winter picnic, which was attended by 1,000 employes and their families. One of the features of the entertainment was the announcement of the winners of the 1923 "Better Gardens Contest" held by the company. The first prize was won by Fred Hein; the second by George Weick; and the third by Charles Redmond.

* * *

Estate of C. M. Dennison, Jr.

The will of Charles M. Dennison, Jr., vice president of the Rocky Mountain Bank Note Company has been filed for probate. A preliminary statement places the value at $100,000.

Among the bequests to his son Stuart Dennison is the family bible, bound by the testator's grandfather, and a newspaper published in Connecticut 144 years ago.

* * *

IF YOU CAN'T say "No" occasionally, you must take the consequences.

Low Water Causes Shortage

The very low water in the rivers of Wisconsin, in fact, all over the Northern States during the fall of 1923 and up to date in 1924 has curtailed the amount of water power available for the manufacture of groundwood and most of the mills have been down to bed rock for a considerable period. Many mills are now buying this grade of pulp from foreign manufacturers from foreign countries, but the cost thereof is almost as much if not more than sulphite pulp of domestic manufacture.

Most of the Wisconsin mills are operated with direct connected water wheels, and only the surplus or high water flow is used for the manufacture of groundwood. Few of them are driven electrically and therefore they are not in a position to buy powers from others, or to make power by steam turbine to produce the pulp they require. Some of the Wisconsin mills are now installing electrical machinery as auxiliary to their water wheel equipment and if another low water season like the one just past follows more of them will have to do so, or else go out of the business of making groundwood papers.

There is a considerable demand at present for many grades of paper which use a large percentage of groundwood and this tends to reduce the stocks and cause the shortage referred to.

* * *

Gift of Oranges

After all business had been transacted, special dividends in the form of a case of oranges, a gift from George McMillan, who is now in Florida, were distributed among the stockholders. Each stockholder received an orange, and in addition orange juice made from Mr. McMillan's gift was served. Mr. McMillan has been a stockholder of the Consolidated Company almost since its establishment, and is the oldest stockholder in point of years. Until lately, when he has been spending his winters in Florida, Mr. McMillan was a regular attendant at the annual meetings of the company.

* * *

Kistler Named Bank Director

William H. Kistler, head of the Kistler Stationery Company and who was a bank director of the Hamilton National Bank, Denver, Colorado, has been elected a director of the Denver National Bank, the bank that absorbed the Hamilton. The consolidation was effected for economic reasons, both banks well to do.

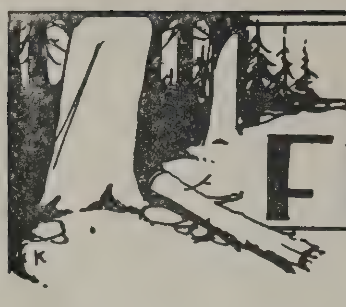
* * *

35 Days, No Accident

The Kimberly-Clark Company paper mill at Kimberly has operated thirty-five days without an accident it was announced in connection with the safety contest which will close on March 1. This is considered by officials one of the most remarkable records in the history of this mill.

The employes are divided in two groups, the green and yellow, and the competition is keen. The greens held a safety mass-meeting at the clubhouse recently for employes and their families and more than 1,000 persons attended.

Speakers at the mass meeting were the Rev. F. X. Van Nistleroy, the Rev. Willard H. Reeves and F. F. Shattuck. Several vaudeville stunts were included in the program.



NEWS FROM CANADA

No Dumping Here

Reports from Washington conveying the insinuation that Canadian manufacturers of newsprint are trying to slip something over the United States customs officials by shipping to the Republic high-grade papers labelled as newsprint are not taken seriously by the Canadian trade. One shipment of newsprint was recently held up and a small sample of it submitted to a chemical analysis, which seemed to show 40 per cent of sulphite pulp. Later, however, different arrangements were made for keeping check of shipments of Canadian paper. Shipments are being no longer held up, and it positively declared that no shipments of book paper have gone into the United States as newsprint. There is no truth in the report that Canadian paper, presumably book, has been sold in the Canadian price at prices 50 per cent below the home price. This would suggest "dumping," for which there is not the slightest suspicion. Canadian trade returns show that practically no Canadian book paper has been sold in the United States during the past year.

* * *

Revenue Drops

The revenue of the Lands and Forests branch of the Ontario Government will be about $1,000,000 less during the past year than for the this one, when receipts reached the high-water mark of $4,000,000. The drop off in the year's timber revenue is said to be due to the slackness in cutting last winter, particularly pulpwood, in the camps of the province and also that the present administration closed its books for the fiscal year in October last year instead of extending the time for several months. Last year the forest revenue was jacked up by the U. F. O. Government by reason of extra revenues from lumber companies paying dues for "overruns" and also by crediting considerable amounts of arrears which had piled up between 1919 and 1922. When everything is taken into account the revenue of the Forestry Department is considered satisfactory.

* * *

May Cause Over-Production

The fear is expressed in some quarters that the rapid increase in the number and capacity of Canadian newsprint mills may cause temporary over-production. In 1923 the production was 1,261,951 tons, as compared with 1,080,333 in 1922 and 805,134 in 1921. The average daily production went up from 3,821 tons in January to 4,263 in December, though it dropped back to 3,829 in December. This seems to have been brought about by the very high production during the fall months, for in December shipments were 5,000 tons more than production. Hon. James Lyons, Minister of Lands and Forests for Ontario, says that that government has before it applications from at least 12 companies that desire to build pulp or paper plants, but that before granting them an investigation will be conducted to see whether they are warranted.

CANADIANS WILL STILL CONTROL COMPANY

Bay Sulphite Reorganization up for Vote Shortly

A PLAN for the reorganization of the Bay Sulphite Company has been formulated by the bondholders' protective committee and will be presented to the bondholders' protective committee on February 21st. A feature of the plan that is expected to win favor is the fact that reorganization provides for retention of the control in Canada, and in hands that ensure due protection of the bondholders interests. Much money was lost by this company as a result of the Becker failure, but the loss is not irreparable, nor is the loss of the British selling concern. Pulp is now being sold in the United States and though one of the company's mills, the Chandler in Saspe county is not operating, production is at a fair level, and the margin of profit such that about $500,000 is being earned to cover bond interest of about half that amount. A number of those who bought Bay Sulphite bonds last spring are surprised to find now that they do not own the Chandler mill, but rather that it is owned by another corporation, The St. Lawrence Pulp and Lumber Co. Bay Sulphite owns the entire capital stock of the St. Lawrence Company, but there are nevertheless bonds outstanding on the St. Lawrence property, so that the Bay Sulphite bonds are a first charge on the Port Alfred mill, but not on the Chandler mill. The reorganization of the company is likely to take the form of a new company to buy Bay Sulphite's assets, and to assume its liabilities, and which will give new bonds for the old ones now held. This means that the position of the bondholders will be unchanged, and as the common stock is not widely held, there would not be widespread loss to investors.

* * *

Continental Bonds

A portion of the $6,000,000 issue of 6½ per cent first and refunding bonds of the Continental Paper and Bag Mills Corporation is being offered in Canada, at 95½ Canadian funds to yield 7.70 per cent. Among other things, the Corporation will acquire the plant of the Continental Paper & Bag Mills at Ottawa, which, in addition to being a large producer of bags and paper specialities, is the owner of 65,000 acres of freehold timber limits and has rights on 1217 miles of timber limits in Ontario.

* * *

Buy 400 Acres

A definite step towards the establishment of a reforestation area in the northern part of York County was taken last week when the County Council voted to purchase 400 acres in Whitchurch township for this purpose at a cost of $6,250. Reforestation will be proceeded with by the Lands and Forests Department of the Ontario Government as soon as the land is purchased.

Has Huge Limits

In a recent historical survey of the Abitibi Power and Paper Company some interesting facts are given with regard to the development of the company's industries which are located at Iroquois Falls, Ont., 550 miles north of Toronto. The company controls limits of over 1,500 miles, or about 1,000,000 acres of well wooded forest area. The falls at Iroquois and Twin Falls supply 53,000 developed horse-power, operating a mill having an annual capacity of 186,000 tons of pulp and paper, of which the newsprint production is 500 tons daily. The management of the Abitibi company are operating with a knowledge of the difficulties that have beset the industry in the past. Therefore, the protection of forest reserves, selective cutting and reforestation go hand in hand with production. The physical development of the property includes the construction and extension of logging lines for the winter supply of raw material to the mills, resulting in a large saving in coal, as well as in interest and insurance.

* * *

Changes Completed

The additions and changes to the plant of the Nashwaak Pulp & Paper Company, St. John, N. B., have been practically completed and within the next few weeks the company expects to have the second pulp drying machine in operation which will increase their output of bleached sulphite pulp to 80 tons a day. At present the capacity is about sixty tons. Howard E. Breedy, vice-president of the company, reports that the plant is operating to capacity and they are having no difficulty in disposing of their product. The logging operations of the firm are progressing favorably. While weather conditions in December and early January handicapped activities to some extent, since the first of the year everything has been going satisfactorily.

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Nothing Exceptional

While there has been fairly good placing business done on newsprint to cover future requirements, Canadian mills report that the amount of buying in book, bond, cover and other lines has shown nothing exceptional since the beginning of the year, although most of the mills are fairly busy. Year-end inventories by dealers have indicated that, while a trifle heavier in most cases than last year, the suspension of buying in December caused by the impending sales tax, found the advent of the new year with lighter stocks than would otherwise have been the case. The taking of the inventory in large jobbing houses was, moreover, quite a task, for stocks subject to tax rebates had to be carefully estimated. Only when immediate turn-over made it advisable, was any buying done during the last month of the old year and January's business therefore reflects some reaction by way of building up desirable stocks. Still, it is pointed out, buying at wholesale as well as retail has not been on a broad scale. In fact in some quarters it is reported to have developed into a hand-to-mouth character. Some new import lines are steadily making their appearance. This applies to cover, book and bond papers, while espartos are well in evidence. It is even stated that German bond papers have been figuring in the market and the observation would seem warranted that foreign specialty papermakers are inclined to consider the Canadian paper market entitled to a try-out in the matter of quality as well as price. Such reductions in price that have taken place may hardly be considered a definite factor and the tendency is towards general firmness.

* * *

"Snowmobile" Busy

Charles W. Cox's "Snowmobile" to be used for crossing Lake Nipigon during the winter for supplies to his pulpwood camps in the Port Arthur district, has arrived at Port Arthur from New Hampshire, and was tested out last week. The car made twenty miles an hour around town and on country roads went up to thirty miles an hour and cut through deep snow banks with ease. It is a Ford truck with the front wheels removed and set back near the rear transmission wheels.

* * *

Off to Europe

Fred. L. Ratcliff, head of the Ratcliff Paper Company, Limited, Toronto, has left, with Mrs. Ratcliff on a business trip to Europe. Mr. Ratcliff will visit a number of the paper mills on the continent and return to England in time for the opening of the British Empire Exhibition where a number of the Canadian paper firms will have exhibits.

Grand Old Man Active

John R. Booth, Canada's Grand Old Man of the lumber industry, who at 98 years is still the active head of the great Booth Corporation at Ottawa, has had a touch of bronchitis. Of late he has not been driving down with his horse and sleigh to business quite so regularly. Mr. Booth, who recovered from a broken leg received while helping to pile planks at the age of 88, scorns the ways of other and lesser millionaires who journey southward in winter. The frosty air and bright sunshine of the Ottawa Valley are good enough for him. He is happier at home superintending the work and visiting at the homes of his habitant employees to whom this rugged veteran of the lumber woods has been a kind friend.

Mr. Booth will go down to posterity in the films, for he appeared by special request a few days ago in that epic of the Ottawa River driver, "The Man From Glengarry." The next drama in which it is hoped he will take part will be the wedding of his granddaughter, Miss Lois Booth, with Prince Erik of Denmark. The nupitals are to take place in a leading Anglican church at Ottawa and admission will be by ticket so that the general public will not crowd out the guests.

* * *

Has Big Destiny

Canada is destined to be the most important papermaking country in the world, said Olivier Rolland, manager of the Mont Rolland Paper Company, Limited, in the course of an address before members of the Montreal Paper Club. At the present time the United States is in the lead in papermaking but Canada will outstrip the Republic to the south in this respect, is Mr. Rolland's opinion. In view of Canada's important position in the paper industry, it would be a fitting move on her part to erect some testimonial to the memory of Louis Robert who did so much for the industry by inventing the paper machine in 1799, in a city in France, suggested the speaker. He urged a monument or some similar testimonial to Robert.

* * *

Making Wedding Bristols

The Howard Smith Paper Company, Limited, have sent out from their Toronto office samples of a new line of Wedding Bristol which the jobbers are extensively stocking and which is taking the place of the imported product. The products are made in a complete range of sizes and substances and are done in plate and kid finish. Fine rag stock of high color is used in the manufacture of the bristols.

Air Patrols Formed

Forest fire protection changes in New Ontario, hinted at by Premier Ferguson in Toronto last week in addressing a Northern Ontario delegation, are understood to be of far-reaching importance and to involve the entry of the Ontario Government into air patrol services under its own auspices upon an extensive scale. Within the past week tenders for various types of air patrol service received from two commercial flying companies were opened but held in abeyance. Prior to their receipt, and subsequently, the Minister of Lands and Forests has been collecting data as to the cost of establishing an air patrol of its own for the northern forest belts. Such a scheme, if ultimately decided upon, would involve the purchase of from ten to twelve hydroplanes and the management of crews. Already in the employ of the Forests Department are six or seven expert flyers who are also qualified foresters. A great deal of data as to the cost of flying in Northern forest belt conditions has been collected by the Government. Also, information has been obtained as to the cost of establishing and maintaining bases for such operations, and it is said that their figures show that the cost of flying under their proposed scheme can be cut down by over fifty per cent of the amount that has been charged. The cost of airship purchases has also been looked into and quotations received on a dozen or so planes.

* * *

Might Cause Monopoly

That the proposed embargo on pulpwood exports from Canada would tend to encourage a monopoly by the Canadian pulp companies which would hit the small pulpwood producers, was the effect of testimony given before the Royal Commission on pulpwood at North Bay by William Miln, Sr., and Patrick McCool, old North Bay men actively engaged in the pulpwood and lumber business. Both were against the embargo on principle, but admitted that they would be in favor of it, providing there were a minimum pulpwood price in the home market set by law. That there would be no valuable timber left between the Transcontinental and the Sault branch inside twenty years, was the statement made by Mr. Miln, who strongly advocated a more stringent conservation system. The present consumption of timber resources, combined with waste and loss, is too heavy to leave a great deal of hope for the life of Northern Ontario's forest resources, he felt.

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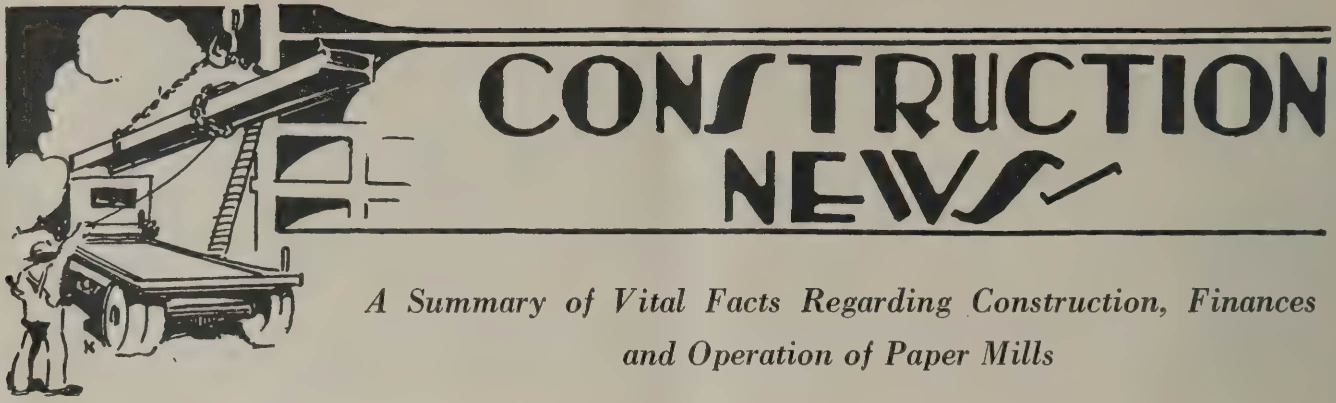

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Los Angeles, Cal.—Blake, Moffitt & Towne, 242 Los Angeles Street, wholesale paper, have awarded a general contract to the Clinton Construction Co., Los Angeles, for the erection of its proposed plant addition, to be four-story and basement, 187x216 ft., estimated to cost approximately $400,000, instead of a smaller amount, previously given out. It will be equipped with elevators and labor-saving machinery. J. D. Galloway, First National Bank Building, San Francisco, Cal., is engineer.

Bogalusa, La.—The Union Bag & Paper Corporation, Woolworth Building, New York, N. Y., is reported to have awarded a general contract to Hampton Reynolds, New Orleans, La., to construct a new local plant for the manufacture of paper bags and containers, estimated to cost in excess of $200,000, with machinery. The company is also said to be perfecting plans for the construction of similar plants at different points in the south.

Milwaukee, Wis.—The Economy Paper Co., 64 Cawker Building, A. L. Ebert, head, is said to be planning for the purchase of a paper-cutting machine and other equipment.

Cap de la Madeleine, Que.—The St. Maurice Paper Co., has plans under way for the construction of a new one-story addition to its local mill, to be equipped as a machine room, estimated to cost about $55,000. Work will be commenced at an early date. G. A. Slater is engineer.

Latrobe, Pa.—The Barrett Mfg. Co., has work in progress on improvements at its local paper mill, to include the installation of considerable additional equipment. The boiler house is also being modernized, and new boiler units, with auxiliary equipment, have been installed.

Buffalo, N. Y.—The papyrus Products Co., 52-54 Pearl Street, manufacturer of collapsible boxes and other paper containers, has tentative plans under advisement for the establishment of a new plant, to replace its works destroyed by fire, Jan. 22, with loss estimated at $85,000, including equipment. The company occupied leased quarters at the location noted.

Green Bay, Wis.—The Northern Paper Mills, Inc., foot of Day Street, is perfecting plans for the installation of a new filtering plant at its local mills, estimated to cost $75,000, with equipment.

Chippeway Falls, Wis.—Fire, Jan. 17, destroyed a portion of the falsework of the dam of the Dells Pulp & Paper Co. The amount of estimated loss has not been announced. It is planned to rebuild at once.

New York, N. Y.—The Forbes Paper Co., has leased the six-story building at 32 Laight Street, for a new local works and headquarters.

West Chester, Pa.—Fire, Jan. 18, damaged a portion of the local plant of the Denney Tag Co., to be replaced at once. The estimated amount of loss has not been announced.

Philadelphia, Pa.—The Victory Wall Paper Co., Inc., has leased property at 133 North Eleventh Street, for a local distributing plant and headquarters.

Chicago, Ill.—Fire, Jan. 22, damaged a portion of the warehouse of the Western Paper Stock Co., Indiana Avenue. The estimated loss has not been announced. It is proposed to rebuild at once. The manufacturing works of the company, adjoining, were unharmed.

New Companies

Chicago, Ill.—The Diamond T Paper Co., 2138 West Van Buren Street, has been incorporated with a capital of $20,000, to manufacture and deal in paper products. The incorporators are G. M. Peters, Arthur Dixon and William Burry, Jr.

Wilmington, Del.—The Southern Pulp & Naval Stores Co., has been chartered under state laws with a capital of $5-000,000, to manufacture wood pulp, paper products, etc. The company is represented by the Corporation Trust Co., of America, du Pont Building, Wilmington.

Jersey City, N. J.—The American National Products Co., 30 Bergen Street, has filed notice of organization to manufacture labels and kindred paper specialties. Joseph H. Jaeckel heads the company.

Chicago, Ill—The Republic Waste Paper Co., 1039 West Congress Street, has been incorporated with a capital of $20,000, to deal in paper products. The company is headed by E. S. Hartman, David Dolnick and M. Jackson.

Malden, Mass.—The Malden Paper Stock Co., Inc., has been incorporated with a nominal capital of $5,000, to manufacture and deal in paper products. Charles Fine is president; and L. Werlinsky, 43 Upham Street, Malden, treasurer.

San Antonio, Tex.—The Crown Paper Box & Label Co., has been incorporated with a capital of $9,000, to manufacture paper boxes and containers. The incorporators are Leo Singer and M. J. Arnold, both of San Antonio.

Financial

Montreal, Que.—The Laurentide Paper & Pulp Co., Ltd., is being organized to take over and consolidate the company of the same name, the St. Maurice Paper Co., Belgo-Canadian Paper Co., and the St Lawrence Pulp & Paper Co., all operating in the St. Maurice Valley section, near Cap de la Madeleine, Que. The new organization will be capitalized at about $70,000,000, and plans for extensions and improvements in the different mills and properties, including the installation of additional equipment.

New York, N. Y.—Charles A. Marshall has been appointed receiver for the Durham Pulp & Paper Co., 17 East Forty-second Street, operating mills at Durham, Pa.; Hadley, Forresport and Napanock, N. Y.; Seymour, Conn.; and Rising Sun, Md. A bond of $10,000 was furnished by the receiver. The liabilities are said to be in excess of $1,000,000.

Philadelphia, Pa.—Nathan D. Isen, receiver for the Bridge Paper Co., 1226 North Tenth Street, has arranged for the sale of the property of the company.

Chicago, Ill.—S. L. Schwarz & Co., Inc., has filed notice of change of name to the Schwarz Paper Co., and plans to expand its business.

Washington, D. C.—The Stamford Paper Co., a Delaware corporation, has filed notice of increase in capital from $150-000 to $250,000, for general expansion. The company is represented by the United States Corporation Co., Dover, Del.

Plant Operations

Fitchburg, Mass.—Paper mills in this section are advancing operations and adding to their working forces, with indications that the present basis of production will be continued for some months to come. The Falulah Paper Co., has recently resumed full operations, giving employment to a regular working force, full time. The company is said be be booking good business, and expects to run continuously for months ahead. The Fitchburg Paper Co., heretofore operating on a curtailed schedule, has increased production to a full time basis, giving employment to an increased working force. About 70 per cent of the full working quota has been employed until the recent change in advancing schedule. The Crocker, Burbank Co., is employing a full working force on a full time basis, although orders have been slow, it is said, for several months past. It is proposed to advance production as soon as conditions warrant. Louis Dejonge & Co., are maintaining manufacture on a full time schedule, with curtailed working quota. It is expected to add additional workers until a full force is available, within the next month or so. It is stated that there is a noticeable increase in orders in recent weeks.

Business Opportunities

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Vienna, Austria, in the market for American paper and paper-box manufacturing equipment; also, for machines for the manufacture of playing cards and kindred products, Reference No. 8914.

The Acme Candy Co., 221 South Goldsboro Street, Wilson, N. C., now establishing a local plant, is planning for the purchase of a quantity of folding paper boxes and containers.

A Wisconsin Logging Problem

Locations Alter Conditions

By B. T. McBAIN

Assistant General Manager, Nekoosa-Edwards Paper Co.

MOST of the mills in the Eastern States buy their wood either peeled or rossed and only have to wash it as it enters the mill before cutting to proper size for grinders or choppers. In contrast, most of the so-called Middle West Mills, or Lake State Mills, buy their wood with the bark on.

In the one case, the mills pay for the removal of the bark and save the freight, not alone on the bark but on a great deal of moisture which very quickly leaves the wood after removal of bark. In the other case, the mills pay freight on the bark and moisture, pay less to the producer for the real wood they finally use; but pay for the barking and cleaning of the wood after arrival at the mills. Each faction claims his way the better; but cost figures have proven the Eastern method the best though it is difficult to put it over in Wisconsin.

The railroads do not understand the situation. In the one case the mills order box cars. "We do not want our wood to get dirtier than it is and want to unload it from the box car direct into conveyor to stacker or to mill." In the other case, the Wisconsin mill men say, "we want our wood loaded on flat or gondola cars, because we want to store the wood and want to handle it by steam grapples to save handling costs." In some of the districts, part of the wood goes East and part West.

But the Western mills will learn, and sooner or later they will demand that wood contractors supply wood with the bark removed, so it has a chance to dry out; so the worms can do no harm; so they can save one-third of the freight now paid and so they have only to handle 100% wood and will not have to be bothered with the removing of the bark at the mill and disposal of the bark thereafter.

In one mill they say they get good fuel value from the bark; but on figuring the cost of the bark in freight alone and the value of the bark in pounds of coal or B. T. U. value, it is very expensive fuel comparatively speaking.

The paper mills of Wisconsin produce 3,100 tons of paper per day. About 2,400 tons per day is made direct from wood. About 1,000,000 cords of wood are used annually.

If the average freight cost is $6.00 per cord or $6,000,000 per annum and one-third of this cost is on the bark and excessive moisture of the wood kept in by the bark, the Wisconsin mills are wasting annually $2,000,000 on freight alone.

This is a matter requiring attention. It is not a matter for Foresters or for Logging men to decide; but a business proposition for business men to investigate and for business men in the pulp and paper industry of Wisconsin to decide.

New Trains at Marinette, Wis.

Marinette, Wis.—To take care of the record log shipments from the north another freight train will be run from the logging camps in northern Marinette County to Marinette, officials of the Chicago, Milwaukee and St. Paul Railroad announced recently. It may even become necessary to add a second train at a later date.

The sawmills in and around Marinette will do a bigger business than in 1923, a record year, lumber heads predict. Last year 75,000,000 feet of lumber were sawed at the mills of the Sawyer Goodman Company and mill men declare that the 1924 total will run above 100,000,000 feet.

If fire is kept from devastating the forests there will be little danger of a timber shortage in Marinette county, lumbermen declare. It is estimated that the forests of northern Marinette county will keep the industries of that country going for many years to come.

* * *

The Scandinavian Pulp Agency, Inc., of 342 Madison Avenue, New York, of which J. A. Millar is vice president and general manager, has been elected to membership in the Merchants Association of New York.

NEW GERMAN BOOK ON EMBOSSING

Walter Hess Publishes New Treatise on Art of Embossing

A Review by Thomas J. Keenan

A BOOK that is unique among treatises dealing with the arts and industries is *Die Papier-Pragetechnik* by Walter Hess. The book is described as a "Praktisches Handbuch fur die gesamte Papier-Pragetechnik," which is to say, that it is a Practical Handbook for the Technology of Paper Stamping and Embossing. It is a book of 226 pages well illustrated with 55 figures and tables, being the second enlarged and improved edition of a work originally published by M. Krayn in 1911. The present edition was issued last year by the same publisher at $1.25 in paper covers.

A book of this kind would be highly suggestive and useful for all engaged in the industry of embossing and stamping paper and paper goods. The author distinguishes between the process of embossing or stamping and the process of pressing by means of a simple illustration given in the preface. The manufacture of coins, medals, etc., requires the "stamping" process while the production of book covers, pulp plates and so forth is effected by "pressing."

The dies and presses used for monograms, addresses and names in relief, together with hints on the use of colors and pigments are well discussed. The process of gilding with leaf metal, the stamping of designs on book covers in plain or fancy colors, the manufacture of seals all find a place in this textbook. The cold and hot processes are treated separately in detail and the information is of general application.

For those who can read German the book will be found especially valuable and PAPER will be glad to take orders for it.

* * *

An old farmer and his wife lived near the village church. One warm Sunday evening, while they sat dozing on the porch, the crickets set up a loud chirping.

"I just love that chirpin' noise," said the old man drowsily, and before the crickets had stopped he was fast asleep.

Soon afterward the church choir broke into a beautiful chant.

"Just listen to that," exclaimed his wife, "ain't it beautiful?"

"Yes," murmured the old farmer sleepily, "they do it with their hind legs."—*Drew's Imprint.*

ALVAH MILLER TOM T. WALLER ARTHUR C. HASTINGS EDWARD A. WESTFALL NATHANIEL L. MILLER

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UNIFORM FORESTRY LAWS

By **B. T. McBAIN,**

Secretary, Wisconsin Forest Protective Association

REDUCTION in taxes, uniform forestry laws in Minnesota, Wisconsin and Michigan and the early completion of the St. Lawrence waterway as the major project toward the solution of the transportation problem of the nation," were recommended at the conclusion of the Tri-State Development Congress held in Duluth, Minn., January 25th.

That all the problems considered at the Congress referred to are of great importance cannot be denied. All have a bearing on each other and particularly the first two "Reduction in taxes" and "Uniform Forestry Laws" for the success of the latter depends greatly upon the former. But whether the others are successful or not, the need for Uniform Forestry Laws and then the strict enforcement of them, is apparent to all.

"The pen is mightier than the Sword," but of what use will the pen be without paper? America uses the greatest amount of paper per capita of any country. Of course, great amounts of this paper are wasted, for Americans are also the most wasteful people on the Globe.

Fully 95% of the paper used in America is made on the continent from trees grown either in Canada or in the States and for many years the three Lake States were the greatest lumber and pulpwood producing States in the Union. They are still producing but the day is fast approaching when there will be no forest products, not because nature did not try to do her part; but because we Americans, residents of the three producing States, did not do our part and aid Nature in her work by protection of the young forests seeded each year.

The Forest products industries do not use each year more than one-tenth of the amount which it is necessary to write off per annum from the available forest timber in the United States and Canada. The other 9/10 is loss by fire, insects and disease, the greatest percentage of which could be saved if we would but organize and co-operate

What would our cities be and how long would they be on the map if fire protection was not given the attention that it is? The same and even better results can be gotten by even less attention if each township of timber land is given anything like the fire prevention attention even the smallest villages receive.

America's timber, if we look at it right, is America's life and the sooner America and Americans realize this, the better for all of us.

May the Tri-State Development Congress be successful in all its undertakings but may the first two and particularly the second one be given such attention that the year 1924 will not close without such State and Federal action being taken that the forests of the States of Minnesota, Michigan and Wisconsin are forever protected from fire to the great gain of America and Americans.

* * *

S. L. Dawson and Hughes Engraving and Lithographing Company, Limited, Richmond Street west, Toronto, assigned last week to N. L. Martin and a meeting of creditors has been called for the middle of February. The firm is one of the oldest in Toronto. Many paper firms in Toronto are creditors for considerable amounts.

CANADA EXPORTED $140,798,453 WORTH OF PAPER

The Year 1923 Shows That Canada Exported Immense Tonnage As Compared With 1922

A REPORT from the Canadian Pulp and Paper Association shows that the value of the pulp and paper exports from Canada in 1923 amounted to $140,798,453. For the previous year the total value was $115,863,742; so that last year's figures showed an increase in the value of $24,934,711 or more than 20 per cent.

The following table gives a comparison between the quantities and values of various grades of pulp and paper exported last year and in 1922.

PAPER	1922		1923	
	Cwts.	Value	Cwts.	Value
Newsprint	19,190,291	$68,362,817	22,759,245	$85,611,258
Book Paper	31,695	225,710	49,318	365,956
Wrapping	372,170	2,780,386	425,527	3,170,429
Bond & Writing	12,228	132,980	23,222	240,535
All Other		3,324,000		4,382,779
		$74,825,893		$93,770,957

PULP	1922		1923	
	Cwts.	Value	Cwts.	Value
Mechanical	6,295,204	$ 9,410,083	6,822,140	$11,599,323
Sulphite Blchd	2,934,086	11,993,202	3,197,466	13,574,220
Sulphite Unbld.	4,168,924	10,477,746	4,560,665	12,406,095
Sulphate	2,966,720	9,166,818	2,926,906	9,453,758
Total Pulp	16,364,934	$41,037,849	17,507,177	$47,027,496

The value of the exports of finished paper showed a greater advance over the 1922 totals than did the value of the exports of pulp, although practically every grade of pulp and paper shows larger exports than 1922.

Our most important item for export in this industry in newsprint and of this grade of paper Canada exported 1,137,962 tons in 1923, this being the first time the total has crossed the "million tons" mark. The greater part of this went to the United States which accounted for 1,115,355 tons leaving a total of 22,607 tons for the shipments to overseas countries.

For our book and writing paper the principal markets were Australia and New Zealand, smaller quantities going to the United Kingdom, Japan and South Africa. Wrapping paper exports were chiefly to the United Kingdom, Australia, South Africa and Japan.

By far the greater part of the pulp exported from Canada was destined for the United States, which took 216,956 tons of mechanical pulp; 146,345 tons of sulphate; 147,594 tons of bleached and 167,182 tons of unbleached sulphite; a total of 678,077 tons out of an exportation of 875,370 tons.

Canadian exports of pulpwood for the year amounted to 1,384,230 cords valued at $13,525,004. This is the highest figure reached by the export of this raw material and is a big increase over the exports of 1,011,332 cords valued at $10,359,762 recorded in 1922.

* * *

Claim Land Is Damaged

On agreement of riparian owners and officials of the Wisconsin River Pulp and Paper Company of Portage County, Wisconsin, a hearing before the state railroad commission in which the River Pines, Inc., sought to establish a maximum level of water for the dam maintained by the paper company, has been postponed. Riparian owners claim their land is being damaged by a rise in water caused by the dam and company officials are attempting to reach an agreement which will make it unnecessary to take the matter before the state utilities commission.

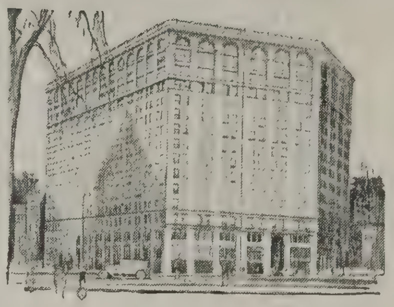
* * *

Make Splendid Average

The average daily production of all paper machines in the plant of the Mead Pulp & Paper Company at Chillicothe, Ohio, averaged 35,000 pounds more per day during the year 1923, than was the daily average for the year 1922. Like increased average daily productions were made in practically all departments of the plant during the year 1923, reported General Manager H. P. Carruth at the President's Annual Dinner, held on January 13th, at which time President G. H. Mead acted as host to a large number of the Mead plant employees and their ladies.

* * *

One hundred and twenty-nine employees of the Mead Pulp & Paper Co., at Chillicothe, Ohio, own stock in the company. These 129 employees own a total of 1,660 shares of Special Preferred Stock, with a par value of $100 per share.



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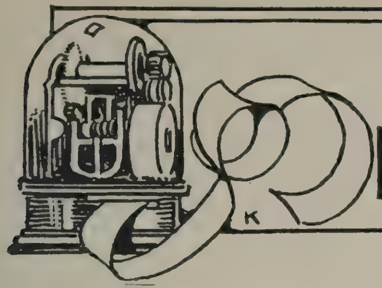

LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS

FINE		
Bond	8.00 @	40.00
NEWS		
Contract Basis	3.75 @	
BOOK		
S. & S. C.	6.50 @	7.25
M. F.	6.25 @	7.00
Coated and Enameled	8.00 @	12.00
TISSUE		
White	.85 @	.95
Manila No. 1	.80 @	.90
WRAPPING		
No. 1 Domestic Kraft	6.00 @	6.50
No. 1 Jute	8.25 @	8.75
No. 1 Wood	4.75 @	5.25
Butchers	4.00 @	4.25
BOARD		
News	45.00 @	50.00
Chip	50.00 @	55.00

Paper and Board

New York, February 5—Business in paper appears to be moving along in a rather smooth manner with the market developing few changes or features which could be called important. Consumers are purchasing in a careful way and almost solely against their direct requirements, but there is nevertheless a sufficient movement of paper of most kinds to keep mills fairly well engaged and also to keep jobbers and distributors active in filling the wants of customers.

Prices of most descriptions of paper are being maintained but there is some sign of easiness in certain quarters. This is particularly true as regards coarse papers. Southern manufacturers of kraft wrapping paper are said to be selling at prices so far below those quoted in the North that mills in the latter part of the country are obliged to sell at reduced levels in order to compete. Moreover competition of foreign kraft paper is a disturbing market factor and one which is leading to price softness.

There is a firm tone to newsprint. Demand is holding up strong and prices are steady, with the tendency of quotations in the open market in an upward direction. This is one class of paper manufacturers who do not have to become concerned over current demand for their product, since most newsprint producers have their output sold ahead for several months on contract, with publishers ready to take more paper if the supply were available.

Book papers are in at least a little better demand than a short while ago and everything would seem to forecast a steady expansion of activity in such paper. Magazine and trade periodical publishers are gradually enlarging the size of their publications as increased amounts of advertising are received, and opinion in the trade is that book paper mills are due to enjoy a big year in 1924. Prices appear somewhat steadier than they were though there is still room for improvement in this connection. Some manufacturers are not hesitating to cut prices slightly to secure orders, and the experience of large buyers in the past few months has been such as to cause them to look for supplies at present at price recessions.

Fine papers are fairly active and display increasing price firmness. The demand is slowly but consistently widening, and the advance in raw material costs is an important factor in creating firmness in writing paper values at the moment. Tissue papers are in routine movement and quotably steady.

Building papers are in a livelier market position than probably ever has been noted during mid-winter. With open weather prevailing in most parts of the country, building operations have continued uninterrupted, and a big movement of roofing felt and sheath-

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ing papers is reported. Reports state that the large manufacturers of roofing felt put into effect on February 1 an advance of $12 a ton in the price of felt.

Sack papers also are in good demand, reflecting the high price of cotton and other textiles. Most mills producing bag papers are reported well engaged and booked ahead on orders.

Paper boards are in limited demand and quotations tend downward. Mills in the East are quoting at about $45 a ton f. o. b| New York for plain chip board, and $50 a ton for news board but the probabilities are these prices are being shaved in some instances.

The monthly statistical summary of the paper industry issued by the American Paper and Pulp Association shows that a total of 370,605 net tons of paper of all kinds was produced by United States mills in December, compared with 302,792 tons produced in November last, indicating a very healthy increase in spite of the holidays during the final month of the year. Shipments from mills in December totaled 363,282 net tons, or but slightly below the total output for the month, while mill stocks of paper of all kinds at the end of December amounted to 218,036 net tons, contrasted with 213,306 tons at the end of November.

Exports of paper of all grades from the United States in November, 1923, totaled in value $1,926,607 compared with exports of $2,118,841 during October last, and $2,012,689 in November, 1922, according to figures issued by the U. S. Department of Commerce.

Quotations are as follows:

Bond	.09 @	.40
Ledger	.10 @	.35
Writing—		
Ex-superfine	.15 @	.35
Superfine	.13 @	.30
Tub size	.10 @	.20
Engine size	.09 @	.14
News—f. o. b. Mills—		
Rolls, contract	3.50 @	3.75
Rolls, transient	4.00 @	4.25
Sheets, contract	4.00 @	4.25
Sheets, transient	4.25 @	4.50
Side runs	3.25 @	3.50
Kraft—f. o. b. N. Y.—		
No. 1 Domestic	6.00 @	6.50
No. 2 Domestic	5.00 @	5.25
Manila—		
No. 1 Jute	8.00 @	8.50
No. 2 Jute	7.00 @	7.50
No. 1 Wood	4.50 @	5.00
No. 2 Wood	4.25 @	4.50
Book—f. o. b. N. Y.—		
S. & S. C.	6.25 @	6.75
M. F.	6.00 @	6.50
Lithograph	8.25 @	14.00
Coated & Enameled	8.00 @	12.00
Tissue—f. o. b. N. Y.—		
White No. 1	.90 @	1.00
Manila No. 1	.80 @	.90
White No. 2	.80 @	.90
Colored	.90 @	2.00
Kraft	1.00 @	1.25
Fiber Papers—		
No. 1 Fiber	5.50 @	6.00
No. 2 Fiber	4.50 @	5.00
Card Middles	3.75 @	4.00
Common Bogus	2.00 @	2.50
Boards, per ton, f. o. b. N. Y.—		
News	50.00 @	55.00
Straw, in sheets	55.00 @	60.00
Binder Boards	80.00 @	85.00
Chip	45.00 @	50.00
Manila Lined Chip	70.00 @	75.00
Woodpulp	70.00 @	75.00

Mechanical Pulp

Prices of mechanical pulp seem to have steadied at around a basis of $35 per ton f. o. b. grinding mills. In fact, in some quarters prices show a strengthening tendency, due, it is stated, to less favorable weather conditions for grinding and a resultant decline in production. Canadian producers are reported to have marked up quotations in some cases to around $38 a ton f. o. b. pulp plants, and even slightly higher rates have been secured, it is said, in instances where a low freight from producing to consuming points has been involved. Demand for ground wood is fair. Newsprint mills are buying in a steady manner, and board manufacturers and other consumers are absorbing supplies in at least moderate tonnage, so that grinders are experiencing fair business. However, a surplus of pulp has been accumulated in some quarters and it is this, it would seem, which is creative of the easiness in prices recently noted.

Foreign and Domestic Chemical Pulp

Consumers of chemical wood pulp are still lagging behind as purchasers and are absorbing supplies in a limited way. Very little interest is shown in other than lots for immediate needs, and since this condition exists at the buying end while on the selling side there are those who are anxious to move some lots of pulp, it is plausible why prices are anything but firm and why buyers in a majority of cases are succeeding in filling their present wants with pulp obtained at price concessions.

There have been reports of sales of foreign kraft pulp at less than 2.50 cents per pound ex dock New York or other American Atlantic ports. Most importers are endeavoring to secure around 2.60 cents for No. 1 foreign kraft but buyers are not willing to meet this figure as a general thing. Unbleached sulphite of foreign origin is quoted at 2.60 cents upward on the dock New York, but sales at cheaper prices have also been reported. Bleached sulphite is moving in moderate amounts yet sellers are said to be finding it necessary to shade asked rates to get orders. Quotations ex dock New York and f. o. b. pulp mills are:

Sulphite foreign—		
Bleached No. 1	4.00 @	4.50
Unbleached No. 1	2.60 @	2.80
Unbleached No. 2	2.40 @	2.60
Easy Bleaching	2.90 @	3.15
Sulphite, domestic—		
Bleached No. 1	4.00 @	4.50
Unbleached No. 1	2.60 @	3.00
Unbleached news grade	2.50 @	2.75
Easy Bleaching	3.00 @	3.25
Mitscherlich, unbleached	3.00 @	3.25
Soda, domestic, bleached	3.50 @	3.75
Kraft, foreign	2.50 @	2.75
Kraft, domestic	2.60 @	2.90
Sulphite, screenings, refined	1.50 @	1.75

Domestic Rags

Papermaking rags are in a strong market position. Nearly all grades are wanted by mills in good volume, and dealers are repeatedly marking up prices and are securing the rates quoted in most instances. Roofing rags are at higher price levels than have been reached in a long time. Sales of No. 1 roofing stock have been made at 2.25 cents a pound f. o. b. New York, while No. 2 packing has brought 2.15 cents; in fact, there have been reports of sales at even higher figures. The sharp advance in rags of this class has served to strengthen the value of other grades, and old blues and whites are on the move upward in price. Sales of repacked thirds and blues are reported at 3.25 to 3.50 cents a pound at shipping points, and of miscellaneous packing at 2.75 cents. New cuttings are firm and advancing. Some grades are hard to locate in usual amounts and it is these which are particularly strong in price. Quotations f. o. b. New York are as follows:

New Shirt Cuttings, No. 1	14.00	@	14.50
No. 2	6.75	@	7.00
Fancy Shirt Cuttings	7.50	@	7.75
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.50	@	5.00
White Lawns	11.75	@	12.00
New Muslins, unbleached	12.25	@	12.50
Light Silesias	9.00	@	9.50
Black Silesias	5.50	@	5.75
Overall Cuttings, Blue	9.25	@	9.50
Washables	5.50	@	5.75
New Black Mixed	5.00	@	5.25
Soiled Whites, house	3.25	@	3.50
Soiled Whites, street	3.00	@	3.25
Thirds & Blues, repacked	3.25	@	3.50
Thirds & Blues, misc.	2.65	@	2.85
Black Cotton Stockings	3.75	@	4.00
Roofing Rags, No. 1	2.20	@	2.30
Roofing Rags No. 2	2.10	@	2.20

Imported Rags

Demand for most grades of foreign papermaking rags is said to have subsided somewhat yet there is a firm tone to prices, and importers in general say they are well sold up for quite a period. Moreover, it is asserted that offerings from abroad are small in both number and volume and this has a bullish influence on values. Dark colored cottons for roofing paper mills are especially firm and have sold at 2.10 cents a pound ex dock New York. Blues are in good demand and quotably strong, as are the various grades of modern foreign new cuttings. Quotations ex dock New York are:

Lins., White, No. 1	13.50	@	14.00
Ger. Blue Cottons	3.25	@	3.50
French Light Blues	3.50	@	3.75
New Light Prints	6.50	@	7.00
New Unbleached	10.50	@	11.00
German Linen, blue	4.50	@	5.00
German Linen, grey	6.00	@	6.50
German S. P. F.'s.	6.00	@	9.00
German Light Prints	4.00	@	4.25
Dk. Colored Cottons	2.00	@	2.15

Bagging, Rope, Etc.

Old rope is marked by a fairly consistent demand from paper mills and prices are firm. Domestic manila rope is reported selling at 6.50 to 6.75 cents per pound f. o. b. New York, and foreign manila rope is fetching about 6.25 cents ex dock at this port. In old bagging, demand for roofing bagging is the market feature. Sales of this grade at 1.10 to 1.20 cents a pound f. o. b. New York have been noted, while No. 1 scrap bagging is quoted at 1.25 to 1.50 cents with not much demand recorded. Prices f.o. b. New York follow:

Gunny No. 1	1.50	@	1.60
Foreign	1.40	@	1.50
Wool Tares, light	1.20	@	1.40
Wool Tares, heavy	1.40	@	1.60
Scrap, Bagg., No. 1	1.25	@	1.50
Roofing Bagging	1.10	@	1.20
For. Manila Rope	6.25	@	6.50
Domestic Rope	6.50	@	6.75
Mixed Strings	1.00	@	1.25

Old Paper

There is a fairly good call for a few grades of old paper and very little buying interest in others. Consumers apparently are purchasing to cover direct requirements only and most of the orders placed involve limited tonnage, yet it cannot be said that the market is dull. Folded newspapers are moving well at 90 to 95 cents a hundred pounds f. o. b. New York, and old flat magazines are in better demand with dealers quoting between 1.50 and 1.75 cents per pound New York, depending on the quality of packing. Old kraft paper is firm at 2.15 to 2.25 cents a pound, and a steady inquiry continues for white blank news cuttings at about 2.25 cents per pound f. o. b. New York. There isn't much activity in shavings, and quoted prices are stationary, No. 1 mixed paper is selling at 65 to 70 cents a hundred pounds New York. F. o. b. New York quotations are:

No. 1 Hard White Shavings	3.75	@	4.00
No. 2 Hard White Shavings	3.25	@	3.50
No. 1 Soft White Shavings	3.00	@	3.25
Box Board Chips	.70	@	.75
No. 1 Colored Shavings	1.60	@	1.75
Magazine, flat stock	1.50	@	1.75
No. 1 Crumpled	1.25	@	1.35
Solid Ledger Books	2.15	@	2.25
Ledger Stock	1.90	@	2.10
Kraft, No. 1	2.15	@	2.25
New Manila Cuttings	2.00	@	2.25
New Manila Env. Cuttings	2.75	@	3.00
Bogus and Mill Wrappers	.90	@	1.00
News, strictly overissue	1.10	@	1.15
Folded News	.90	@	.95
No. 1 Mixed Papers	.65	@	.70
White Blank News	2.25	@	2.35
Common Paper	.50	@	55

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Twines

Manufacturers report a fair demand for this time of the year for twines but state that consumers with a few exceptions are buying merely against urgent requirements. The price tone is firm, due in large part to the strong position of raw material, sharp advances having been noted recently in jute, hemp and other cordage fibers. Quotations are as follows:

Sisal Hay, pure	12.25 @	13.25
Manila Hay, pure	16.25 @	17.25
Sisal Lath. Yarn	12.25 @	13.25
Manila Rope, pure, ¾ inch diameter	14.25 @	15.25
Hardware Rope	11.25 @	12.25
Jute rope, ¼ diam. and over, coils	14.00 @	15.00
Sail twine, A grade	20.00 @	
Jute Wrapping twine, A grade	20.00 @	
Papermakers twine	11.50 @	
B. C. Hemp, 18	.39 @	.40
B. C. Hemp, 24	.38 @	.39
B. C. Hemp, 36	.37 @	.38
America Light India—No. 6	14.50 @	
No. 7	13.50 @	

Chemicals

There is a fair movement of papermaking chemicals and at maintained prices but activity in the market is chiefly against contracts or back orders, new business developing slowly. No changes of consequence are reported in quotations.

IMPORTS AT NEW YORK

Week of January 28-February 2

Paper

Str. Rotterdam, Rotterdam—Keuffel & Esser Company, 13 cs. drawing.

Str. Rockaway Park, Kotka—Order, 2,772 bls. wrapping; from Helsingfors—Parsons & Whittemore, 163 rolls newsprint; Order, 3 rolls newsprint.

Str. Caucasier, Antwerp—E. Daiber, 8 cs.

Str. America, Bremen—O. G. Hempstead & Sons, 11 cs. pasteboard; A. Frankan & Co., American Express Company, 106 rolls.

Str. Samland, Antwerp—C. W. Williams & Co., 12 cs.; P. C. Zuhlke, 183 cs. photo; F. C. Strype, 28 rolls and 5 cs. parchment; Gevaert Company of America, 13 cs. photo; P. J. Schweitzer, 50 cs. cigarette.

Str. Slavic Prince, Canton—G. B. Siebold, 25 cs. litho.

Str. Stuttgart, Bremen—Globe Shipping Company, 108 cs.; C. Steiner, 58 bls. wrapping; Irving Bank-Columbia Trust Company, 110 bls. wrapping; Hensel, Bruckman & Lorbacker, 7 cs.; Perkins-Goodwin Company, 23 rolls printing; American Express Company, 106 rolls wrapping; Order, 785 rolls and 125 bls. wrapping.

Str. Baltic, Liverpool—F. C. Strype, 15 cs. tissue; F. J. Emmerich & Co., 49 bls. hanging; B. F. Drakenfeld & Co., 6 cs. printing; Order, 77 bls.

Str. La Savoie, Havre—Whiting-Patterson Company, 5 cs. hanging; A. C. Dodman Jr. & Co., 4 bls. hanging; Harriet Hubbard Ayer, 4 cs. cardboard.

Str. Vennonia, London—W. H. S. Lloyd & Co., 34 bls. hanging; H. Reeve Angel & Co., 11 cs. filter and 1 cse. drawing.

Str. Cleveland, Hamburg—Keuffel & Company, 83 cs. drawing; F. J. Emmerich & Co., 17 bls. hanging; F. Euler & Co., 4 cs.; Seaboard National Bank, 8 cs.; J. P. Heffernan Paper Company, 1,039 bls. wrapping and 10 bls. printing; Wilkinson Bros. & Co., 160 rolls wrapping; Order, 18 cs. printing.

Str. Emden, Hamburg—P. H. Petry & Co., 13 cs. and 8 cs. pasteboard; G. & H. Transport Company, 5 cs.; C. B. Richard & Co., 7 cs. pasteboard; Seaboard National Bank, 7 cs.; F. J. Emmerich & Co., 38 bls. hanging; Chemical National Bank, 64 bls. and 138 rolls wrapping; Maurice O'Meara Company, 147 bls. printing; Jewish Daily Forward, 3 rolls newsprint; Chatham & Pheuix National Bank, 55 rolls newsprint; J. P. Hefferman Paper Company, 232 bls. wrapping; International Acceptance Bank, 106 bls. pulp board; G. Gennert, 8 cs.; Chase National Bank, 34 rolls and 55 bls. wrapping; W. Sscall & Co., 1,927 rolls and 38 bls. wrapping; National City Bank, 93 rolls and 6 bls. wrapping; Order, 1,003 bls. wrapping.

Str. Majestic, Southampton—A. C. Dodman Jr. & Co., 27 bls. hanging; Southern Pacific Company, 3 cs. cigarette; E. Fougera & Co., 87 cs. filter.

Str. Carignano, Genoa—Perkins-Goodwin Company, 64 cs. printing.

Str. Chile Maru, Hamburg—J. B. Moors & Co., 61 rolls printing; New York & Hauseatic Corporation, 3 cs. pasteboard; E. Dietzgen & Co., 16 cs. wrapping and 2 cs. drawing.

Str. Elmsport, Rotterdam—Maurice O'Meara Company, 1,769 bls. wrapping; Wilkinson Bros. & Co., 48 rolls and 154 bls. wrapping.

Str. Kungsholm, Gothenburg—Central Union Trust Company, 76 rolls newsprint; J. P. Hefferman Paper Company, 31 bls. wrapping; O. M. Baxter, 45 bls. wallboard; M. Gottesman & Co., 216 rolls newsprint; Newsprint Paper

Corporation, 176 rolls newsprint; Chase National Bank, 54 rolls wrapping; D. S. Walton & Co., 267 rolls and 72 bls. wrapping; American Express Company, 25 bls. and 9 rolls wrapping; O. H. Anderson & Co., 20 bls. wrapping; International Acceptance Bank, 26 bls. wrapping; Order, 165 rolls and 163 bls. wrapping.

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Str. Rockaway Park, Kotka—Lagerloef Trading Company, 155 bls.

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Str. Emdem, Hamburg—American Woodpulp Corporation, 303 bls.

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Str. Kungsholm, Gothenburg, Wales & Sparre, 1,900 bls. sulphite and 175 bls. soda; E. M. Sergeant & Co., 254 bls. sulphite and 350 bls. soda; Mechanics & Metale National Bank, 250 bls. sulphite; Order, 250 bls. sulphite.

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Str. Baltic, Liverpool—Albion Trading Company, 29 bls.; Order, 216 bls.

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Str. Idaho, Antwerp—Brown Bros. & Co., 56 bls.; Goldman, Sachs & Co., 41 bls.; Irving Bank-Columbia Trust Company, 26 bls.

Str. Chile Maru, Hamburg—Strupp & Co., 115 bls.; Mechanics & Metals National Bank, 31 bls.; Order, 18 bls.

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Str. Emden, Hamburg—Salomon Bros. & Co., 182 bls.

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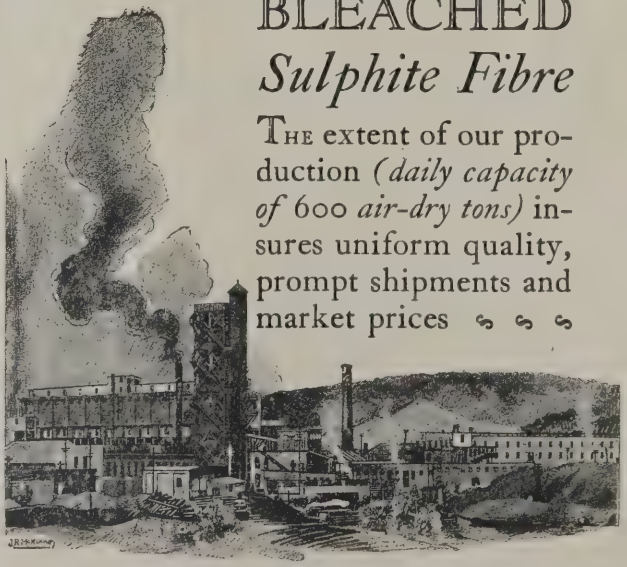

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Morgans & Wilcox Mfg. Co., (printers), Middletown, N. Y.
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Cheboygan Paper Co., (groundwood), Cheboygan, Mich.
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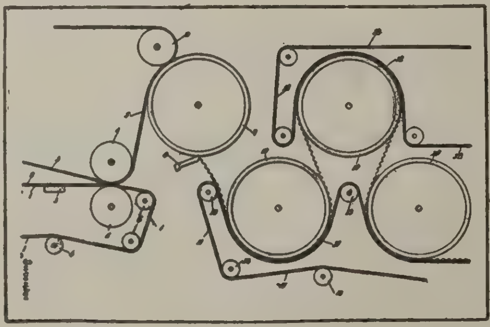

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Collinwood Sta. **CLEVELAND, OHIO**

CLASSIFIED DIRECTORY—Continued

Columbian Paper Co., (soda fibre), Buena Vista, Va.
Hummel-Ross Fibre Corp., (sulphate pulp), Hopewell, Va.
Stamsocott Co., The, Inc., (cotton linter pulp), Hopewell, Va.
Virginia Carolina Tie & Wood Co., (wood), Norfolk, Va.
Chesapeake Corp., (papermakers' pulp), Westpoint, Va.
Washington Pulp & Paper Co., (ground wood), Port Angeles, Wash.
Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
Combined Locks Paper Co., (sulphite fibre), Appleton, Wis.
Marshall Paper Co., (wood), Appleton, Wis.
Riverside Fibre Co., (bleached — unbleached sulphite fibre also paper), Appleton, Wis.
Ashland Paper Co., (spruce ground wood), Ashland, Wis.
Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.
Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.
Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.
Kaukauna Ground Pulp Co., Kaukauna, Wis.
Outagamie Paper Co., (ground wood), Kaukauna, Wis.
Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
Medford Lumber Co., (wood), Medford, Wis.
Mellen Lumber Co., Mellen, Wis.
Island Paper Co., (sulphite fibre), Menasha, Wis.
Ewing Everest Pulp Co., (ground wood), Merrill, Wis.
Grandfather Falls Co., (ground wood pulp), Merrill, Wis.
Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry ground wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Elambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.
Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS

Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES

Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia, Pa.

RAGS

American Woodpulp Corporation, New York.
Keller Co., Inc., E. J., New York.
CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill

ROPE DRIVE

LINK-BELT Co., Chicago, Ill

SCREENS

Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del.
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman, H. L. (centrifugal), Dayton, Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale, Pa.
Scott, Olin, E'st. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill.

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS

Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS

Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE

Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific, Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.
Paper Makers Chem. Co., (combination), Easton, Pa.
Bolev, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.
Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.
Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel, T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
MURRAY Mfg. Co., D. J., Wausau, Wis.
Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.
Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Co., (Cylinder; Hot Air), Cohoes,
Cohoes Iron Foundry & Machine
N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.
Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA

Pulp

Mead Fibre Co., The. (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SPLITTERS

Wood

Grace, C. M. & Co., Huntsville, Ala.
Ripley, Lewis R., Harvard, Mass.
Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.
Ryther & Pringle Co., Carthage, N. Y.
Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Multnomah Iron Works, Portland, Ore.
Scott, Olin, E'st. of, Bennington, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works, Co., Appleton, Wis.
Smalley Mfg. Co., Manitowoc, Wis.

SPROCKET WHEELS

LINK-BELT Co., Chicago, Ill

STOCK REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

STONES

Wood Pulp

Pusey & Jones Co., (Kollergang), Wilmington, Del.
Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.
Lombard & Co., 238 A Street, Boston, Mass.
JONES Bros. Co., Boston, Mass.
Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.
Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.
Empire Pulp Stone Co., Empire, Ohio.
C. & M. Quarries Co., Marietta, Ohio.
Smallwood Stone Co., Steubenville, Ohio.
American Stone Co., Wheeling, W. Va.
JONES Bros. Co., Barre, Vt.

SUCTION BOX COVERS

Menasha Wood Split Pulley Co., Menasha, Wis.

SULPHATE MILL EQUIPMENT

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.

SULPHITE FITTINGS

EASTWOOD Wire Mfg. Co., Belleville, N. J.

SULPHUR

UNION Sulphur Co., New York.

SULPHUR BURNERS

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.
TRIMBEY Machine Works, Glens Falls, N. Y.

CHAIN DRIVE SILENT

LINK-BELT Co., Chicago, Ill.

TANKS

Settling & Pulp Thickening

Chicago Bridge & Iron Works, 2036 Transportation Bldg., Chicago, Ill.
Eagle Tank Co., 2436 No. Crawford Ave., Chicago, Ill.
Johnson & Carlson, 848 Eastman, (Wood), Chicago, Ill.
New York Central Iron Works Co., Inc., Hagerstown, Md.
New England Tank & Tower Co., Boston Postal District, Everett, Mass.
Acme Tank Co., 41 Cortlandt St., (Wood), New York City, N. Y.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Hendrick Mfg. Co., 75 Dundaff St., Carbondale, Pa.
Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.
Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawer 539, Sharon, Pa.
Newport Foundry & Machine Corp., (Siphon), Newport, R. I.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.
Textile Finishing Mach. Co., Providence, R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill.

DE-INKING PROCESS

CASTLE & OVERTON, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

VALVES

Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.
WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

CYLINDER MOLDS

Appleton Wire Works, Appleton, Wis.
BLACK-CLAWSON Co., Hamilton, Ohio.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

WRAPPERS

Bread and Candy

WOLVERINE Paper Co., Otsego, Mich.

"SUPERIOR"
Fourdrinier Wires

(FOUNDED 1848)
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Brooklyn, N. Y.

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EXCELSIOR WIRE
MFG. CO.

J. Andersen & Company
21 East 40th Street, New York City

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THE CLEARING HOUSE
OF THE PAPER INDUSTRY

Situations Wanted, Help Wanted, Machinery for Sale, Machinery Wanted, Business Opportunities, Materials Wanted and For Sale, Business Wanted or For Sale.

Advertisements in this department cost $1.00 for 25 words or less, payable in advance. Additional words, two cents each. This price covers the cost of remailing answers directed to boxes, care of this office. Matter for insertion should reach the office of PAPER not later than the Saturday preceding date of issue.

All Advertisements under the Situations Wanted or Help Wanted Classifications are published FREE OF CHARGE, except for cost remailing letters addressed here.

POSITIONS WANTED

GRADUATE CHEMICAL ENGINEER, 28, married, several years' varied experience, desires position as chemist in pulp and paper mill. Address Box 1255, care of PAPER.

JOB WANTED by plant engineer; boiler room cost reducer. Willing to work on basis of pay according to actual reduction of operation expense. Ohio license. Now employed. Age 35. Address Box 1254, care of PAPER.

MECHANICAL ENGINEER, 35 years of age, college graduate, twelve years experience as pulp and paper mill engineer, fully qualified to take full charge engineering department, is open for an immediate engagement in an executive capacity. Location immaterial. Address Box 1256, care of PAPER.

POSITION WANTED by German papermaker, superintendent, skilled in manufacture of all kinds of greaseproof paper, tissue paper and use of automatic delivery machines; tinted papers made by any process. Desires long term contract with adequate salary. Address H. H. 100, care of PAPER.

SALESMAN with college education, chemical engineer. Experience in paper and pulp mills. Successful selling record. Address Box 1259, care of PAPER.

GRADUATE MECHANICAL ENGINEER, seven years' experience in United States and Europe in design and construction in pulp and paper mill machinery and as field and maintenance engineer; perfect detail knowledge of De Vains process. Address Box 1260, care of PAPER.

PULP AND PAPER MILL ENGINEER —Technical graduate, married, aged 35; fourteen years' experience in applied structural and mechanical engineering of pulp and paper mills. Capable of assuming the technical responsibility of your plant from the drawing board to the erected job. Thoroughly familiar with all process. Correspondence solicited. Address Box 1261, care of PAPER.

Position as chemist or chemical engineer by University graduate, 30 years of age, married. Applicant has held responsible positions in laboratory, research, development and production work in several lines, including sulphite pulp and paper production. Employed at present, but available upon reasonable notice. Location immaterial. Address Box 1262, care of PAPER.

ABSOLUTELY FREE

PAPER will run all advertisements for HELP WANTED, or SITUATIONS WANTED

For a Limited Time
FREE OF CHARGE
It is YOUR CHANCE—
GET BUSY

FOR SALE

FOR SALE—Unlimited quantities of finest pulpwood. F.o.b. mill in New York State, $23.75 per cord. Address Box 236, care of PAPER, 1478 Broadway, New York City.

POSITIONS VACANT

WANTED—One Beaterman in mill making Bond, Book and Writing—White and Colors. Send references in first letter stating last two places worked. Address Box 1264, care of PAPER.

A FIRST CLASS assistant board superintendent, with knowledge of colors and qualities. Address in confidence "H", care of PAPER.

WANTED—An experienced operating manager to take over entire charge of paper box board mill. Communicate with F. F. Brooks, c/o First National Bank, Pittsburgh, Pa.

MECHANICAL ENGINEER

The Vacuum Oil Company intends to add to its Technical Department Staff an experienced paper mill engineer. The position calls for a man having the following qualifications:

An engineer from 35 to 45 years of age who has had a technical education and a number of years practical experience in the actual operation of pulp and paper mill machinery. A thorough knowledge of the paper mill industry and ability to meet and talk with the technical representatives of the mills are essential qualifications. DO NOT CALL. Write us, giving a complete outline of your experience and qualifications, stating age and salary desired. VACUUM OIL COMPANY, Technical Employment Committee, 61 Broadway, New York City.

WANTED—Salesmen calling on the wholesale Paper Trade, to sell a line of Tape Moisteners, Envelope Sealers, Desk Memo Pads and Adding Machine Rolls. An attractive proposition for real salesman. J. F. Ryan & Company, 222 East 42nd Street, New York City.

FOR SALE

Beaters—One N & W 48x48 rolls, 21″-6″. Two iron tub rolls 52″x40″.

Bed Plates—Large lot, all sizes. New .

Calenders—One 7 roll 72″; one 9 roll 72″; one 5 roll 78″; one 7 roll open side 84″. One 7 roll 124″.

Calender Rolls—Large assortment, all sizes; one 14x86″; one 18x84″; one 18x100″ and many others.

Coaters—One 45″ Waldron, double coater, and others.

Cutters—One 38″ Guillotine.

Cylinder Moulds—One 36″72″; one 30″x52″; one 12″x22″.

Drives—One No. 1 Reeves Class E; two No. 3 Reeves Class E, 4 to 1; one No. 3 Class E; one No. 6 Large Reeves; one No. 10 Reeves, F-3 to 1 with extra disc.

Dryers—48x116.

Exhausters—One Sturtevant.

Fans—3 Hunberry; 2 Perkins.

Jordans—One N & W Monarch, with new shell two Horne; two Emerson, large size, one base; one N & W Pony, with extra plug.

Pulleys—One 98″x34″ face, double arm, modern, Iron pulleys; Cone pulleys for Marshall Drives.

Pumps—One dry suction Knowles 12x22x18; one 1000 gal. Blake Tank pump; two Lawrence Mch. Co.'s Class A 8″ high duty; two 6″ Emerson make; one 4″ Centrifugal; one Type 4 Gould 5″ triplex, self contained. Two Lawrence Machine Co.'s Class A, No. 4, double suction pump for high elevation or for low speed. Thoroughly rebuilt and ready for shipment.

Press Rolls—One pair new, one RC 18x80″; one Gun metal 18x81″; one 16x75″; one RC 15½x73½″.

Rag Cutters—Two No. 2 Daniels; one Perkins.

Screens—4-8 pl. New Success.

Slitters—One 86″ P & J.

Winders—One 86″ P & J; one 100″ P & J; one 112″ M & W.

Wet Machines—One N & W with cut offs, mould 30x52″; two spare moulds.

One set Dillion Doctors for 80″ calender rolls.

MILLS MACHINE COMPANY
Lawrence. Mass., U. S. A.

THE CLEARING HOUSE—Continued

POSITIONS WANTED

SULPHATE CHEMICAL ENGINEER desires position. Technical graduate with mill experience. Prefer minor position with opportunity to work under big men. Address Box 1267, care of PAPER.

ENGINEERING DRAFTSMAN — Single, 25, available now; educated M. I. T. '21 Civil Engineering; experienced instrumentman, topographic drafting, mill and hydraulic design pulp and paper mill development. $175 per month. Address Box 1269, care of PAPER.

CHEMICAL ENGINEER—has three years' laboratory, mill and executive experience making sulphite fine papers with a prominent and successful mill. 1920 graduate from a high grade university. Is aggressive, thorough and well met. Has executive tendencies and ambitions and would prefer connection as secretary to president, assistant superintendent, assistant chief chemist, assistant purchasing agent. Address Box 1270, care of PAPER.

GRADUATE CHEMICAL ENGINEER with five years' experience in the manufacture of pulp and paper, followed by five years of successful selling to the manufacturers of paper and textiles in New England, at present employed as sales engineer, wishes to connect with a concern selling either equipment or materials to the paper trade. The position desired is that of New England representative or assistant sales manager in charge of the selling of that portion of product which is used in the manufacture of paper. Address Box 1271, care of PAPER.

EXPERIENCED ADVERTISING AND Sales Manager with successful record for market analysis, research promotion and development work, capable of selling big men personally, and able correspondent and especially familiar with the selling of special machinery and paper box board manufacture and sales, desires to connect with an organization with which there is a real future or would be interested in representing independently manufacturers desiring greater sales development on a commission and drawing account basis or salary and commission. At present employed as Advertising and Sales Manager for a firm rated GAA. Address 1272, care of PAPER.

BEATERMAN, middle-aged, sensible and temperate, seeks situation; used to colors on all grades of paper; best of references. Address 1273, care of PAPER.

SUPERINTENDENT wishes to make change; has ten years' experience as superintendent of mills making sulphite, bond, book and writings in white and colors; can furnish best of references. Address Box 1274, care of PAPER.

FINANCIAL and SALES

assistance offered by broker to a paper specialty mill making limited tonnage. Reply to Box 1267, care of PAPER.

POSITIONS WANTED

PULP AND PAPER CHEMIST desires position; good analyst; also has had research and production experience. Can furnish references. Address Box 1275, care of PAPER.

BOSS MACHINE TENDER wishes position. Capable of taking complete charge of beater room and machine room; A1 on sulphite and sulphate and ground wood papers; understands running and upkeep of all Fourdrinier machines, with or without attachments; can furnish best of references; location immaterial. Address Box 1276, care of PAPER.

CHEMICAL ENGINEER, University graduate, wants position as chemist or assistant superintendent. Experience in sulphate and sulphite. Address Box 1265, care of PAPER.

Recent graduate in chemistry from a university supporting an excellent pulp and paper school, now employed in a pulp and paper testing laboratory, wishes position as assistant chemist in pulp and paper mill. Address Box 1266, care of PAPER.

College man, young, married, with mill and jobbing experience, wants to make connection with mill or merchant. Address Box 1263, care of PAPER

CHEMIST, graduate, qualified junior or senior duties, desires engagement, $125-$150 month. Address Box 1257, care of PAPER.

MISCELLANEOUS

WANTED—A paper company to locate a large pulp and papermaking plant in North Carolina, with a million cords of pulp wood deliverable at the plant at $3.75 a cord, a saving of $20,000,000. Lands for plants, **fronting deep water for deep sea** loading. Millions more cords of wood available very cheap. A clear stream of fresh water free for washing pulp. Address Box 245, care of PAPER, 1478 Broadway, New York City.

Norwegian exporting firm desires to connect with first class well connected firms of importers in New York and San Francisco for the sale of Scandinavian Woodpulps and Paper. Reply, with propositions and references to Box 1258, care of PAPER.

WANTED—One Lannoye Patent Pulper Size No. 2, manufactured by Rice, Barton and Fales of Worcester, Mass. Size No. 1 considered as an alternative.

MINNESOTA & ONTARIO
PAPER CO.,
Minneapolis, Minn.

"Papa," said the boy, "when you say in your advertisements that your goods are acknowledged by connoisseurs to be the best, what do you mean by connoisseurs?"

"A connoisseur, my boy," answered the great manufacturer, "is an eminent authority—an authority, in short, who admits that our goods are the best."

MILLS GATHERING IN TIMBER LANDS

Many Companies Getting Pulpwood Tracts in Their Control

MANY of the pulp and paper manufacturing companies with pulp and paper producing plants in eastern Canada are acquiring additional pulpwood tracts. Some of the companies have been the Brompton Pulp and Paper Company, Laurentide Paper Company, Bathurst Company, Nashwaak Pulp and Paper Company, St. Croix Paper Company, Fraser Companies, etc.

The Brompton Pulp and Paper Company acquired large tracts of pulpwood lands in Maine, New Brunswick and Quebec. The pulpwood, after being rossed at the English Lake rossing mill of the company will be shipped via the railroad to the mills at Brompton. The purchase by the Brompton Pulp and Paper Company, was one of the biggest land transfers effected in some years. Indications are that the company executives have in mind the establishment of a pulp mill at English Lake, in the not distant future.

By acquiring additional holdings of pulpwood along the Restigouche and Nepisiguit rivers, the Bathurst Company, have become one of the largest owners of pulpwood lands in eastern Canada. The holdings are in the provinces of New Brunswick and Quebec. Over two million acres of valuable pulpwood bearing lands are now in control of this company, which is controlled by United States capital. The company owns valuable pulpwood lands near its pulp mill and paper mill on the Nepisiguit River. It also owns lands on the Restigouche River and fronting on the Bay of Chaleur. On its own land, the company built the hydro electric station at Great Falls on the Nepisiguit River, the power from which station serves to operate in entirety all the industries owned by the Bathurst Company. Originally this company was known as the Bathurst Lumber Company. Besides owning three saw mills, the company operates a large pulp mill and a large paper mill. The woods operations of this company are extensive. The Nashwaak Pulp and Paper Company, another United States concern have acquired lands along the Nashwaak River and Miramichi River. It is believed the company plans on construction of a pulp mill in the Nashwaak territory, in addition to the St. John mill. The St. John mill was recently enlarged so that the capacity in mechanical pulp was increased one third. Aiding in this was the securing of additional water supply, obtained after considerable effort and loss of time.

* * *

Ran Plant Steadily

The New Ontario Colonization Company of Buffalo, N. Y., whose land office and mills are located at Jacksonboro, Ont., ran their plant steadily throughout 1923 and found that the demand for pulpwood and lumber was such that the cuts were kept moving nicely. The company have disposed of a fair proportion of their pulpwood and are expecting that the balance will move out during the winter and spring. W. K. Jackson, president of the firm, states that they are planning on putting in a stock equal to last year. They are looking for equally as good demand for their products during the coming eleven months.

* * *

Life is a great adventure, and the worst of all fears is the fear of living.—*Roosevelt.*

ENGINEERING PAGE

JAMES L. CAREY

Paper Mill Architect
and Engineer

208 North Laramie Avenue, CHICAGO, ILL.

GEORGE F. HARDY

M. AM. SOC. C. E. M. AM. SOC. M. E.
M. ENG. INST. CAN.

Mill Architect and Consulting Engineer

Langdon Building, 309 Broadway
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PAPER

February 14, 192

The Magazine of the Paper Industry

RUSSELL C. HUGHES, Publisher

HOMAS J. KEENAN, F.C.S., Technical Editor

ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

WITH winter melting away—though it may have some unexpected powerful kicks left—and spring nearby, can't you feel that little yielding in the paper industry? It is there, anyway, whether you feel it or not.

Prices are getting firmer, the demand, is changing from a wraith of hope to a substantial thing you can see, inventory time is approaching an end, reports from the barometer of business, the steel industry, are extremely gratifying, everywhere there is more optimistic and not so many mere blank, dull looks.

Not that a wave of mighty prosperity is just around the corner for the paper industry. Far from it. But there is a little yielding, a little give that looks fine after this winter of discontent. Everything begins to look better. Hope is beginning to rise.

It is high time to get busy and lay your plans for the coming business, spring and summer. Just as you take inventory of your stocks now is the time to take inventory of those more intangible commodities, selling plans, a modified policy to meet new conditions. It will pay you to lay the groundwork now.

* * *

This is the time of year when those papermakers with any money in their pockets, hurry south and bask in the eternal summer of Florida. The rest of us stay north and wrestle with snowstorms and slushy streets. 'Tis the irony of fate.

* * *

So much of a stir is the De Vains Process making that PAPER is publishing most of the material upon which it can lay its hands. Another article appears in this issue. The De Vains Process as applied to America is a splendid topic of a discussion by some competent authority conversant with American problems. This periodical would be glad to publish such dissertation.

* * *

T. J. Keenan takes his pen in hand again as a book reviewer. In this issue he writes one of those individualistic reviews of Volume IV of "The Manufacture of Pulp and Paper." It is well worth reading. After you have read the review, you will want to read the book. This is the open season for good books in the paper industry. Next week Mr. Keenan will review that inspiring, informative volume of R. S. Kellogg which may be considered the Alpha and Omega of the news print end of the papermaking industry.

* * *

"The Effect of Pressure on Test Sheets" the leading article in this issue, is another of those worthwhile papers read at the Canadian convention. This convention set a high standard for the speakers of the annual convention of the American Pulp and Paper Association to emulate. E. P. Cameron and J. M. Payne know of what they write and that is half the battle. What these men advocate is valuable reading and will generate some keen thoughts throughout the land. They urge a definite specification of the basis weight of the test sheets used and the pressure applied in their formation, in any standard method for the strength testing of pulp.

RUSSELL C. HUGHES, *Publisher.*

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PAPER

The Magazine of the Paper Industry

Effect of Pressure on Test Sheets

Variations in the Pressures Applied to Sheets Used in the Strength Testing of Pulp Affect Strength of Ultimate Sheet

By E. P. CAMERON
and J. M. PAYNE

In a contribution from the Pulp and Paper Section of the Forest Products Laboratories of Canada on the effect of pressure on the strength of test sheets used in testing pulp, which was presented at the annual meeting of the Technical Section of the Canadian Pulp and Paper Association held in Montreal, January 24, 1924, E. P. Cameron and J. M. Payne advocate a definite specification of the basis weight of the test sheets used and the pressure applied in their formation, in any Standard Method for the Strength Testing of Pulp. Details are given in this article.

IN order to cover the varieties of pulp generally met with in strength testing the following selection was made: groundwood; sulphite (bleached and unbleached); kraft. The kraft and sulphite pulps were tested in both the beaten and unbeaten states. Soda and rag pulp had to be excluded as sufficient time was not available for their study and they were deemed of somewhat less importance from a testing point of view than those chosen.

Disintegration and Beating

The quantities of stock required for these tests proved somewhat inconvenient, being rather too small for the operation of the mill beaters and somewhat too large to be handled in the disintegrator and ball mill without entailing an excessive amount of work. The laboratory baby beater was therefore used and the degree of beating judged by microscopic examination, appearance, and feel. It was not a matter of importance whether all the pulps were beaten to the same degree or not so long as they showed the characteristics of well beaten pulp. It is for this reason that the results for beaten bleached sulphite are higher than those for kraft, the former having been beaten to a greater extent than the latter, though in both cases the effects of beating are very apparent when compared to the respective unbeaten stocks.

All the pulps used for these tests were disintegrated in the baby beater using a well raised roll and were only left under treatment long enough to insure thorough disintegration with a minimum of beating action.

With the sulphite and kraft pulps the slush stock from the beater was run through a small experimental flat screen to remove all undisintegrated portions and this screened stock used for the tests.

Five test sheets were used for each point on the curve, five bursts being taken per sheet. In all tests the curve for the 60lb sheet was developed first, the pressure being increased by increments of 20lb. The curves for the other basis weights of sheet were then tied into this one by increasing the pressure by increments of 40lb. In this manner a good deal of unnecessary work was eliminated without sacrificing the accuracy of the results. Where points on the curves appeared of doubtful accuracy the work was checked and rechecked until thorough confidence could be placed in it.

I—Groundwood Pulp

The groundwood pulp used in this work was donated for the purpose by the Bronson Company of Ottawa. It was ground from 100 per cent spruce, knife barked and using three pocket grinders.

It was attempted to manipulate a 30lb sheet of pure groundwood but such difficulty was encountered that this weight had to be abandoned. The sheet was so fragile that it had to be couched off the sheet machine on a blotter and the whole cut down to size without removing it. All attempts to handle this weight of sheet in the usual manner proved fruitless owing to its exceptional weakness.

The 45lb sheet was satisfactorily handled in the ordinary manner by using considerable care.

Shrinkage measurements gave practically identical results for all basis weights and all pressures.

Through a miscalculation of the amount of stock required it was found necessary to prepare a fresh batch to determine the effect of high pressure. This stock proved inferior to the first batch but the results obtained demonstrate the same points.

Analysis of Results

All the results show that the strength of the sheet is increased by increasing the pressure applied. This rate of increase is very rapid, amounting to over 100 percent for certain basis weights of sheet through the range of pressures used.

The basis weight of the sheet has no specific effect on the strength though it may be said that medium weights of test sheets (60 and 75 lb) show that most marked results.

The percentage of moisture extracted varies directly with the pressure applied.

On largely increasing the pressure applied it was found that the strength was still increasing, a result fully expected from the previous work in this field.

The most rapid increase in the strength appeared throughout the lower applied pressures, this point being of extreme importance from the point of view of a standard method.

II—Sulphite Pulp, Unbeaten and Unbleached

No difficulty was experienced in the manipulation of the sheets for this test, though the 30lb required to be carefully made to give goor formation.

The hand letter press sheets gave the highest shrinkage as would be expected but the variations in the remainder were negligible.

The effect of basis weight in this series is most marked for the lighter weight sheets, particularly the 30lb. In this case an increase of 100 percent in the strength is gained by applying a pressure of 100lb per square inch. The increase in the strength for the heavier weights of sheet is much less marked and varies very little for large differences of basis weight.

Again the increase in strength is most marked in all cases for the lower pressures applied.

The percentage moisture extracted increases fairly regularly with increases in the pressure applied.

III—Sulphite Pulp, Beaten Unbleached

This was the first test carried out to demonstrate the effect of increases in pressure applied on the strength of

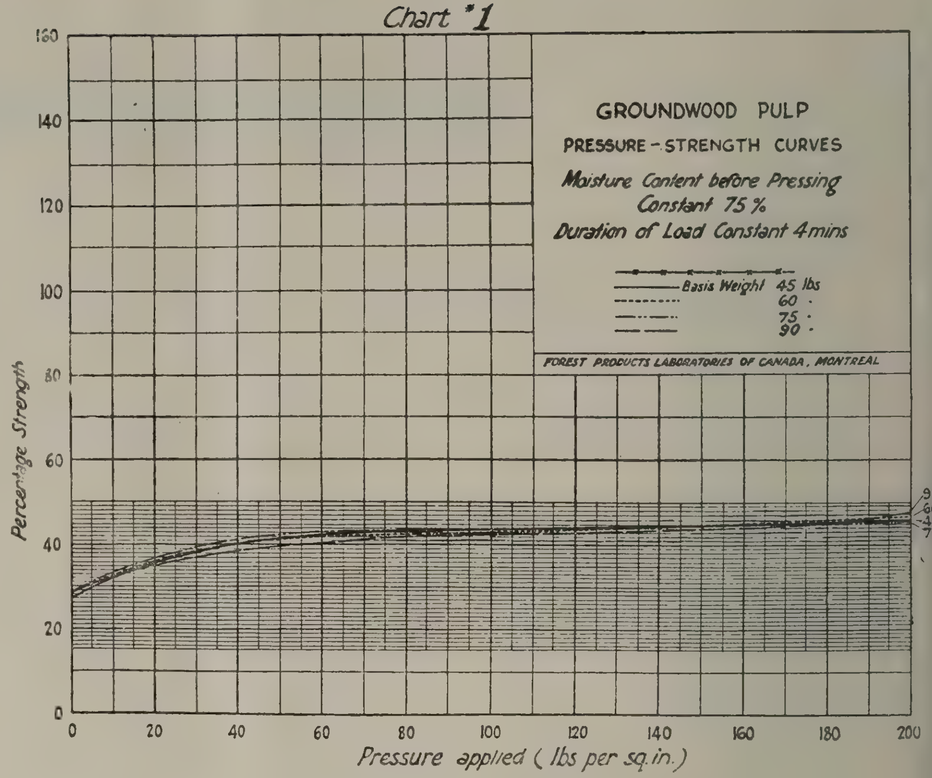


TABLE I

Ground Wood — (First Stock)

Constants—
  Rate of Loading 0.024 ft. per minute
  Duration of Load 4 minutes
Variables—
  Pressure Applied
  Basis Weight

Pressure lb. per sq. in.	Moisture Before Pressing	Moisture After Pressing	Moisture Extracted	Basis Weight	Thickness	Bursting Strength
Series (a) Basis Weight 30 lb.						
0	—	—	—	37.74	0.0058	19.06
Series (b) Basis Weight 45 lb.						
0	85.2	—	—	42.6	0.0112	27.69
80	82.4	38.6	53.2	44.5	0.007	43.13
120	83.8	38.9	53.6	44.1	0.0068	44.09
160	84.6	36.7	56.6	44.8	0.0062	45.0
200	84.3	33.1	60.7	45.27	0.0061	45.85
Series (c) Basis Weight 60 lb.						
0	83.3	—	—	60.3	0.0150	28.4
20	85.4	55.4	35.1	55.3	0.0098	36.6
40	85.8	51.1	40.1	56.8	0.0095	39.1
60	83.4	44.5	46.6	61.7	0.0091	40.4
80	83.5	42.4	49.3	61.3	0.0089	41.8
100	83.7	42.1	49.7	61.7	0.0087	42.6
120	83.3	40.2	51.8	61.8	0.0086	42.8
140	83.9	39.8	52.6	60.8	0.0085	44.6
160	82.9	38.9	53.1	62.9	0.0084	45.0
180	83.0	38.6	53.5	62.6	0.0082	45.8
200	83.2	38.6	53.6	62.1	0.008	46.8
The remainder of this series was abandoned owing to the great difficulty of handling the sheets.						
Series (d) Basis Weight 75 lb.						
0	84.7	—	—	74.3	0.0168	28.7
40	84.4	55.3	34.5	74.5	0.0120	41.3
80	85.1	51.5	39.5	74.7	0.0177	42.7
120	84.7	46.7	44.9	75.4	0.0111	44.3
160	84.8	45.6	46.2	75.6	0.0105	46.3
200	81.9	41.4	49.5	77.1	0.0098	45.7
Series (e) Basis Weight 90 lb.						
0	84.0	—	—	89.9	0.0204	28.7
40	80.3	53.6	33.3	94.3	0.0140	38.5
80	81.7	49.6	39.3	95.0	0.0135	41.1
120	82.7	47.4	42.7	91.9	0.0130	43.0
160	81.7	44.5	45.6	92.2	0.0120	45.1
200	83.3	41.9	49.7	91.4	0.0118	47.3
Series (f) Basis Weight 30 lb.						
GROUND WOOD (Second Stock)						
0	—	—	—	27.2	0.006	15.4
200	—	38.2	—	27.1	0.0048	28.4
1000	—	25.3	—	29.2	0.0041	34.7
Series (g) Basis Weight 45 lb.						
0	79.7	—	—	43.4	0.0092	17.8
200	81.3	31.4	61.4	43.5	0.0065	34.4
1000	82.3	24.1	70.0	43.7	0.0052	44.1
Series (h) Basis Weight 60 lb.						
0	80.9	—	—	57.4	0.0130	18.5
200	82.1	37.0	54.9	57.1	0.0078	35.3
1000	82.6	25.3	69.4	59.7	0.0070	44.8
Series (i) Basis Weight 75 lb.						
0	79.3	—	—	74.8	0.0162	19.8
200	81.1	41.6	48.7	74.6	0.0098	36.3
1000	81.2	29.6	63.5	76.2	0.0095	46.2
Series (j) Basis Weight 90 lb.						
0	80.8	—	—	82.1	0.0164	21.3
200	79.7	42.7	46.4	90.3	0.0120	38.4
1000	80.5	33.2	58.8	91.8	0.0103	47.1

TABLE II

Unbeaten Unbleached Sulphite

Constants—
  Rate of loading 0.024 ft. per minute
  Duration of load four minutes
Variables—
  Pressure Applied
  Basis Weight

Pressure lb. per sq. in.	Moisture Before Pressing	Moisture After Pressing	Moisture Extracted	Basis Weight	Thickness	Bursting Strength
Series (a) Basis Weight 30 lb.						
0	79.8	—	—	32.8	—	28.2
40	79.1	34.2	36.8	32.8	—	42.4
80	77.3	33.3	56.9	33.4	—	53.9
120	80.6	34.6	57.1	31.8	—	57.4
160	79.9	33.5	58.0	32.3	—	59.1
200	79.9	31.0	61.1	32.8	—	61.7
Series (b) Basis Weight 45 lb.						
0	78.5	—	—	49.2	—	31.9
40	79.4	40.7	48.8	47.1	—	40.9
80	80.3	39.1	51.3	46.6	—	47.3
120	79.3	37.6	52.6	48.8	—	55.1
160	79.3	36.1	54.5	48.4	—	57.9
200	78.6	34.7	55.9	48.5	—	60.4
Series (c) Basis Weight 60 lb.						
0	78.0	—	—	65.6	0.0094	29.5
20	78.0	42.4	45.6	43.7	0.0069	35.7
40	78.1	40.0	48.8	54.1	0.0066	41.5
60	76.9	40.2	47.7	61.1	0.0062	45.4
80	78.3	39.7	49.3	61.8	0.0061	47.4
100	77.0	38.0	50.7	62.9	0.006	49.7
120	80.0	38.4	52.0	65.4	0.0058	54.4
140	77.4	36.9	52.4	62.3	0.0055	56.9
160	76.1	36.5	52.1	62.6	0.0052	58.9
180	77.6	36.2	53.4	60.0	0.0051	60.4
200	77.1	35.9	53.5	62.4	0.0049	62.1
1000	77.8	26.9	65.4	70.1	0.005	75.4
Series (d) Basis Weight 75 lb.						
0	77.9	—	—	76.6	—	34.8
40	78.0	44.9	42.4	77.1	—	46.4
80	75.2	41.9	44.3	82.0	—	51.3
120	76.4	39.9	47.8	79.7	—	55.7
160	76.8	38.6	49.7	80.4	—	53.2
200	78.8	37.9	51.9	77.2	—	60.5
Series (e) Basis Weight 90 lb.						
0	77.2	—	—	94.1	—	33.5
40	76.4	55.4	27.5	87.0	—	45.8
80	76.1	42.8	43.8	89.6	—	51.4
120	77.2	41.4	46.4	86.8	—	52.6
160	78.9	40.7	48.5	93.4	—	54.6
200	77.1	38.4	50.2	94.4	—	60.8

the test sheets of a beaten stock. The stock was easily handled and gave sheets of excellent formation.

The percentage increase in strength is much less marked in this test than in the previous ones due to the much higher initial strength. The actual number of points per pound gained by pressure is approximately the same however, and this will be found to be true for the majority of tests.

The increase in strength is again noticeably much greater for the lower pressures applied becoming more or less constant above 60lb per sq. in.

The effect of basis weight is marked and of rather a peculiar nature. The 60lb sheets show undoubtedly the most marked results, increases and decreases from this weight resulting in a lessening of the effect.

Percentage moisture extracted follows the usual lines.

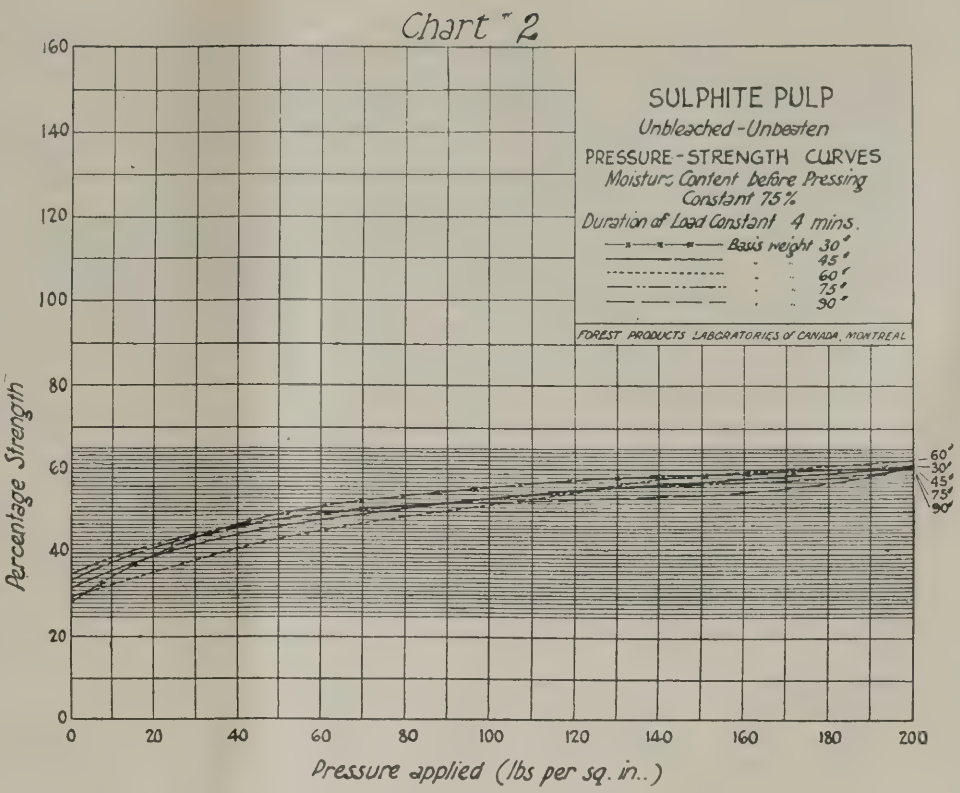


TABLE III

Beaten Unbleached Sulphite

Constants—
Rate of loading 0.024 ft. per minute
Duration of load four minutes

Variables—
Pressure applied
Basis Weight

Pressure lb. per sq. in.	Moisture Before Pressing	Moisture After Pressing	Moisture Extracted	Basis Weight	Thickness	Bursting Strength
Series (a) Basis Weight 30 lb.						
0	82.6	—	—	28.3	—	86.6
40	81.2	49.5	39.1	30.6	—	95.2
80	81.8	44.5	45.6	29.0	—	100.5
120	81.9	40.6	50.4	28.3	—	102.9
150	81.6	39.8	51.2	27.7	—	105.2
200	81.6	37.3	54.3	29.2	—	106.8
Series (b) Basis Weight 45 lb.						
0	80.1	—	—	47.0	—	87.5
40	78.9	53.6	32.1	46.9	—	99.6
80	79.5	49.5	37.8	44.9	—	101.2
120	79.8	47.5	40.3	45.4	—	103.9
160	81.8	46.0	43.7	43.8	—	106.0
200	79.2	41.7	47.4	44.0	—	108.4
Series (c) Basis Weight 75 lb.						
0	79.9	—	—	60.9	0.0089	90.0
20	80.0	58.6	26.8	56.3	0.0062	102.0
40	78.2	53.7	31.3	55.4	0.0057	105.4
60	80.1	52.3	34.7	55.7	0.0054	107.5
80	81.0	51.4	36.6	53.4	0.0050	109.2
100	80.5	50.2	37.7	57.2	0.0049	111.8
120	80.6	48.1	40.3	56.4	0.0049	109.1
140	80.8	47.7	41.0	56.7	0.0048	113.6
160	80.4	46.7	41.9	59.5	0.0048	114.3
180	78.0	44.1	43.5	63.8	0.0047	111.6
200	79.1	43.9	44.5	61.0	0.0045	116.5
1000	78.4	24.9	68.3	64.8	0.0042	118.1
Series (d) Basis Weight 75 lb.						
0	80.7	—	—	83.3	—	86.3
40	77.8	55.9	28.1	80.9	—	102.2
80	79.2	52.0	34.4	73.2	—	106.0
120	80.1	49.3	38.5	73.9	—	109.2
160	79.6	46.3	40.6	75.5	—	111.7
200	80.1	44.5	44.5	77.3	—	111.7
Series (e) Basis Weight 90 lb.						
0	78.1	—	—	96.6	—	87.4
40	76.6	54.9	28.3	89.7	—	101.4
80	77.0	51.3	33.4	90.9	—	103.5
120	78.3	48.1	38.6	86.1	—	106.3
160	78.1	45.1	42.3	94.0	—	107.9
200	76.2	41.7	45.3	96.4	—	108.7

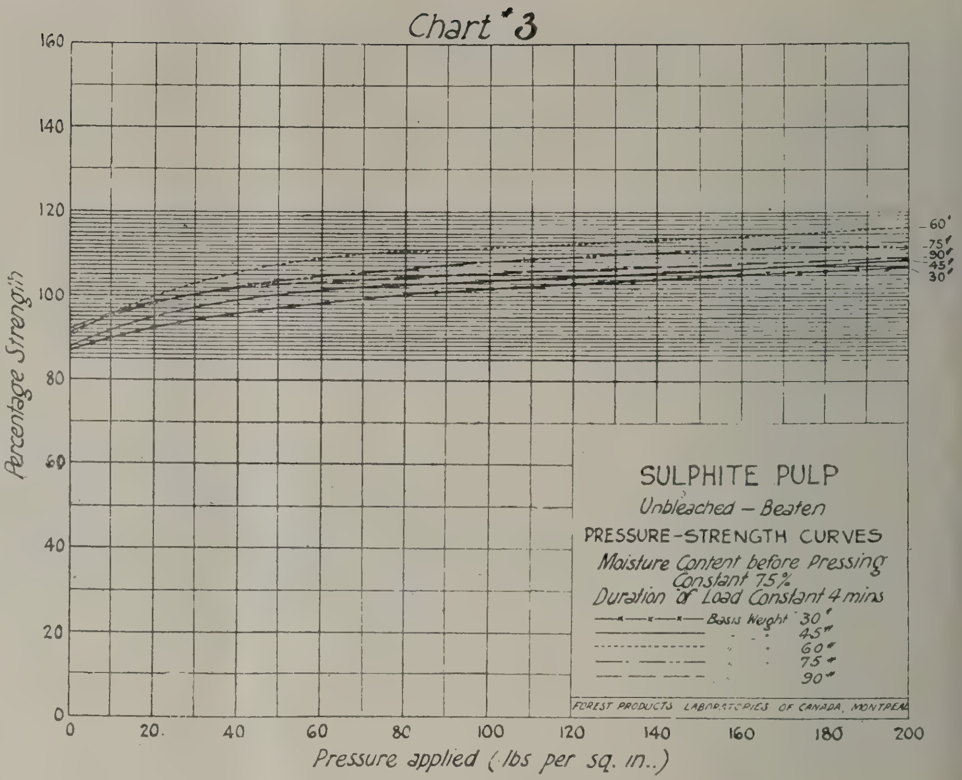
TABLE IV

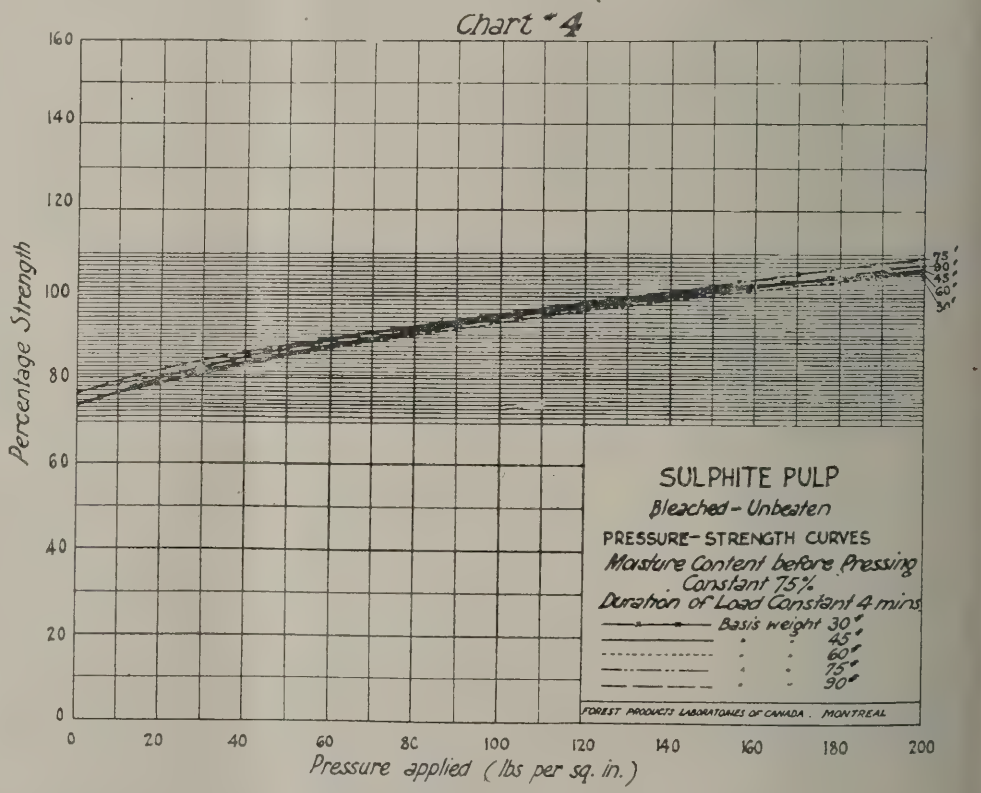
Unbeaten Bleached Sulphite

Constants—
Rate of loading 0.024 ft. per minute
Duration of load four minutes

Variables—
Pressure applied
Basis Weight

Pressure lb. per sq. in.	Moisture Before Pressing	Moisture After Pressing	Moisture Extracted	Basis Weight	Thickness	Bursting Strength
Series (a) Basis Weight 30 lb.						
0	84.3	—	—	28.3	—	73.3
40	84.1	45.5	45.9	27.8	—	85.3
80	83.5	42.8	48.7	28.8	—	91.1
120	84.1	41.3	50.9	34.1	—	100.6
160	84.0	40.3	53.2	30.3	—	101.0
200	83.8	38.9	53.6	29.8	—	105.3
Series (b) Basis Weight 45 lb.						
0	83.6	—	—	44.8	—	93.9
40	81.6	49.7	39.1	51.7	—	84.2
80	82.6	47.0	43.1	51.0	—	90.1
120	82.8	44.9	45.8	51.3	—	98.4
160	83.8	44.5	46.9	52.1	—	101.2
200	83.6	44.0	47.4	51.3	—	106.5
Series (c) Basis Weight 60 lb.						
0	82.9	—	—	61.0	0.011	76.7
20	82.8	53.1	35.9	55.2	0.0064	80.7
40	82.5	51.6	37.4	58.0	0.0062	84.3
60	82.7	49.8	39.8	58.5	0.0058	88.8
80	83.5	49.0	41.3	59.7	0.0056	90.9
100	82.3	46.9	43.0	64.1	0.0053	95.2
120	82.9	46.4	44.0	64.3	0.0051	97.7
140	81.6	43.9	46.2	60.9	0.0050	99.6
160	81.6	44.1	45.9	60.7	0.0048	100.9
180	82.8	44.7	46.0	61.9	0.0048	103.6
200	83.5	45.1	46.0	62.8	0.0046	105.9
1000	83.4	30.6	63.3	60.1	0.0043	119.6
Series (d) Basis Weight 75 lb.						
0	81.8	—	—	82.0	—	73.9
40	81.6	54.6	33.1	76.5	—	87.1
80	80.0	50.4	37.0	73.6	—	92.6
120	80.8	48.1	40.5	71.6	—	98.3
160	83.1	49.7	42.6	74.7	—	102.0
200	80.9	44.6	44.9	74.7	—	109.9
Series (e) Basis Weight 90 lb.						
0	80.3	—	—	88.9	—	76.3
40	78.6	53.4	32.0	91.3	—	87.2
80	82.1	51.7	37.0	92.0	—	92.8
120	81.7	49.3	39.7	91.4	—	97.2
160	82.3	48.9	40.6	92.8	—	101.3
200	79.5	45.0	43.4	90.9	—	107.4





IV—Sulphate Pulp, Unbeaten Bleached

No difficulty was encountered in the manipulation of these tests.

The most noticeable point in these results is the regularity with which the strength increases in the applied pressure.

The effect of basis weight is negligible.

The points per pound increase remains the same as in the previous tests, though the percentage increase in strength is somewhat different.

The percentage moisture extracted is again normal.

V—Sulphate Pulp, Bleached Beaten

This stock was beaten until very much hydrated and gave a sheet, which was semigreaseproof. When carrying out the test at 1,000lb pressure the sheets adhered to the blotters so tenaciously that it was almost impossible to separate them. From the results obtained these sheets seemed but little stronger than those pressed at 200lb per sq. in.

The results obtained from this test are almost identical to those from Test No. 4 both as to regularity of the increase in strength, the total number of points per pound gained and the effect of basis weight on the results. The percentage increase in strength however is considerably lower due to the higher initial strength.

The percentage loss of moisture is fairly regular in all cases.

VI—Kraft Pulp, Unbleached Unbeaten

In the formation of these sheets for this test considerable care was necessary to obtain uniformity. This was caused by the tendency of the unbeaten stock to mat together while in suspension, thus forming great spots of clotted stock in the finished sheet.

The effect of pressure on the strength of these test sheets is much more marked than in any of the pulps previously tested, this being true both of the points per pound and the percentage increase in strength.

The effect of variations in the basis weight is also very erratic though seemingly well defined. From the results obtained the 45lb sheet seems to give the best results.

The percentage loss of moisture is quite regular.

VII—Kraft Pulp, Unbleached, Beaten

The beating treatment given to the kraft pulp was not sufficiently severe to develop its maximum strength, because of the difficulty in controlling the baby beater used for the purpose as it was found necessary to dump the stock before it was thoroughly beaten for fear of cutting the fiber too drastically and thus spoiling its strength. The results therefore seem out of proportion when compared with those obtained from bleached sulphite pulp but nevertheless they show quite distinctly the points which were sought.

Analysis of Results

Although the results from the 60lb sheet are very erratic it may be said that this weight is optimum over the majority of pressures used, either increases or decreases from this point lessening the effect. The total increase in the points per pound is somewhat greater than obtained in other varieties of pulp and the increase is quite regular throughout.

Chart 8 shows how varying the pressure applied affects the different varieties and conditions of pulps tested. In all cases the basis weight of the sheet was 60lb together with the usual constants for the other charts.

Summary

A series of tests were carried out to determine the effect of pressure on the strength of test sheets from sulphite pulp, unbleached unbeaten; unbleached beaten; bleached unbeaten bleached beaten; groundwood pulp, unbleached unbeaten; kraft pulp, unbleached unbeaten, unbleached beaten.

From the results obtained the following general conclusions may be drawn as applying to all the pulps examined:

(1) Increases in the pressure applied develop increases in the strength of the resultant test sheet; this developed increase in strength being continual over a very great range of pressures.

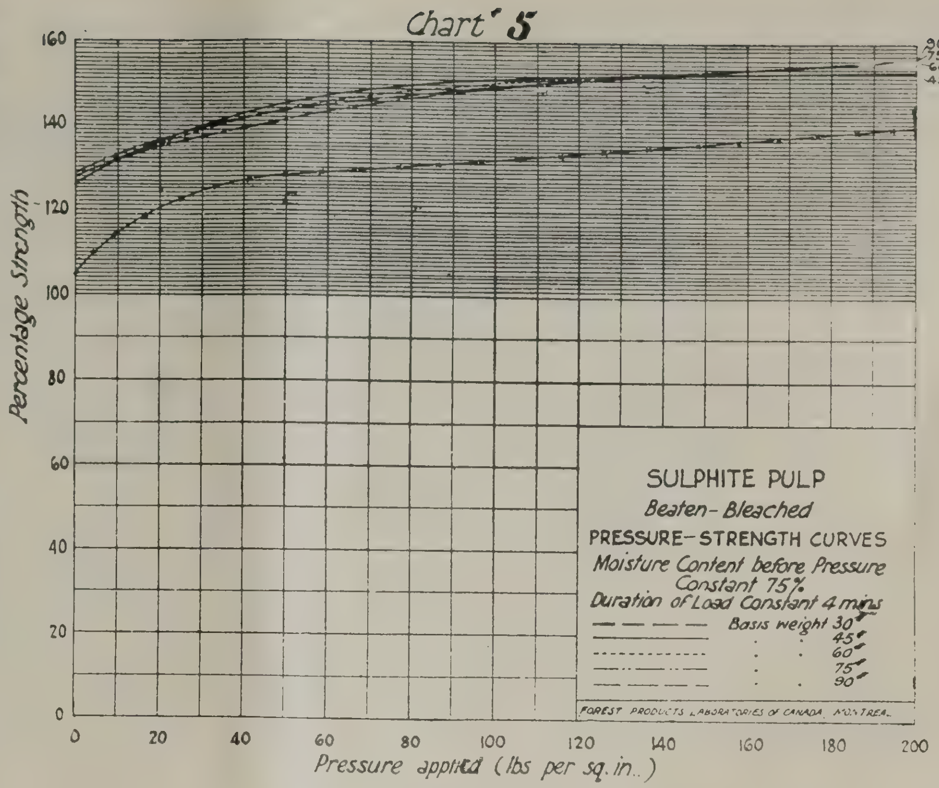
(2) The effect of the basis weight of the sheet on the resultant strength is variable and depends upon the variety of pulp being tested. Considering all the varieties tested it may be said that a 60lb sheet is the most satisfactory from the point of view of strength developed and ease of manipulation.

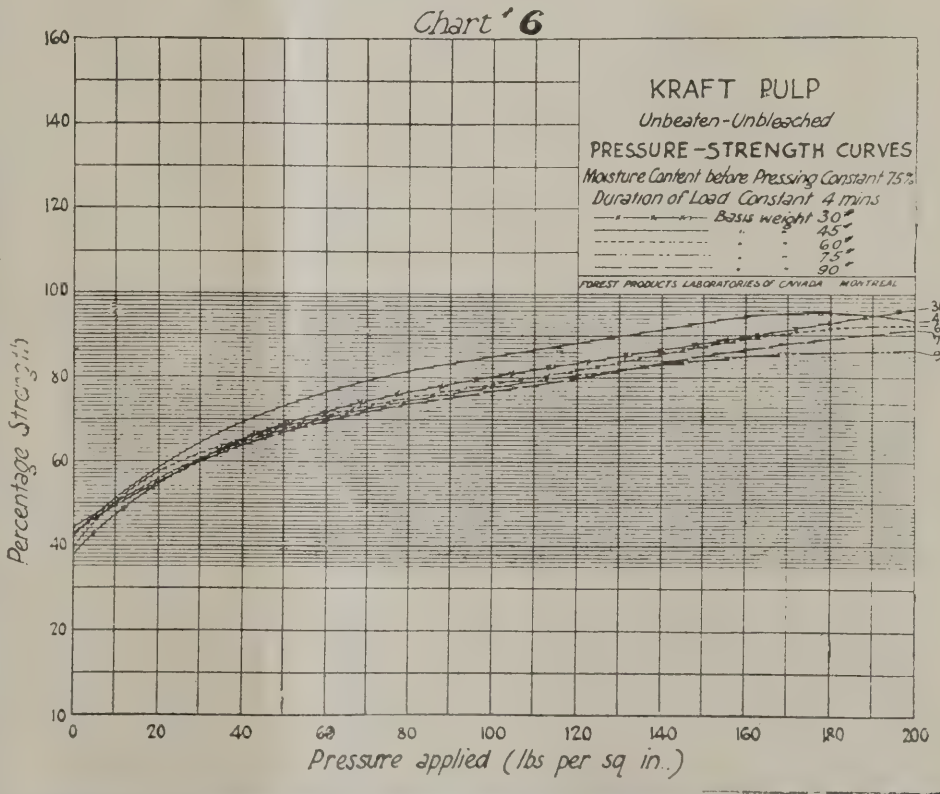
(3) The rate of increase in strength varies with the varieties and condition of the pulps being tested, but in all cases this rate becomes uniform for pressures above 100lb per sq. in.

(4) The increase in strength in number of points per pound remains fairly constant for all the varieties and conditions of pulp tested except in the two instances of unbeaten kraft and groundwood. The unbeaten kraft shows the remarkable increase of 55 points per pound while groundwood gives the lowest increase, 17 points. The remainder seem fairly constant between 25 to 30 points. (Results taken from 60lb sheet in all cases, see chart).

(5) The percentage loss of moisture increases with the pressure applied in a comparable manner for all varieties and condiitons of pulp tested.

(6) The effect of pressure on the thickness of the sheet was found to be negligible for the conditions of testing used and the test was abandoned.





Conclusions

In the delineation of the conditions for a "Standard Method of Testing Pulps for Strength" it seems imperative that the pressure applied to the sheet during formation be definitely specified. A pressure of 200lb per sq. in. was found ample to insure that this effect would be regular for all pulps tested and although this could safely be reduced yet from the point of view of reliability of the test a pressure of at least this amount should be used.

The effect of variations in the basis weight of the sheet is not sufficient to counteract the advantage of a single basis weight for all pulps and from the results obtained that of 60lb seems most satisfactory. It is therefore recommended that these two factors be specifically stated in any Standard Method for the Strength Testing of Pulp, as in the accompanying table.

(1) That the test sheets used should be of a basis weight of 60lb per newsprint ream.

(2) That in the formation of the test sheets a pressure of 200lb per square inch maintained for two minutes be adopted.

Chart # 7

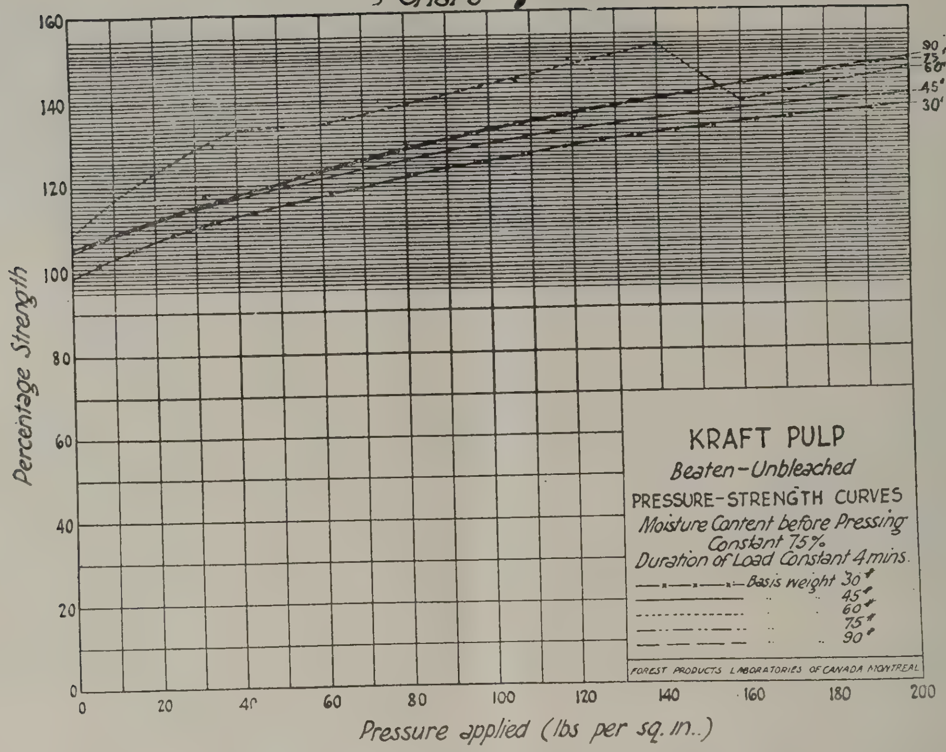


TABLE V

Beaten Bleached Sulphite

Constants—
Rate of loading 0.024 ft. per min.
Duration of load four minutes

Variables—
Pressure applied
Basis weight

Pressure lb. per. sq. in.	Moisture Before Pressing	Moisture After Pressing	Moisture Extracted	Basis Weight	Thickness	Bursting Strength
Series (a) Basis Weight 30 lb.						
0	—	—	—	27.6	—	104.8
20	81.2	38.2	53.0	31.2	—	124.4
140	83.2	34.0	59.2	29.2	—	135.6
200	83.1	32.0	61.5	30.5	—	140.0
Series (b) Basis Weight 45 lb.						
0	81.0	—	—	39.8	—	125.9
20	82.3	51.1	37.8	42.2	—	136.7
60	83.8	49.7	40.7	42.6	—	144.4
100	81.6	48.1	41.1	50.5	—	151.3
140	81.3	45.8	43.7	52.9	—	152.7
200	81.6	39.6	51.5	48.4	—	153.2
Series (c) Basis Weight 60 lb.						
0	80.8	—	—	58.6	0.0117	127.8
20	80.0	55.0	31.3	56.1	0.0072	136.8
40	81.5	54.5	33.1	66.5	0.0069	139.3
60	82.5	53.8	34.8	63.1	0.0065	144.1
80	81.7	50.4	38.3	61.4	0.0063	145.4
100	81.5	49.6	39.2	60.9	0.0059	149.7
120	81.5	48.6	40.4	64.4	0.0055	151.1
140	79.7	45.8	42.5	63.6	0.0053	152.5
160	82.3	46.0	44.1	65.8	0.0052	152.8
180	82.6	45.9	44.5	72.4	—	155.0
200	81.6	43.9	46.2	60.3	0.0050	156.0

On 1000lb. it was found impossible to separate the sheet from the blotters.

Pressure lb. per. sq. in.	Moisture Before Pressing	Moisture After Pressing	Moisture Extracted	Basis Weight	Thickness	Bursting Strength
Series (d) Basis Weight 75 lb.						
0	77.2	—	—	81.4	—	127.8
20	76.7	51.3	33.1	76.7	—	135.0
40	79.7	54.8	31.2	79.9	—	139.6
100	80.8	51.4	36.4	80.1	—	149.1
120	81.5	50.4	38.2	78.5	—	150.9
200	80.4	45.4	43.5	78.2	—	156.2
Series (e) Basis Weight 90 lb.						
0	79.2	—	—	88.7	—	128.7
20	81.2	60.9	24.9	102.5	—	135.3
80	79.4	50.9	35.9	85.9	—	144.9
100	81.1	51.9	36.0	95.4	—	149.9
160	80.6	47.2	41.5	80.1	—	154.4
200	79.3	45.5	42.6	92.6	—	156.2

TABLE VI

Unbeaten Unbleached Kraft

Constants—
Rate of loading 0.024 ft. per min.
Duration of load four minutes

Variables—
Pressure applied
Basis weight

Pressure lb. per. sq. in.	Moisture Before Pressing	Moisture After Pressing	Moisture Extracted	Basis Weight	Thickness	Bursting Strength
Series (a) Basis Weight 30 lb.						
0	82.9	—	—	28.4	—	37.9
40	83.1	47.4	42.9	27.7	—	65.2
80	81.8	37.4	54.3	29.1	—	75.3
120	81.6	35.9	56.0	31.1	—	81.7
160	81.7	34.9	57.3	30.0	—	91.6
200	82.7	34.4	58.4	29.6	—	96.3
Series (b) Basis Weight 45 lb.						
0	81.4	—	—	42.8	—	42.1
40	80.3	58.3	27.4	48.8	—	69.8
80	82.0	42.4	48.3	46.5	—	81.8
120	82.4	40.5	50.9	48.1	—	89.0
160	83.1	40.4	51.4	48.6	—	94.9
200	82.3	37.8	54.1	44.9	—	93.1
Series (c) Basis Weight 60 lb.						
0	81.2	—	—	60.1	0.0118	39.5
20	77.6	44.6	42.5	60.3	0.0089	57.6
40	81.0	44.0	45.7	59.5	0.0081	64.6
60	79.5	42.9	46.0	61.7	0.0073	69.3
80	80.2	42.6	46.9	57.6	0.0069	74.2
100	81.9	42.1	48.6	58.8	0.0065	78.2
120	80.0	40.5	49.4	60.7	0.0062	81.8
140	81.2	40.7	49.9	62.4	0.0061	85.0
160	82.1	40.8	50.3	63.0	0.0059	89.8
180	81.5	39.8	51.2	60.4	0.0057	91.6
200	80.8	37.9	53.1	59.1	0.0055	92.4
1000	81.4	29.1	64.3	61.5	0.0050	127.
Series (d) Basis Weight 75 lb.						
0	79.8	—	—	74.3	—	44.5
40	80.4	47.1	41.4	78.2	—	64.3
80	80.9	44.2	45.3	80.2	—	74.2
120	79.6	41.9	47.4	78.5	—	80.8
160	80.9	41.5	48.7	80.4	—	85.4
200	79.0	39.5	50.0	74.4	—	86.3
Series (e) Basis Weight 90 lb.						
0	80.7	—	—	92.8	—	42.9
40	79.7	48.1	39.7	91.7	—	64.3
80	81.6	45.8	43.9	89.3	—	73.9
100	80.9	43.4	46.4	93.0	—	79.8
160	79.2	41.8	47.3	94.7	—	86.6
200	80.1	41.3	48.4	96.4	—	91.6

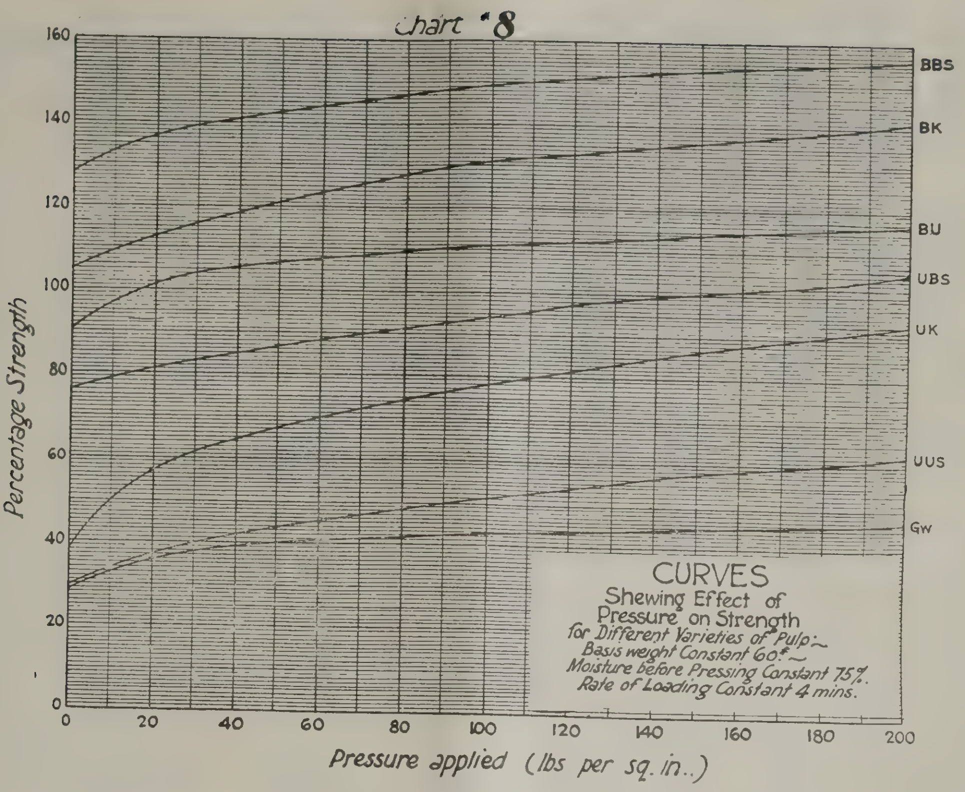


TABLE VII

Beaten Unbleached Kraft

Constants—
Rate of loading 0.024 ft. per min.
Duration of load four minutes

Variables—
Pressure applied
Basis weight

Pressure lb. per. sq. in.	Moisture Before Pressing	Moisture After Pressing	Moisture Extracted	Basis Weight	Thickness	Bursting Strength
Series (a) Basis Weight 30 lb.						
0	81.8	—	—	34.6	—	98.5
40	84.0	46.9	44.2	30.8	—	119.0
80	81.9	42.5	48.1	30.2	—	121.2
120	82.2	41.7	49.3	33.7	—	126.6
160	82.4	40.6	50.7	33.1	—	133.7
200	82.0	37.1	54.8	31.4	—	137.5
Series (b) Basis Weight 45 lb.						
0	80.4	—	—	48.9	—	104.3
40	80.7	47.9	40.7	47.8	—	117.1
80	81.0	43.9	45.8	45.5	—	125.5
120	81.7	43.0	47.4	46.5	—	133.9
160	82.7	42.1	49.1	48.0	—	136.9
200	81.4	40.0	50.9	49.2	—	139.4
Series (c) Basis Weight 60 lb.						
0	81.3	—	—	62.4	0.011	108.6
20	82.6	53.6	35.1	62.3	0.0072	123.5
40	81.7	50.8	37.8	61.9	0.0068	133.5
60	81.1	48.5	40.2	60.9	0.0062	134.0
80	82.3	48.2	41.5	65.3	0.0062	139.2
100	82.6	47.0	43.1	65.2	0.0057	144.6
120	83.3	46.5	44.2	63.5	0.0056	145.9
140	82.2	44.9	45.4	67.8	0.0057	152.4
160	81.9	43.9	46.4	61.2	0.0054	138.5
180	81.4	43.0	47.2	63.7	0.0052	142.7
200	81.9	41.7	49.1	63.4	0.0051	145.3
1000	83.0	29.5	64.5	62.3	0.0047	161.0
Series (d) Basis Weight 75 lb.						
0	81.1	—	—	76.7	—	105.2
40	81.1	51.4	36.6	76.7	—	118.8
80	80.5	48.1	40.2	76.1	—	128.3
120	81.6	46.3	43.3	78.2	—	131.5
160	80.1	43.7	45.4	78.6	—	142.7
200	81.8	43.6	46.7	78.9	—	148.3
Series (e) Basis Weight 90 lb.						
0	80.2	—	—	90.7	—	108.8
40	79.4	53.1	33.1	102.4	—	117.3
80	80.2	46.4	42.2	97.9	—	129.6
120	81.8	47.9	41.5	86.1	—	135.0
160	80.1	44.4	44.6	88.1	—	142.7
200	80.7	43.8	45.7	88.9	—	148.3

PAPER INDUSTRIES EXPOSITION PROGRESSES

Fine Collection of Watermarks to be Feature of Industries Exposition

THE finest collection of watermarks ever collected is planned as an educational feature of the Second Paper Industries Exposition, to be held at the Grand Central Palace, New York, the week of April 7th, and scores of letters have been sent by the management asking mills and big corporations to assist in collecting a representative series of special watermarks, particularly those on paper made for large business organizations which have either the firm emblem, names, symbols or picturization of the firms' products marked in the paper. A good start has already been made on the collection, those already secured including a number of early religious marks, several early regal marks and quite a collection of modern watermarks in the stationery of business firms.

These marks have inherent advertising value and the management will consider it a favor on the part of any concern which sends in such marks. The collection is being arranged with two plain sheets of the paper containing the watermark. Charles F. Roth, one of the managers of the Paper Industries Exposition has been interested in this question from an historical standpoint and stated that an exhibit made up of such marks would be of much educational value to the public.

A daily motion picture program will be part of the week's "Paper Show" and a list of films pertaining to paper manufacture, woods operations of paper companies, the production of specialties, and general forestry will be included. This was one of the interesting features of the Exposition last year, and the program for each day of the exposition week is already being tentatively arranged. If possible every paper film ever produced will be shown some time during the week.

Meanwhile, space for the Exposition is being taken daily, until even now, two months in advance of the paper show, half the available space is already under contract. One of the interesting new developments is the taking of space by some of the big electric companies which have been specializing in the installation of synchronized electric drive for paper machines.

"The vital importance of the paper manufacturing industry to the Connecticut Valley inspires the belief that the locality will be adequately represented when the annual exposition opens," says an editorial in one of the big Springfield, Massachusetts, newspapers, indicating the interest taken in the Exposition in that region, the biggest center of fine papermaking in the world. The editorial comment followed a description of the project and references to the extent of the numerous visitors who saw the first exposition in 1923.

More About The De Vains Process

Further Thoughts About the Process That Is Attracting Much Attention

By JAMES STRACHAN, F.Inst.P., F.R.M.S.
Chief Chemist to the Donside Paper Co., Ltd.

IN a previous communication Mr. Strachan gave a general outline of the De Vains process for the manufacture of bleached cellulose, with a short account of the history of the invention and its applications. See PAPER, January 24. Concerning certain statements made therein, he has been asked the question: "How can the De Vains process be applied by British papermakers who already have valuable plants for the production of pulp by the soda process?"

In reply to this he says it should be noted that the De Vains inventions include two very important units (1) an economical and compact electrolytic plant for the production of caustic soda liquor and chlorine, the latter in the form of chlorine water or hypochlorite of lime, and (2) a practical chlorination plant for the application of the Cross and Bevan chlorination process, without loss of chlorine and perfect regulation in its use. The electrolytic unit may be used with advantage in any paper mill, for the cheap production of caustic soda liquor and bleach-liquor. In this case an existing recovery-plant may be used for the production of surplus black ash, and there are well-known advantages accruing from the use of electrolytic hypochlorite. Many mills in America have already adopted electrolytic plant, other than De Vains, for the latter reason alone.

With regard to the application, however, of the De Vains process and plant complete, involving the chlorination process, there are certain circumstances and projects demanding the careful consideration of its economical application. These are as follows:—

1. The installation of plant for the production of cellulose from waste materials at present used in the manufacture of brown paper, such as flax waste and hemp.
2. The manufacture of pure cellulose for the manufacture of artificial silk and explosives.
3. The production of a workable straw pulp in certain areas of this country.
4. The addition of straw or esparto plant to wood pulp paper mills. For example, a mill bleaching 200 tons per week of sulphite pulp could replace 50 tons of the wood pulp with advantage by straw or esparto pulp and have the electrolytic plant so designed that a sufficient surplus of bleach-liquor was produced to bleach the whole output of the mill (including the wood pulp).
5. The project of installing a complete unit for the manufacture of esparto and straw papers, including a paper machine designed to run at much higher speeds than those at present used in the manufacture of printing papers.

The chief application, however, of the De Vains process, in the future, lies in the manufacture of bleached pulp from new fibres in tropical countries, and from straw in the great cereal growing areas of the world, where water-power is available. In this respect De Vains plant must be regarded as the first practical method of tapping such supplies, long talked of but hitherto largely neglected because of the expense connected with the transport of chemicals and the erection of expensive recovery plants for their conservation.

So long as water power is available the steam is required only for digestion and drying of the pulp or paper, and where coal or other fuel is not to hand this may be obtained economically from electrical boilers.

The first plant on the De Vains system for dealing with this problem in a tropical country is now running in Java, where the raw material is rice straw. The first step, however, towards carrying out such a project on a fairly large scale has now been arranged for, and will take the form of a mill producing 50 tons of bleached straw pulp a day in one of the wheat growing districts of Canada. The site fixed for this mill is near to Winnipeg, and when this is completed we will have an interesting event in the history of modern papermaking, viz., the first practical step towards drawing on cereal waste and conserving timber. Experiments already completed with Canadian straw show a superior fiber to that prepared from European straw, and a yield about 5 percent higher than that obtained by the ordinary soda process.

With regard to the rationale of the De Vains process and its applications, technical criticism may be directed under three heads: (1) materials used; (2) engineering design of the plant; (3) chemical considerations. In an article of this kind I can only deal with these briefly, and from my own point of view as a chemist with some experience of both papermaking and engineering.

First, with regard to raw materials treated; up to the present, these have been largely materials available in France, viz., esparto and straw. The application of the process to straw and similar materials on a large scale abroad must re-open the question of the Cross and Bevan classification of cellulose from a practical point of view. Celluloses from graminaceous plants, thanks to this laboratory classification, have been placed in the lowest category, and held suspect from the point of view of permanency. Yet from the practical point of view every large user of paper knows that a first class esparto paper is superior in every way to a wood pulp paper, which fact the authors of the above-mentioned classification admitted in deed, if not in word by printing their "Text Book of Papermaking" on an esparto paper. The fact is that the source of the cellulose is not nearly so important as the process used for isolating it and its subsequent treatment during manufacture. I have in my possession straw papers a century old, and esparto papers over half a century old, which compare favorably with more modern wood pulp papers. I believe there is more really ancient history written on papyrus reed than on any other kind of paper. In fact, the only reliable method of valuing the permanency and durability of paper is by comparative physical tests before and after artificial methods of ageing.

Many plants present complex structures combining in one stem woody, straw-like and rag-like elements. The utilization of such plants for the production of papermaking materials by the ordinary processes involves the destruction of part by drastic methods of digestion or fermentation, but with the chlorination process the maximum yield is obtained. For this reason the De Vains process is more universal in its application and gives higher yields.

In the second place, with regard to the construction of the plant; in spite of the fact that the French papermaking engineer has a more limited experience in many matters than those of some other countries, the arrangement of the plant on the whole is very good indeed. In France I was greatly surprised to find that De Vains use a system of forced circulation in the digesters (of French make), and I feel certain that this is a point neglected by British papermakers. So far as I know there are only three mills in Britain using forced circulation in their digesters, and in only one of these is the installation modern and extensive. Forced circulation effects considerable economy in consumption of soda, yet the old-fashioned Sinclair type of boiler is still apparently the conservative British standard! In other matters I believe English and American design and practice will improve some of the French details.

With regard to chemical aspects of the process the chlorination method has suffered some criticism chiefly because in the past most of the attempts have been done by the application of gaseous chlorine which is difficult to control. In certain cases this resulted in intensive action with partial destruction of the cellulose. In the De Vains process the chlorine gas is dissolved in water and under perfect control, while the degree of chlorination required may be controlled by the digestion, the consumption of soda and chlorine being interchangeable and variable factors. This is very convenient when an excess of either soda or chlorine is required for other purposes.

Some chemists (including Schwalbe) have stated that chlorine water attacks cellulose. Practical trials on straw have disproved this opinion and demonstrated that in practice chlorine water has no appreciable action on straw cellulose.

The following are the detailed results of these experiments which have already been published in France*:—

Experiment No. 1 on Straw.

Digestion with 8 percent caustic soda.

Chlorination with 12 percent chlorine.

Bleaching with 5 percent chlorine as hypo-chlorite.

The analysis of the pulp showed:

Alpha cellulose	64.38%
Beta cellulose	14.30%
Pentosans	26.97%
Ash and silica	1.50%
Copper number	4.78%

In the second experiment the same straw was treated with much less soda and an excessive quantity of chlorine as follows:—

Experiment No. 2 on Same Straw.

Digestion with 4 percent caustic soda.

Chlorination with 32 percent chlorine.

Bleaching with 5 percent chlorine as hypochlorite.

The analysis of the pulp showed:—

Alpha cellulose	62.25%
Beta cellulose	13.30%
Pentosans	23.50%
Ash and silica	6.95%
Copper number	4.75%

The increased amount of silica in No. 2 is, of course, due to the decreased soda. It is at once noted the copper value of the cellulose has not altered by the excessive chlorination thus proving the inaction of the chlorine on the cellulose, apart from the analytical yields.

I have already remarked on the purity of the esparto and straw pulps obtained in France by the De Vains process. Papers made from these pulps also showed under the microscope fewer parenchyme and epidermal cells than British papers of similar origin. These non-fibrous elements are non-existent in the case of esparto. This gives increased bulk to esparto featherweights. These elements do not disappear in the chemical process but are removed in the washing process, which the French papermaker insists on doing very thoroughly. (In my opinion the French papermaker spends too much time over both washing and bleaching.) The loss of these elements, although increasing the papermaking value of the fiber, brings down the yield so that in the case of esparto grass the gain in yield effected by the De Vains process is partly nullified by loss in washing. A strictly comparative test shows an increased yield of pure cellulose in the case of both esparto and straw.

In the case of straw pulp by manipulation of the digestion and subsequent processes De Vains has produced three kinds of straw pulp: (1) soft, like esparto; (2) intermediate, like wood; and (3) very greasy and suitable for making parchment-like papers.

The latter may be mixed with other pulps such as woodpulp to gain characteristics obtained only in woodpulp itself by excessive beating.

The most important criticism I have been called upon to make in connection with the De Vains process lies not in the chemical control, but in the physical operations necessary to obtain proper chemical reactions. The critical stage is that between digestion and chlorination, where the fibrous materials must be reduced to a phyiscal and mechanical consistence and uniformity, suitable for rapid and thorough chlorination. Straw is easy to manipulate, but other fibers require more attention at this point.

* * *

Sixth Southern Forestry Congress

David L. Goodwillie, chairman of the Forestry Committee of the National Chamber of Commerce, was a principal speaker at the sixth annual Southern Forestry Congress, his subject being the responsibility for forestry. He urged that the Weeks law be amended to allow the government to take over any land suitable only for forest growth, and that more adequate steps for fire prevention should be taken in all parts of the country. That France can show the way to America along forestry lines was the statement of Col. W. B. Greeley, chief of the U. S. Forest Service. J. S. Holmes of North Carolina was elected president, and resolutions urged the passage of the McNary bill by Congress, the extension of forestry education in the south, and the continuance of reforestation experiments in the various states.

PAPER PRODUCTION TOTALS FOR 1923

Over Seven Million Tons of Paper Produced During the Year, Statistics Show

FIGURES compiled by the American Paper and Pulp Association in co-operation with affiliated organizations of paper manufacturers indicate that the total production of paper of all grades in the United States in 1923 was approximately 7,200,000 tons. This total is larger than the production of any other year in the history of the industry, except 1920, when the total was 7,334,614 tons. It is somewhat larger than the production of 1922, which was 7,017,800 tons, and is distributed among the chief grades as follows:

Grade	Tons
Newsprint	1,506,204
Book	1,078,783
Board	2,251,079
Wrapping	1,002,905
Fine	364,552
Tissue	181,948
Hanging	91,489
Felts and Building	410,693
All Other	310,390

While these figures are estimates, being based on the incomplete figures provided by the mills which are co-operating with the various associations of the industry in the compilation of production statistics, yet no more accurate figures will be available until the 1923 United States Census Reports are issued. Figures were compiled by the Federal Trade Commission during the first five months of the year, and when the Commission ceased this compilation, the task was assumed by the American Paper and Pulp Association, which has had the co-operation of the large majority of the mills of the country, represented either individually or through the associations of the various groups of the industry.

* * *

Completes Committee

A. H. Campbell, Traffic Manager of the International Paper Company, New York, chairman of the Paper Committee of the Middle Atlantic States Regional Advisory Board, has completed the organization of his committee as part of the movement of shippers and receivers of freight to promote an understanding of transportation problems and to adjust informally transportation difficulties. The committee is made up, in addition to Mr. Campbell, chairman, as follows: L. H. Palmer, Traffic Manager, Curtis Publishing Company, Philadelphia; Stuart H. Brown, Assistant Secretary and Traffic Manager, Union Bag and Paper Corporation, New York; Warren B. Bullock, Director, Information Service, American Paper and Pulp Association, New York; C. C. Furgason, Traffic Manager, West Virginia Pulp and Paper Company, New York; George Lucas, Director of Transportation, National Publishers Association, New York; H. F. Masman, Traffic Manager, National Association, of Waste Material Dealers, New York; C. H. McIntyre, Traffic Manager, Dill and Collins Company, Philadelphia; Joseph A. Quinlan, Traffic Manager, St. Regis Paper Company, and Hanna Paper Corporation, Watertown, N. Y., and S. M. Williams, Chairman Traffic Committee, American Newspaper Publishers Association, New York.

* * *

THE HARD PART of it is that the people who are looking for trouble aren't the only ones to get it.

* * *

HOW PEOPLE DO TRY to avoid work and how well some of them succeed!

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* "Applications du Chlore a la Fabrication de la Cellulose."—A. de Perdiguier in "La Papeterie," p. 1002, No. 20, 25-10-1923.

The Degree of Porosity of Paper

Some New Ideas on an Important Topic by a Well Known European Authority

By V. RAVIZZA

Originally Published in Industria della Carta

THE determination of the degree of porosity of paper is an important task when testing such papers as are manufactured for special purposes where the ease with which the paper will allow gases and liquids to pass through its structure is of considerable significance. Thus for example the class of papers that is used in wrapping food products must be tested to ascertain their capability of allowing air to penetrate through them. Then again in the manufacture of papers which are used for electrical purposes, the determination of the porosity is of the greatest importance. Many electrical organizations have given particular attention to this phase of paper testing.

Devices Used Divided into Two Groups

It is possible to divide the various devices that are used for determining the porosity of paper into two general groups. The first group consists of apparatus in which the paper is subjected to the action of compression and the second group comprises those devices in which the principle of suction is employed. The more common types of apparatus, those which are most used in making this test, belong to the first group, while the more sensitive devices fall in the second group.

In the apparatus which work on the compression principle, the sheet of paper which is being tested is fixed over the upper opening of a receptacle while water is caused to enter the lower part of this receptacle so as to force out the air and push it through the paper. Naturally a record is taken of the time that it takes to cause a given volume of air to pass through the paper. This is the important factor in the determination.

Sindall Apparatus

Among the modern forms of apparatus used for this purpose the Sindall device, which is shown in figure 1, may be mentioned for the simplicity of its structure. A represents a bottle which has the bottom cut off. It is placed in a reversed position and the lower edges are smoothed off so that the sheet of paper can be firmly fixed to the edges by means of a rubber ring or metallic ring. In the lower part of the receptacle A there is introduced a small tube which is inserted through a one-holed rubber stopper. The end of the tube beyond the receptacle is connected to a siphon D by means of a short rubber tube. This siphon tube leads the water from the bottle C into the bottle A through the short rubber tube, and the level of the water in the bottle C is maintained constant by regulating the flow of water into the same so that no more leaves the bottle than is allowed to flow into it.

After the siphon arrangement has been put into action, the cock E is opened and air is allowed to enter the vessel A. The time that it takes to fill this vessel up to a certain mark is noted.

The Karstens Apparatus

Another apparatus which is constructed on the same principle is known as the Wikler Karstens apparatus. It is seen in figure 2. The piece of paper which is being tested is fixed in a convenient fashion over the upper opening of the graduated cylinder A, which is later lowered and fixed at the bottom of the cylinder B, which contains a certain quantity of air. The air which is compressed in the cylinder A escapes through the pores of the paper with a greater or lesser speed. This factor is very easy to measure by noting the time that is required for the level of the water in the interior of the cylinder A to rise to a certain height.

According to Herzberg the cylinder A will not be fixed at the bottom, but it will be left to itself and the time that is required for the water content of the two cylinders to reach the same level will then be marked.

Gurley and Troy Densimeter

The Gurley and Troy densimeter corresponds to that of Wikler and is used in the testing not only of papers but also of textiles, felts and the like. As is shown by figure 3 the apparatus is similarly constituted of two vessels in the form of cylinders. The movable cylinder A is the inner one and has a graduated scale on its outer surface and at the upper part there is an arrangement for holding fast a sample of the paper D which is to be tested. The exterior cylinder B has a base C which is furnished with holes so that the entire apparatus may be firmly fastened to the table.

After the vessel B has been filled with water, distilled water being used for this purpose, the cylinder A is put back into place. Then after the sample of paper has been firmly fixed in place, the cylinder A is raised as is seen in the figure, until the zero mark is above the top edge of the cylinder B. Then it is let down gently and then the time is measured that it takes for the cylinder to reach the 100 cubic centimeter or 500 cubic centimeter mark if the paper that is being tested is very thick and porous. The porosity of the paper is expressed in terms of the number of seconds that it takes for one hundred cubic centimeters of air to pass through five square centimeters of the free surface of the paper.

Disadvantages of the Apparatus

One of the faults that Herzberg has found with this type of apparatus is that it is necessary to make air pass through the paper, which air is more humid than the normal air, due to the fact that it comes in contact with water and absorbs moisture from it. The moisture in the air is easily absorbed by the paper the fibers of which swell up again and fill the pores or the small hair-like cracks that exist in the sheet

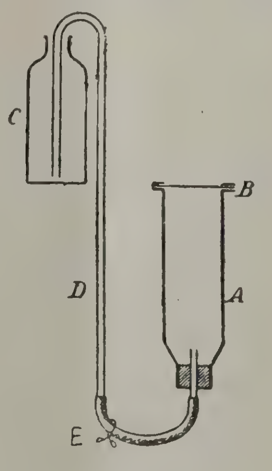

Fig. 1

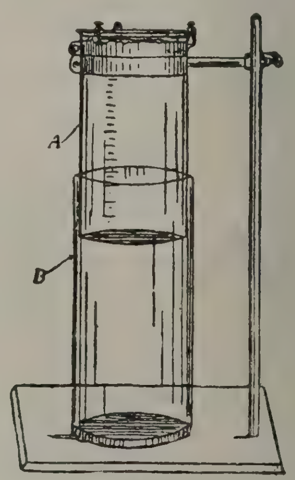

Fig. 2

of paper. If the test is prolonged the effect of the moisture in the paper is to decrease its porosity.

Another fault is that the pressure under which the air is obliged to pass through the sheet of paper does not remain constant. It diminishes as the test is prolonged.

It is possible to remedy the first fault by making use of a liquid other than water, or in covering the surface of the water with a thin layer of petroleum, as Sindall advises. The device which has been proposed by the Electro-Technical Association in England belongs to the second class of porosity testers that is the class of apparatus in which the ruling principle is the suction of the air through the paper sample.

The Suction Paper Porosity Tester

The apparatus which is used is shown in the accompanying figure. It consists of a vessel H which is arranged in such a manner that it can function as an aspirator after the liquid with which it is filled has been allowed to flow out of it.

In order to carry out the testing with the greatest degree of convenience, the liquid that is contained in H is made to flow into the container L, which is made in such a fashion that it can be raised or lowered at will. The way in which the device works is as follows:

After the cock F has been opened, the container L is placed above the apparatus on the ring N. It is then filled with water to the point M until the liquid in the graduated burette H just reaches to the zero mark on the same. Then the cock F is closed and the paper sample C is fixed between the frames A and B. The bulb L is lowered and then the cock F is allowed to remain open for a period of fifteen seconds. The time is accurately noted by the second hand of a watch. The level of the liquid in the burette H is then measured, care being taken to lift M to such a height that the level of the water both in M and in H is the same. This ensures a greater degree of accuracy in the readings.

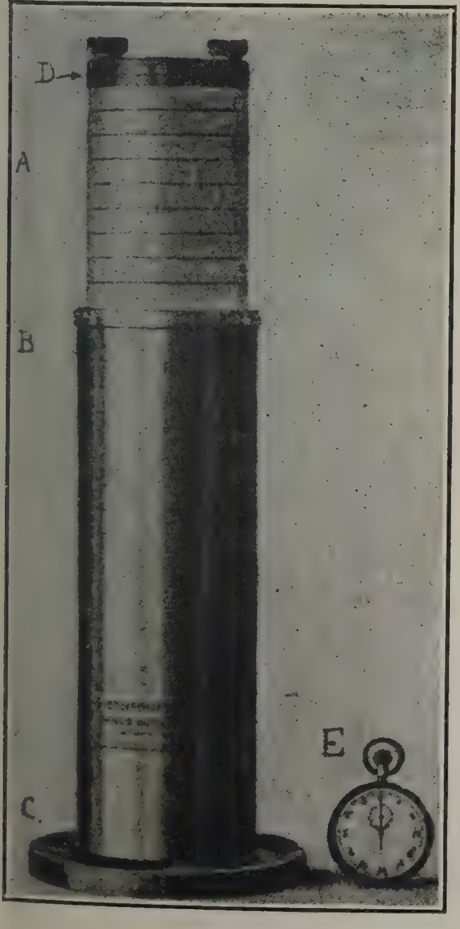

Fig. 3

In this case the surface of the paper that is tested is equivalent to a circle with a diameter of five centimeters. Ten tests on different parts of the paper are prescribed in order to arrive at a general average. According to the extent to which the column of liquid in the burette H is lowered, the vacuum within the same is reduced.

Another form of suction porosity tester is used in the Materialspruefungsamt in Berlin. In this apparatus the quantity of water that is aspirated during a given period of time through a surface area of ten square centimeters of paper through the effect of the aspiration of ten cubic centimeters of water. The quantity of water that passes through is measured by means of an instrument of the type that is employed in measuring the quantity of gas flowing in a pipe line. The suction is obtained by means of an ordinary pump or a water injector and is maintained constant through the aid of large bottles which act as reservoirs. The porosity is expressed in terms of liters of air which pass through 100 square centimeters of paper in a minute through the suction effect of a column of water 10 centimeters high.

* * *

The Advisory Council

Organization of an advisory council for the Northeastern Forest Experiment Station recently established at Amherst, Mass., has been discussed widely throughout the East, and a mass of correspondence has been received by S. T. Dana, head of the station.

On February 6, before the technical foresters gathered at Albany for the meeting of the local section of the Society of American Foresters, Mr. Dana indicated what type of men might be selected to represent the paper and pulp industry on the council, and stated that the central idea had met with unanimous approval.

The names suggested do not indicate in any way the size of the advisory council as it will eventually be announced in its final form, but it is of interest at this time to observe the available and very desirable sources of material for the advancement of the work which the council will undertake. Among those whose names have been submitted by the various groups in the northeastern states are: Col. Haskell of the International Paper Co.; George W. Sisson of the Raquette River Paper Co.; Hugh P. Baker of the American Paper & Pulp Association; R. S. Kellogg of the News Print Service Bureau; George N. Ostrander of the Empire State Forest Products Association.

Buy Waste Paper

More than 60 tons of waste paper, old magazines, etc., gathered by the pupils of the Hamilton, Ohio, schools has been the means of providing each of the buildings with steropticon paraphernalia to aid in the visual education program of Darrel Joyce, school superintendent.

The superintendent arranged the contest because he wanted the material and because the school funds are a little shy. School was arrayed against school and room against room.

About $1,800 was realized when the paper was sold to the Champion Coated Paper Co., and the Beckett Paper Co., both Hamilton shops.

Mr. Joyce is arranging another contest for March or April and he is hopeful that it will be more successful than the one just closed.

A novel feature was when one teacher provided some of her pupils with broomsticks with nails in the end. They spiked paper found on the street to and from school for three days and got more than 280 pounds.

* * *

Fire Prevention in Wisconsin

New advanced steps toward forest fire prevention in the districts of Wisconsin from which that states paper mills secure pulp wood have been taken by the Conservation Commission, the action being in no small measure due to the activity of the new Wisconsin Forest Protective Association organized by the paper mills under the suggestion of the American Paper & Pulp Association. Two fire prevention districts have been definitely established, with an area of 1,600,000 acres, and the six districts proposed will total 7,000,000 acres. The effort will be made to demonstrate that fire prevention is possible by intensive efforts over large areas.

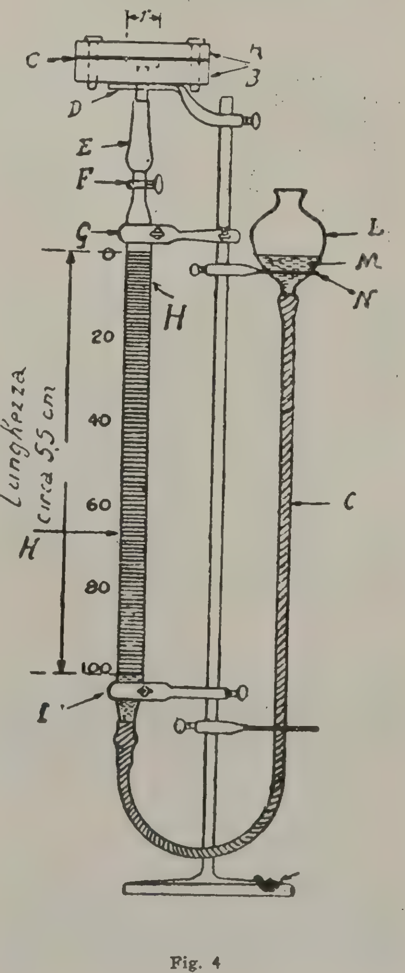

Fig. 4

With the Mead Pulp and Paper Company

A Review of the Activities of This Prominent Organization at Chillicothe, Ohio

By ERNEST AUGUSTUS

THE Mead Pulp & Paper Company of Chillicothe, Ohio, has recently placed an order with the Holyoke Machine Company for a new 146 inch super-calender. The Mead Company, at the present time, has included in its calendering equipment three stacks of 140 inches each; which, at the time of their installation in 1920, were heralded as being the largest super-calenders in any paper mill in the world. It is understood that the new calender just orderd cannot lay claim to this distinction, for calenders larger than this have been constructed since 1920. It was necessary for the Mead Pulp & Paper Company to add this calender to its equipment in order to keep up with the program for increased production outlined for the year 1924. It is hoped to have the new stack in operation sometime within the next few months.

* * *

A new 4,000 horse-power, 3,000 kilowatt, steam turbo-generator has been ordered from the General Electric Company by the Mead Company, and it is hoped that installation of same will have been completed by the latter part of the month of May. When installed and in operation the power output of the Chillicothe plant will have been more than doubled and it is hoped that shut-downs due to overloading of the present equipment will be done away with. The present electrical power equipment of the Mead plant at Chillicothe is one 2,500 kilowatt turbo-generator and one 900 kilowatt turbo-generator, both of General Electric make.

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The installation of the new hot-process water-softening system in the plant will be completed and in operation sometime within the next few weeks. It is estimated that with the new system in operation it will be possible to soften approximately 16,000 gallons of water each 24 hours, which is from 6 to 8 times more rapid than was the old system employed.

* * *

In order to keep up with the demand for increased production in the plant necessitated by the large amount of new business recently acquired, numerous changes and additions to equipment have been made in the Chillicothe plant. It is the earnest desire of every one of the 550 employees of the Chillicothe mill to make the year 1924 a record breaking one, both as to production and quality. The thing requested of every employee by President G. H. Mead, at his annual dinner on January 13th, was "increased production throughout the year, with the thought of better quality coming first." All improvements and changes made have been made with this latter desire in mind.

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The efficiency of the power department has recently been greatly increased by the addition of a new 180 foot steel smoke stack. The plant now has two 180 foot stacks, one of concrete 108 inches in diameter, inside; the other of steel, 96 inches of diameter, inside measurement.

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An order was recently placed with the American Tool Works, by the Mead Company, for one new thirty-six inch by twenty-four foot engine lathe. The addition of this lathe to the already complete equipment of the Mead Company's machine shop will be a very valuable addition, making it possible to more easily machine large rolls from the paper machine and super-calenders. Delivery of the new lathe is looked for within the next few months.

* * *

A reduction of accidents during the year 1923 over similar figures for the year 1922 was shown in the plant. In 1922 there were a total of 50 lost-time accidents in the plant while in 1923 there were a total of only 46 lost-time accidents. Unfortunately, however, these 46 accidents resulted in the loss of more time than did the 50 accidents of 1922. One accident resulted in death during the year 1923, as was also the case during 1922. According to the method employed by the National Safety Council in which frequency and severity rates of lost-time accidents are computed, the severity rate of the Mead plant in 1922 was 5.13 days lost per 1,000 hours worked, while in 1923 this was increased to 6.58 days lost per 1,000 hours worked in the plant. The frequency rate in 1922 (number of accidents per 1,000,000 hours worked) was 39.4 accidents (while in 1923 this figure was reduced to 38.18 accidents per each 1,000,000 hours worked.

* * *

During the year, reports show that the first aid nurse in charge of the plant hospital handled a total of 3,087 cases. Included in this total were 493 minor accidents, 46 major accidents, 1,594 medical cases, 283 examinations, 396 redressings, and 275 visits to the homes of employees. This total is larger by 191 cases than was the total for 1922, and larger by 172 cases than was the total for 1921. Nevertheless the Mead Company feels that progress is being made in its Safety First campaign and in its campaign to get employees to report to the First Aid department for all minor or major cases of sickness, injury, etc.

* * *

The Mead Athletic Association reported a surplus in its treasury of approximately $700 at the close of the year 1923. It is the desire of the Association that enough more money can be raised from baseball games and other gatherings of a similar nature during the year 1924 so that with the beginning of 1925 serious thought can be given to the matter of constructing a concrete swimming pool in the Association's park, provided by the company and located only a short distance from the plant. Professionals who have seen and played on the Association's baseball diamond pronounce it one of the best and fastest amateur fields anywhere in the middle-west.

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A question box has recently been started in "Mead Co-operation," the 48 page plant paper. Under the plan, various questions pertaining to operations in different departments, are asked each month in the publication, and a cash prize is offered for the best and nearest correct answer received from any employee to any of the questions. Employees themselves are also requested to submit questions for publication and for which cash prizes will be paid for the best answers. In this manner it is hoped to arouse increased interest among the employees in their work, thus tending to make them more efficient workers. To date the plan has worked to the entire satisfaction of the management and interest in it is increasing among the employees. The Mead Company also solicits and encourages its employees to turn in new ideas and suggestions pertaining to improvements in machinery or processes, safety first, reduction in costs, etc., for which liberal cash awards are made in the case of all suggestions which can be accepted and used. In addition to the individual cash awards for these suggestions, a grand prize of $50 is given at the close of each year for the best suggestion turned in during the year. During the month of January, 1924, a total of more than seventy suggestions were turned in to the Suggestion Committee, out of which number approximately one-fifth were acceptable and worthy of a reward.

A series of articles, entitled "Getting Next to Fakers," has recently been started in the plant publication of the Mead Company, and will continue throughout the year 1924. This series of articles was originally written by Mr. H. J. Kenner, secretary-manager of the Better Business Bureau of New York City, and appeared daily in the *New York Evening Journal*. Each of the articles is short and exceptionally well written, and each attempts to explain in a very brief way some one of the many methods often times employed by promotors and crooked stock salesmen to extract money from a gullible public.

* * *

That the year 1924 should be one of the biggest years, insofar as production goes, was the oustanding thought made clear by President G. H. Mead at the President's annual dinner, held in the Elks' Hall, Chillicothe, Ohio, on the evening of January 13th, for officials, executives, superintendents, foremen, sub-foremen, machine tenders, office workers, members of the Mill Council, members of the Mead Athletic Association, invited guests and their ladies.

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An excellent four-course dinner was served to the assembled guests of President Mead at 6:30, after which Mr. Mead assumed the duty of toastmaster of the evening and introduced the various speakers who reviewed the past year's accomplishments and predicted great things for the year 1924.

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Interspersed between the various talks, Mr. Mead, in his masterly manner, gave his own ideas and opinions regarding the future of business in general for the next year or two, and particularly his views as regards the future prospects for the Mead Company.

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He stated that due to the co-operation manifested on the part of all Mead employees during the past year, the year had proven to be a very successful one from the standpoint of production, quality, and full-time operation throughout the year. He also quieted any feelings of uneasiness which might have existed in the minds of any as regarded the prospects for 1924. He stated that due to this spirit of co-operation and the excellent record made during 1923, it was possible for him to announce that there need be no fears on the part of any that there might be a possibility of slackened business during 1924. On the other hand, he stated, it will be necessary for the Chillicothe mills to turn out more and better paper during 1924 than ever before in the history of the plant, if promises already made are to be lived up to.

Mr. Mead also announced that due to the improved financial standing of the company, made during 1923, it had been possible for the directors of the company to announce the fact that dividends on common stock would be increased from four to six per cent. He voiced his hope that within the next year or two it would become possible to still further increase this figure, which, he stated, would necessarily mean a wage increase for all employees making such a thing possible.

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Other speakers of the evening at the annual dinner were: General Manager, H. P. Carruth; Honorary D. M. Massie, president of the First National of Chillicothe; William H. Herrnstein, Secretary of the Chillicothe Chamber of Commerce; Frank C. Schachtele, Superintendent of the pulp mill of the Mead plant; Mr. Thomas Hendry of the Mead Patton & Company of New York City; Mr. Lawrence Bonner, Elected Representative of the Mead Mills Council; Mr. William H. Kettra, Assistant Treasurer of the Mead Company and Purchasing Agent of the Chillicothe plant; and Reverend Kelley Jenness, pastor of the Walnut Street M. E. Church of Chillicothe, Ohio.

* * *

Offer Stock to Public

The Columbia River Paper Mills are offering $500,000 worth of stock in the company at $100 a share to the public.

Ernest Schweitz, the engineer in charge of the work of installing the machinery in this company's large new mill at Vancouver, Washington, says that he will start the work by March 1, and that before May 1 the mill will be in operation. Most of the papermaking machinery has already been delivered.

The 100 feet addition to be built on the east side of the main paper mill will not delay installing the paper machinery as that will be placed in the building now being completed. Buildings in the way of the 100 foot addition are being wrecked now, and this additional room will be built soon.

* * *

Thinking of Forests

A special committee, headed by Hugo Winkenwerder, dean of the University of Washington College of Forestry, is working out a plan for the re-forestation of Seattle's Cedar River watershed. W. C. Weigle, supervisor of the Snoqualmie national forest, Frank Kellogg, state forest examiner, and Charles W. Sounders, chairman of the forestry committee of the house during the last session of the Washington state legislature are associated with Mr. Winkenwerder on this committee.

Re-forestation work is engaging the attention of the Pacific coast states lumber interests as well as the cities which desire to preserve the sources of their pure water supplies.

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Cameron Good Advertisers

We have received from the Cameron Machine Company, an illustrated piece of direct mail matter with which they are circularizing the trade. This we understand is the first of a series which will continue over a number of months with the object of giving every potential user information concerning what the proper Cameron Slitting and Roll-Winding Machine will accomplish for him. Cameron Machine Company wants every one connected with the paper industry to receive these circulars as they are issued. If yours has not yet arrived, drop them a line at 61 Poplar Street, and you will receive the complete series.

EXPLAIN JUST WHAT THE McNARY BILL IS

Summation of Pending Bill is Given for Paper Industry

MUCH interest is manifested in this section in the McNary bill which is now before congress and which is the result of the investigations into the forest needs of the country made last summer and fall by a special committee of the United States Senate, one of the meetings of which was held in Bangor.

The bill aims to provide for much greater cooperation in forestry matters between the federal and state governments than has been possible under previous laws and to extend the enabling act under which the eastern national forests are being purchased, and also federal cooperation in fire protection, the previous law limiting this to land necessary for regulation of the flow of navigable streams.

A brief summary of the bill which has been reported out of the special committee and referred to the Senate committee on Agriculture and Forestry, follows:

Summary

Section 1: provides for cooperation with the various states in determining proper methods of forest fire protection and prevention.

Section 2: provides for cooperation with the various states in actual protection of timbered and forest producing lands from fire to an amount not exceeding the amount spent by the states themselves; and that this cooperation be "extended to any timbered or forest producing lands within the cooperating states."

Section 3: provides for federal "study of the effects of tax laws, methods, and practices upon forest perpetuation; to cooperate —with—states in such investigations, in devising tax laws to encourage growing of timber; and to promote practical methods of insuring standing timber on growing forests from losses by fire and other cause"; appropriates $2,500,000 annually for Sections 1, 2 and 3.

Section 4: provides for cooperation with states in forest seed and plant production and distribution, to a cost not to exceed the amount expended by the states themselves, and appropriates $100,000 annually.

Section 5: provides for cooperation with states in advise to timberland owners, to a cost not exceeding the amount expended by the states themselves, and appropriates $100,000 annually.

Section 6: extends the provisions of the act of March 1, 1911, under which the eastern national forests are being purchased, to allow of the purchase of "such forested, cut on, or demanded lands" as in the judgment of the Secretary of Agriculture may be necessary for either the regulation of stream flow "or for the production of timber"; (the original bill limiting purchases to land necessary for the regulation of flow of navigable streams).

Section 7: provides for accepting by the U. S. Government of forest land donated to it, to become part of national forests.

Section 8: provides for inclusion in national forests of public lands which may be valuable for either stream flow regulation or timber production.

Section 9: provides for inclusion in national forests of land now in other government reservations (except national parks, national monuments, and Indian reservations) as are suitable for production of timber.

New York Trade Notes

A. J. Pagel, of Pagel, Horton & Company, Inc., was elected president of the Association of American Wood Pulp Importers at the annual meeting and election of that organization at the Uptown Club on West Forty-second Street on February 7. Other officers chosen include J. F. Patton, of J. F. Patton & Company, vice president; Orval A. Wales, of Johaneson, Wales & Sparre, Inc., secretary, and Orvar Hylin, of the Lagerloef Trading Company, Inc., treasurer. These officers, together with William H. Anders, of the Perkins-Goodwin Company, comprise the Board of Directors of the association. H. E. Atterbury, of Atterbury Bros., Inc., was elected National Councillor, and J. A. Millar, of the Scandinavian Pulp Agency, Inc., was selected as substitute National Councillor. The association numbers among its membership practically every importer of wood pulp in New York, and has been in existence for quite a few years. Mr. Pagel, the new president, is widely and favorably known among paper manufacturers and pulp men, being one of the prominent members of the wood pulp trade.

* * *

Daniel M. Hicks, Inc., dealers in and importers of papermaking supplies of 200 Fifth Avenue, New York, have announced that Fred H. Chase, formerly of Chase & Norton, Inc., waste paper packers of 275 Water Street, New York, which firm has wound up its affairs, is now associated with them in a buying and selling capacity in their waste paper department. Mr. Chase is one of oldest and best known members of the paper stock trade in New York, having been identified with the industry for more than a quarter of a century. In his new connection with the Hicks firm he will retain the New York City packing house formerly conducted by Chase & Norton, Inc., which will enable Daniel M. Hicks, Inc., to supply larger amounts of their high grade packing of waste paper to consuming mills.

* * *

The Select Paper Company, of New York City, was incorporated under New York State laws at Albany, N. Y., several days ago with a capital of $10,000 to deal in paper as merchants. The incorporators were O. Salk, I. Gershman and I. E. Schlesinger, and the attorney was H. J. Krinsky, of 299 Broadway, New York.

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Cards have been issued announcing the formation of the Hartig Pulp Company, Inc., with offices at 248 Park Avenue, New York, which has been organized as a branch of Hugo Hartig, Inc., of Stockholm, Sweden, and Hugo Hartig, of Hamburg, Germany, to represent in the United States a part of the agencies intrusted to the parent companies abroad. Hugo Hartig is president of the New York firm, Marvin Preston is vice president, and Kenyon Harris is secretary. Mr. Harris heretofore has been with the American Woodpulp Corporation, of New York. The new company will import wood pulp of all kinds.

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John H. Engelke has severed his connection with Salomon Bros. & Company, importers of papermaking materials of 200 Fifth Avenue, and is now associated with the Whaling Waste Products Company, Inc., of 290 Broadway, New York, for whom he will open a foreign papermaking rag department.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

Papermen Speak at Washington

"Grow More Trees" Is Slogan of Busy Meeting in Washington with Prominent Paper Men Present

GROW MORE TREES" for the paper industry of the United States was the policy enunciated by the Advisory Committee from the Paper Industry before the Department of Agriculture, in the first meeting of that committee in Washington, February 7, when some of the best known paper manufacturers of the country discussed forestry and forest products with Secretary Wallace, and other officials of the department, including representatives of the Forest Service.

The need for the perpetuation of the nation's forests, the importance of reforestation, forest management, the work of the department's laboratories and experiment stations were the focal points upon which the discussions of the day were centered.

The conference with the Secretary of Agriculture, a meeting with the President, and a luncheon with Secretary Hoover of the Department of Commerce as the guest were other special features of the all-day meeting. It was a representative gathering of manufacturers, the membership of the committee including: George W. Sisson, Jr., Racquette River Paper Company, Potsdam, N. Y.; Col. W. E. Haskell, International Paper Company, New York; Stanley C. Bayless, Bayless Mfg. Corp., Austin, Pa.; L. M. Alexander, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; D. C. Everest, Marathon Paper Mills Company, Rothschild, Wis.; C. A. Gordon, Oxford Paper Company, New York; Norman W. Wilson, Hammermill Paper Company, Erie, Pa.; George N. Ostrander, Finch, Pruyn & Co., Glens Falls, N. Y.; H. E. Fletcher, Fletcher Paper Company, Alpena, Mich.; F. R. Bragg, Orono Pulp & Paper Co., Orono, Me.; F. C. Clark, Pejepscot Paper Co., Brunswick, Me.; Charles W. Luke, West Virginia Pulp & Paper Co., New York; A. C. Goodyear, Bogalusa Paper Co., Bogalusa, La.; Louis Bloch, Crown Willamette Paper Co., San Francisco, Cal.; Grelett Collins, Dill & Collins, Philadelphia, Pa.; O. Bache-Wiig, Wausau Sulphate Fiber Company, Mosiness, Wis.; Henry W. Stokes, York Haven Paper Co., Philadelphia, president American Paper & Pulp Association; Milton E. Marcuse, Bedford Pulp & Paper Co., Richmond, Va.; Charles Upson, Upson Co., Lockport, N. Y.; Dr. Hugh P. Baker, executive secretary American Paper and Pulp Association.

Secretary Henry C. Wallace, of the Department of Agriculture, opened the day's program with the discussion of "The Paper Industry and Forest Policy," and was followed by George W. Sisson, Jr., former president of the American Paper and Pulp Association on the subject "Co-operation Between the Industry and the Department of Agriculture." Norman W. Wilson followed with an outline of "Future Developments of the Paper Industry," and the balance of the forenoon was devoted to discussions of work being done by the Forest Service. Samuel T. Dana told of the work of the Northeastern Forest Experiment Station, which will devote much of its attention to forestry problems in their relation to the pulpwood supply of the country. Raphael Zon told of the work of the Lake States experiment station, and Carlile P. Winslow, director of the Forest Products Laboratory at Madison, Wis., discussed technical work of the laboratory in the study of the paper making properties of various woods, and similar problems undertaken by the laboratory. Charles W. Boyce in charge of pulp and paper statistics of the Forest Service took for his subject "Economics of Pulp and Paper."

After the luncheon, the program was devoted to discussion of the various points brought out by the Forest Service speakers, Mr. Ostrander and Mr. Everest speaking on the two experiment stations as paper manufacturers in the districts covered by these stations. W. G. McNaughton commented for the Technical Association on the work of the laboratory, while Dr. Baker discussed the paper of Mr. Boyce.

Mr. Dana pointed out that more than half the pulp mills of the country are located in the New England-New York district, and said the problem there was to build up the forests to the point where they would be capable of supplying indefinitely the raw material needed by the paper industry. Investigations to this end, he said, will be an important function of the station's program.

Mr. Zon specified as the five year program of the lake states station various studies of rate of growth, more effective fire prevention, forest management to improve the growth of timber and similar problems.

Co-operation of the mills with the laboratory was urged by Mr. Winslow, and the reduction of waste caused by pulpwood decay was given as a particular problem. The suggested use of southern pine for sulphite pulp was mentioned as a particularly important problem for study in the next five years.

Mr. Boyce urged more detailed studies of existing stands of pulpwood forests, cost of growing timber, forest taxation and similar problems.

In discussing Mr. Boyce's recommendations, Dr. Baker pointed out that the development of plans for the future of the paper industry are dependent upon accurate knowledge of available timber resources, and said:

"Forestry is the foundation upon which the industry is to build for the future, and must be co-ordinated closely with the development of the agricultural industry. Forestry and agriculture must be developed together in the wood producing sections of the country. The great areas on the border line between agriculture and forestry can only be satisfactorily developed as co-ordinated industries, where the farmer can earn money with which to develop his farm on agricultural soil by working in the winter in the timber producing regions adjacent thereto whose soil is not such as to be suited for the growing of farm crops."

In his talk on "The Future of the Paper Industry," Norman W. Wilson, Hammermill Paper Company, said:

In 1899 this country produced approximately 2,100,000 tons of paper while in 1923 we produced 7,200,000 tons. The increase was quite uniform from year to year until 1920—since then we are just about holding even.

You are familiar with the classification—News, Book, Board, Wrapping, Fine, Tissue, Hanging, Felts and Building Specialties.

Production of each has grown not only consistent with the increase of population but also consistent with the advance of civilization and the standard of living so that the total production of paper per capita is now nearly three times as great as that of 1899.

This increase has brought us from a relative minor position to a point where we are now the leading manufacturers of pulp and paper throughout the world.

To advertise business grandpa hung out a shingle, and reached everyone's attention who happened by—grandson gets printed letterheads, and advertises in newspapers and magazines. He doesn't stop at our shores but uses these implements in foreign publications, where necessary in a foreign language and reaches the entire civilized world.

The future of the paper industry in this country depends upon our ability to compete with other nations for our own markets and for foreign markets and we believe our ability to compete depends upon our ability to acquire or produce our principal raw materials.

While the manufacture of paper involves the consumption of large quantities of coal, dyestuffs, sulphur, alum, chlorine, rosin, clay, glue, lime, etc., the raw material which is the big problem is the fibre from which the sheet is formed.

This fibre is now obtained from linen and cotton rags, from trees and other plant life.

The production of rags and their ultimate use in paper has increased to some extent. There has been some progress made in the commercial development of grasses, shrubs, etc.

However, from a standpoint of cost and of efficiency the Industry has come to depend more and more upon pulp produced from the tree until it is now estimated that 90 per cent of the fibre used is from the tree.

In the first place cheaper wood, second cheaper labor; and third, depreciated currencies.

The combination permits them to sell at prices almost unbelievably low.

This was forseen by our Pulp and Paper producers, when the Fordney-McCumber

Tariff Bill was being shaped and reasonable protection was sought in that tariff. Shortly before the Bill was passed, we understood that we were assured of protection on both pulp and paper but at the last moment all protection for pulp was withdrawn.

Eventually this Continent, both Canada and the United States, may be forced to apply tariff protection against European pulp as it has done against European papers and so many other products.

Their big advantage, therefore, is cheaper wood. On this Continent we have been consuming our forests more rapidly than they have been reproducing. The fact that our forests have been pushed further and further back from our railroads, rivers and lakes, has, of course, increased the cost of production and transportation. Finally, the increased ratio of demand to diminishing supply, has of late years put a premium upon the cost of this necessary raw material.

More progress must be made if the Paper Industry is to be perpetuated on this Continent. Our principal competitors abroad are further advanced with this project. Norway, Sweden, Finland and Germany have all seen the value of their forests and have adopted methods of protection and of replenishment that have permitted them to increase their output of pulp and paper without diminishing their available supply of pulpwood. So long as the supply on this Continent continues to decrease the cost of wood will increase and eventually make it entirely impossible for us to compete no matter how efficient we may be in our mills or in our methods of merchandising.

It is felt by the broader minded U. S. manufacturers that Canada will surely not apply an embargo or restrictive export duty but we refer to the matter at some length for the purpose of emphasizing the need of preserving our depleted forests and of growing new ones.

Just a word with respect to the marketing of paper. A study of the price trend must convince us of the need to produce at lower cost. While untimely reductions in price are ruinous to any Industry, nevertheless it is axiomatic that a low cost of production with an accompanying low price to the consumer, has a decided tendency to expand the amount consumed. In proportion to the cost of production, paper of all descriptions is being sold at such close prices that very little money is being made at the present time. To protect ourselves and to get back onto a reasonable earning basis, we must reduce our costs and to help expand the market we must prevent our prices from getting out of line with the cost of other commodities.

Cheaper wood and rags are of prime importance.

A higher yield of pulp from each cord of wood must be accomplished.

We must find commercial usage of the bark which constitutes 12 per cent of the pulpwood now consumed.

We must develop extensive by-products from the waste liquor; for instance sulphite waste liquor contains more than 50 per cent of the weight of each cord of wood now used.

More technical men of a high type must be available than we now have.

More support should be lent to existing research of organizations and new research work in pulp and papermaking problems should be encouraged in Universities and in industrial laboratories.

Men of inventive genius should be brought into the Industry to speed up what is now being accomplished toward labor saving devices.

We realize that the Department of Agriculture has our problems well in hand. We have tried to be thorough with respect to those problems upon which we know you can help us and have touched upon just a few upon which you can help us perhaps only indirectly.

"The Economics of Pulp and Paper" was the subject of a discussion of Paper by Charles W. Boyce, in charge of Pulp and Paper Statistics, United States Forest Service, led by Hugh P. Baker, Secretary of America Paper and Pulp Association.

Dr. Baker said:

In 1923 it is estimated that we used just a little over 6,000,000 cords of wood, valued at something over $90,000,000. During the year we imported, entirely from Canada, 1,400,000 cords of wood. For the same year it is estimated that we used 5,019,000 tons of wood pulp, though we produced but 3,613,660 tons, importing the remaining amount consumed. This use of pulpwood and pulp resulted in an estimated production of 7,198,000 tons of paper of all grades. It is safe to estimate that of the 7,000,000 tons of paper produced in the United States in 1923 that more than 95 per cent was made wholly or in part from wood pulp.

The paper industry has become indeed a wood using industry, more and more dependent upon a steady supply of wood from the forests of this country. While the paper industry uses but 4%, approximately, of the total annual wood cut out of the country, yet it must have this wood moving to the mills in a steady stream through the year.

In the necessary economic survey, upon which we must depend for accurate information as to available timber, there should be thorough study made of the cost of producing timber under varying forest conditions in the United States. In this same connection, a knowledge of costs of producing wood and pulp abroad would be exceedingly helpful.

The fact that the paper industry is a wood using industry is of such recent acceptance in the industry itself, generally speaking, that the average paper manufacturer has not yet come to think of himself as a timber owner and as a lumberman to the extent to which he harvests and uses timber.

The most natural procedure in the development of forest lands on the part of pulp and paper manufacturing organizations will be the production, first, of wood of character and size of greatest value to the paper industry, next, a certain amount of timber will be allowed to grow on into sizes larger than needed for pulpwood. It may be that in the development of forest lands by paper mills that the paper mill may find it can easily produce wood for lumber, in connection with wood for pulp, and that in a profitable way.

It is entirely possible that paper mills located in the neighborhood of other plants using wood for the manufacture of furniture or for other purposes may come to depend upon these plants for a certain amount of wood, which may now be wasted. Little effort has been made so far in this country to coordinate the activities of various wood using industries to the point where the waste of one plant may be raw material for another. There are large possibilities in this direction.

As has been pointed out in this paper (upon the economics of pulp and paper) accurate and complete statistics covering the forest resources of the country, the production and use of wood and pulp, and the production of paper, and fundamental to the satisfactory continuance of the industry. The industry was forced last year to take over certain phases of statistical work carried on previously by the government. Some of this statistical work can be carried on more effectively by associations within the industry than in any other way. We need, however, more accurate statistics as to wood production generally, and we urge that the Forest Service be given the facilities to carry forward the statistical work which they have already under way.

Great help could be given the industry by making careful studies in two or three representative states of available timber supply and of forest soils and their relation to the wood-using industries. Such a study should be both an economic and social study, and should be applied not on a theoretical basis but on the practical foundation of the operation of industry within those states.

It is exceedingly important that the paper industry should have accurate information as to the pulp and paper industry in foreign countries, including Canada. Such information should indicate the relation of the depletion of forests in those countries to the development of industry and how the introduction of modern methods of forest practice have benefited industry. Furthermore, the paper industry of this country should have constant and accurate statistics as to production, marketing, and use of pulp and paper in foreign countries.

George W. Sisson, Jr., of the Rocquette River Paper Company, said in brief:

The greatest cooperative effort of the paper industry with the Department of Agriculture should be along forestry lines. The absolute dependence of the industry in the United States upon wood fibres, their rapid depletion in this country and the probable increasing difficulty of securing outside supplies makes this the major problem of the industry today.

As owners of timberland, paper manufacturers are ready to cooperate with the forest service in such research and experimentation as will lead to definite knowledge of the best methods in the various localities to reach the desired result of adequate protection, economic management and assured reproduction. In other words, we are ready to make our forest lands working laboratories in connection with the broad campaign of the United States Forest Service.

The *second* great field for cooperative effort is in the line of utilization of our raw material, and this brings us directly to the splendid contribution to our industry that is being made by the Forest Products Laboratory. You will doubtless hear of the many projects which Director Winslow has in mind. None of these projects can be translated to the practical benefit of the industry without the sympathetic and intelligent cooperation of the mills. It is not likely that the full import of the wonderful results of the research work at the Laboratory is realized by the industry. Any one of the several important problems for which they have found solution in recent years would more than warrant all that its support has cost. Recognition by the industry is due to these men of research whose painstaking work finds ultimate usefulness to the people only when adopted and put into practical commercial use in the arts and industries. First, a sympathetic and helpful attitude toward its work and every possible assistance in securing adequate financial support for it. Second, a readiness to apply in our mills the results of laboratory research and demonstrate their commercial possibilities. Third, to make our mills, so to speak, *extension laboratories* in which under the guidance of the laboratory, we can assist in carrying on investigations, which being made under commercial conditions may have added value.

McBAIN'S PAGE

A FEW PUNGENT POINTS ON PERTINENT TOPICS

If You Could Only Help

THERE is an old saying that "Since the beginning of time, men have looked to Leaders." If you could only help as a Leader and the Laws would only allow, and I think the Laws should be such that it had to be, and if you would provide the Industries of the Country in every line with Leaders who would say what you and I should make the minimum price of our product and if we did not comply with these instructions, we would be defying the Law, under penalty.

If it is not the acceptable thing to have a Leader or a Dictator of this type, it would seem even more desirable than for the baseball industry or for the picture business to be under such rule, that some of our industries now dying from dry rot or from starvation, be forced to make a product they can make economically and then given a minimum price at which this product can be sold.

It would be better for the industry's stockholders and for the labor interested; it would be better for the market, for the jobber and final consumer, because a mill would then be standardized for certain grades and not be cutting in on a legitimate plant with an offer of "something just as good" for less money.

No consumer wants something just as good. He wants what he wants—usually asks for what he wants and knows when he gets what he wants.

The mill built for making one grade is not so likely to be able to produce a match for the product of another mill built for making another particular grade, and is not so likely to be able to produce that grade in as economical a way, yet when he cuts in and offers a cut price, he very seldom gets the business but forces the legitimate mill to cut his price to retain what is rightfully his.

A clearing house for any industry would be a good thing, and probably it would be better if the laws of our country would be changed so all business for one industry could go through one central clearing house.

In any event, something is needed and something must be done soon to regulate industry, like the Interstate Commerce Commission governs the building of new railroads, and not allow new plants to be built when the production in any line already exceeds the demand, for the investor should be protected as well as the worker and the consumer while at present there is no protection for anyone.

However, law is law. If you could only help?

B. T. McBAIN.

Whose Market?

Is this my market because my mill is the closest to it?

Is this my market because the freight rate I enjoy gives me the inside on price?

Is this my market because I can deliver my product to it at a cost less than any other producer?

Is this my market because I produce something I think the people should want?

Is this my market because I think my product better than anything else being offered?

Is this my market?

Let me answer what I think:

This is my market only when I produce something the market wants and deliver it to the consumer at a price he can afford to pay.

The consumer knows what he wants and knows when he gets what he wants.

The consumer knows what he can afford to pay for what he wants and if he can get what he wants from my competitor at the price he knows he can afford to pay, it is my competitor's market.

That is the way of the world. That is the way of America. That is the way of each separate State of the U. S. A. and it has been my experience that that is the way of each separate consumer of the products I help produce and market.

There are too many people harping about "my market" and expecting to get the business because of geographical conditions while quality and price are the all controlling factors and always will be.

If I cannot produce the goods wanted, it is not my market. If I cannot name the price others, with the desired goods can name, it is not my market.

And no Salesman's Association or Manufacturers' Association or any other kind of an Association can do anything legitimate or otherwise to make it my market, even if I should have an idea that such a thing were possible, or such Associations were willing to do business in that manner.

The laws of America are such that I must work alone, selfish, to be sure; but I must not forget that all my competitors are in like boats and working under like laws.

If it must be the survival of the fittest, lets fit and go to it. Then and then alone, will it be my market.

B. T. McBAIN.

A. Krug

Cameron Machine Company,
Brooklyn, N. Y.

Says:

GENTLEMEN:

Permit us to add our voice to the chorus of praise which you are doubtless hearing on the improved make-up of your magazine. You have started off very auspiciously, and we wish you every success.

Yours very truly,
Cameron Machine Company
A. Krug.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Kingsport, Tenn.—The Mead Fibre Co., has tentative plans under advisement for enlargements in its plants, to include the installation of a new papermaking machine, providing for an increase of about 30 tons capacity per day. It is also proposed to advance the output in the pulp plant, and additional equipment will be installed.

Philadelphia, Pa.—The plans for the proposed addition to the plant of George A. Bisler, Jr., 245 North Sixth Street, manufacturer of paper boxes and containers, are practically completed, and erection will be commenced at an early date, to be in charge of the William Steele & Sons Co., 219 North Broad Street, engineer and contractor. It will be four-story, reinforced-concrete, located on North Fifth and Brown Streets.

Quebec, Que.—Price Brothers have plans under way for the construction of a new pulp mill in the vicinity of Lake St. John, and plan to call for bids at an early date. The new plant is reported to cost in excess of $300,000, with machinery.

Marinette, Wis.—The Victory Bag & Paper Co., has plans in progress for the construction of a new addition, to be used for warehouse and distributing service. It will approximate 7,000 sq. ft. of floor area.

Salem, Ore.—The Oregon Pulp & Paper Co., has awarded a general contract to A. C. Van Patton & Son, Salem, for the erection of a new two-story addition, 40x70 ft., estimated to cost $25,000. Electric power equipment will be installed. Knighton & Howell, United States National Bank Building, are architects.

Little Falls, Minn.—The Itasca Paper Co., Grand Rapids, Minn., has acquired a local site and has preliminary plans under way for the construction of a new mill, to consist of a number of units with power house, machine shop and other auxiliary structures, with reported cost estimated at $400,000, including equipment. It is proposed to commence work in the near future.

Dayton, Ohio—The Elam Paper Co., Marion, Ind., manufacturer of stationery, etc., has taken over the former local plant of the Bahmann Iron Works, and will remodel and equip for a new mill. Machinery will be installed at an early date. At a later date, it is expected to build an addition. The Marion works will be removed to Dayton.

New York, N. Y.—Charles Sonn & Brothers, 202 East Twenty-ninth Street, manufacturers of paper boxes and containers, have leased the second floor in the building at 322-26 East Twenty-third Street, for extensions in their works.

Cambridge, Mass.—The plant and business of the Northeastern Paper Co., East Cambridge, have been acquired by the D. De Stefano Co., Inc., 83 Damrell Street, Boston, Mass., dealer in paper stocks. The new owner proposes to operate the East Cambridge works and expects to develop maximum capacity.

Rumford, Me.—The Continental Paper & Bag Mills Corporation has been organized under Delaware laws to take over and expand the company of the same name with headquarters at 16 East Fortieth Street, New York. The company will assume control of the Rumford mill, as well as other plants at an early date, and proposes to develop to maximum output. To provide for the transfer, a bond issue of $6,000,000, is being sold, a portion of the proceeds to be used for general expansion. The new company will be affiliated with the International Paper Co., New York. Herman Elsas is president.

Montreal, Que.—The St. Regis Paper Co., Watertown, N. Y., has plans in progress for the erection of its proposed mill on site acquired near Montreal. It is expected to ask for bids early in the sping. It is estimated to cost close to $1,000-000, including equipment. A. P. McKinnon, 11 Place D'Armes Square, Montreal, local representative for the St. Regis company, will be actively identified with the new project.

Eau Claire, Wis.—The Dells Paper Co., is perfecting plans for the early installation of equipment at its local plant, used for the production of machine glazed and finished wrapping papers. It is proposed to have the expansion completed by the spring, including new buildings which have been in course of erection for some months past.

Chillicothe, Ohio—The Mead Paper Co., has preliminary plans under way for the erection of a new addition to its plant, and proposes to break ground early in the spring. Considerable additional equipment will be installed. George H. Mead heads the company.

New Companies

New York, N. Y.—The Tioga Paper Goods Co., has been incorporated with a capital of $60,000, to manufacture and deal in paper products. The incorporators are S. Stutz, S. Friedman and S. Siegel. The company is represented by Myron Krieger, 220 Broadway, New York.

Chicago, Ill.—The Paramount Protected Paper Co., Room 1650, 10 South La Salle Street, has been incorporated with a nominal capital, not stated, to manufacture and deal in paper products. The incorporators are A. C. Jung, Harry D. Harkness and L. Dahllof.

New York, N. Y.—The Hartig Pulp Co., has been incorporated with a capital of $100,000, to manufacture pulp and paper products. The incorporators are F. J. Welsh, E. J. Mullaney and W. J. Bloom. The company is represented by Tanzer & Lane, 261 Broadway, New York.

San Antonio, Tex.—The Crown Paper Box & Label Co., has been incorporated with a nominal capital of $9,000, to manufacture paper boxes and containers, etc. The incorporators are Leo Singer and M. J. Arnold, all of San Antonio.

Waterford, N. Y.—The Waterford Art Papers, Inc., has been incorporated with a capital of $10,000, to manufacture and deal in fine papers. The incorporators are R. F. Hammond and H. I. Prankard. The company is represented by T. O'Connor, attorney, Waterford.

New York, N. Y.—The Select Paper Co., has been incorporated with a capital of $10,000, to deal in paper products. The incorporators are I. Gershman and I. E. Schlesinger. The company is represented by H. J. Krinsky, 299 Broadway, New York.

Corning, N. Y.—The Corning Fibre Box Corporation has been incorporated with a capital of $125,000, to manufacture fiber and paper boxes and containers. The incorporators are J. L. Thomas, W. H. Curtis and C. Boehm. The company is represented by Stanchfield, Cotton, Lovell & Sayles, Elmira, N. Y., attorneys.

Pittsburgh, Pa.—The Pittsburgh Card Board Co., has been incorporated with a nominal capital and has made application for a state charter, to deal in cardboard, paper goods and affiliated products, as well as boxes, containers, etc. The company is headed by Stanley M. and Ivan Bielek. It is represented by James M. Wakefield, 314 Bakewell Building, Pittsburgh.

Financial

Lincoln, N. H.—The Parker-Young Co., operating a local paper mill, with pulp mill at Livermore Falls, N. H., is disposing of a bond issue of $2,500,000, a portion of the proceeds to be used for extensions.

New York, N. Y.—An involuntary petition in bankruptcy has been filed against the United States Paper Mfg. Croporation, 17 East Forty-second Street, and Charles A. Marshall has been appointed receiver under bond of $10,000.

Philadelphia, Pa.—Edward F. Hoffman has been appointed referee in bankruptcy for the Bridge Paper Co., 141 North Sixth Street, against which an involuntary petition in bankruptcy has been filed.

Paper Industry Provides Textbooks

ANNOUNCEMENT of the election of George Carruthers as president of the Canadian Pulp and Paper Association on Friday, January 25, followed shortly after the appearance of Volume IV of the series of textbooks on *The Manufacture of Pulp and Paper,* which have been in course of preparation, under the direction of a committee on vocational education, representing the pulp and paper industry of the United States and Canada, for five years past.

The honor that has come to Mr. Carruthers may be fortuitous, but it looks like a coincidence and should be regarded as recognition of merit. For no member of the joint committee which has been working so earnestly and so unselfishly since February, 1919, to put the paper industry on a firm educational basis, has given so unstintedly of his time and resources to the furtherance of a great undertaking than Mr. Carruthers.

The educational needs of the industry were impressed on Mr. Carruthers when he first made up his mind, in 1911, to identify himself with papermaking in Canada and organize the Interstate Tissue Mills, Ltd., of Toronto, which materialized two years afterwards with the construction of a plant at Merritton, Ontario. Some time previous to this he had charge of the field work of the International Correspondence Schools and the excellent training and the splendid results he got in this line of work fitted him admirably for an exhaustive study of the educational needs of the paper industry to which he subsequently gave his time and talents. His career in papermaking has been marked by a consistent devotion to the best interests of the industry such as has been exhibited by few of his confreres, all of whom will testify to his enthusiasm for educational work and the solid character of his accomplishments. Coupled with an extraordinary capacity for hard work and concentration on the problems before him, Mr. Carruthers possesses a faculty of relaxing in congenial society, and at banquets and social gatherings he is always a welcome guest when not the presiding spirit. He is able to tell a good story with zest and usually has a new one for the occasion. He is as well and favorably known among papermakers in the United States as in Canada, and among the younger men engaged in technical work, who are identified with the Technical Association of the Pulp and Paper Industry, he is a prime favorite, being seldom absent from the annual meetings.

This is a long preamble to a review of the latest issued volume of the vocational textbooks, but the opportunity to link Mr. Carruther's election to the presidency of the Canadian Pulp and Paper Association with the progress of educational work in the pulp and paper industry could not be resisted.

In studying Volume IV of the series of textbooks on *The Manufacture of Pulp and Paper* it is difficult to avoid comparisons with Volume III, extended criticisms of which were published in the issues of PAPER for April 26, May 3, and May 10, 1922, respectively.

The sectional divisions of the new volume are fewer than those in the volume that preceded it—six as against nine—and, with two or three exceptions, the matter is not so interestingly or so logically presented. In Volume IV papermaking operations are assumed to begin with the preparation of rags and rag fibers. Section 1, by E. C. Tucker, is accordingly given over to a consideration of the treatment of rags and rag fibers. An altogether too "Brief History of the Use of Rags in Papermaking" forms the first lesson. The traditional conservatism is perceived in the spelling of "paper making" as two words. It is many years since papermaking, shoemaking, and bookkeeping passed out of the evolutionary stages of two words and compound words joined by a hyphen. The rule in this volume is to hyphenate the word only when it is used in the adjectival sense.

Sixty pages are allotted to the section on "Preparation of Rags and Rag Fibers" and the treatment is rather cursory, though useful details are given of commercial practice and trade customs. The machinery used for the dusting (threshing) and cutting of rags is fully described and illustrated by figures in the text, as are also the boilers used in cooking and washing the rags. In the discussion of washing processes emphasis is placed on the need of clear, colorless water, but something might have been said regarding the sources of contaminating substances in water. In a modern book one expects some mention of the iron bacteria which have been recently found to be the cause of iron discolorations in finished papers. But some things have been sacrificed in this chapter to brevity, a few details of manipulations such as would be useful to students and beginners being lacking.

There is a chapter on "Fibers Other Than Rags," which includes mention of hemp, jute, cottonseed hulls, bagasse and esparto. By hemp is meant the so-called Manila hemp, which is in reality a variety of banana, the wild or inedible banana, known as *Musa textilis.* The true hemp, *Cannabis sativa,* is used only in the preparation of Bible, cigarette and certain other special papers. The chapter on jute is well presented and the treatment of the sacking, burlap and string which are the sources of the jute fiber used in the manufacture of high grade drawing papers as well as wrapping papers is adequately described with a good practical insight into manufacturing conditions. The same may be said of the chapter on Esparto, which was contributed by James Beveridge, a most competent writer and veteran papermaker, who is widely known in technical circles as the author of the *Papermakers' Pocketbook.*

There is an obvious typographical error at the outset of the chapter on esparto in attributing the introduction of the grass as a papermaking material to the "late Mr. Thos. Routtcop." The name should read *Thomas Routledge.* Esparto paper was first produced at Routledge's Eynsham mills in England in 1856. The new paper was used in printing an issue of the *Journal of the Society of Arts* in November of that year. Routledge was granted a patent on the use of esparto in 1861. The English papermakers were slow to appreciate the value of the grass as a source of paper fiber. Samples of esparto were shown at the first great International Exhibition organized in London in 1851, and it is stated that one patent was taken out ten years earlier.

American papermakers can not be induced to turn to esparto as a substitute for wood, any more than they can be interested in the new chlorine process of pulping and largely for the same reason, though other factors also prevail. For one thing it would necessitate a complete change of equipment in American pulp and paper mills, the types of digesters used for the cooking of esparto being different from any of the boilers used either for rags or wood. Another consideration is the cost of transportation from Algerian and other ports on the Mediterranean Sea, which is prohibitive for American manufacturers. The esparto fiber is one of the choicest fibers used in papermaking, having certain peculiarities of fibrillage which make it superior in some respects to linen. But of this Beveridge says nothing in the chapter of this volume which bears his name.

To a later issue will be left a detailed criticism of the other five sections of Volume IV. These include a good practical account of the treatment of waste papers for the production of various kinds of new paper and of board, and a valuable chapter on Beating and Refining which is marked by a scholarly and scientific handling of the theme that contrasts favorably with some of the other chapters. This chapter is enhanced in value by a good bibliography of beating and related topics that extends over seven pages. The chapter as a whole is a highly creditable contribution to our knowledge of the beating process, and one calculated to be of great service in pointing beginners and even practical papermakers toward a correct understanding of the functions of a beating engine and of the changes which are effected in the fiber as the beating proceeds.

The operations of loading, engine sizing and coloring are excellently treated in subsequent chapters and the volume closes with a most comprehensive section on "Papermaking Machines," which is divided into four parts treating respectively, of the paper machine and its equipment in general, the press part, the dryer part, and the calenders, slitters and winders.

This series of textbooks reflects the utmost credit on all who are concerned in its production. A word of praise is due even the printers and binders for furnishing so presentable a volume as to typography and one that is in form and manufacture so convenient and durable.

An Open Letter to the Paper Manufacturer

Dear Mr. Paper Manufacturer:

There is a story going the rounds about the Deacon's horse which although fed vast quantities of sawdust gradually weakened nigh unto death. He had not been getting the proper food.

The papermaker contends that the Printer is none other than the Deacon of the paper business but what is the poor horse going to do about it! He wants food—the Deacon gives him what he thinks he wants. If some horse food manufacturer could educate the horse to some higher grade of food, we'll bet the horse wouldn't eat the Deacon's fodder. (The cheapest in the line).

Just for a little "horse sense"! Isn't the general public;—the consuming public, we mean, just like the horse? It doesn't appear to us like the printer's job to sell the consumer paper. The printer will sell the public along the line he is organized for—printing! Once-in-a-while you'll meet up with a printer who has personality and brains and he begins to talk about kinds of paper; but right there his prospect is all at sea. He knows no more about using that paper than an inlander would a single oar in a dory in the ocean; and he ends by putting the job on the printer. That doesn't always mean satisfaction. Perhaps only one in four is ever satisfied with the finished job, but if they knew more about paper and what they would really like the completed job to be, they could be truly helpful to the printer. They would understand that certain papers "won't do" and why, and also why other papers should be used.

As we see it, it is the manufacturer-of-paper's job to sell paper to the consumer;—your job as well as of all other papermakers.

The clearly defined policy of the Exposition is to educate the consumer and create in him a desire and a demand for finer and better paper.

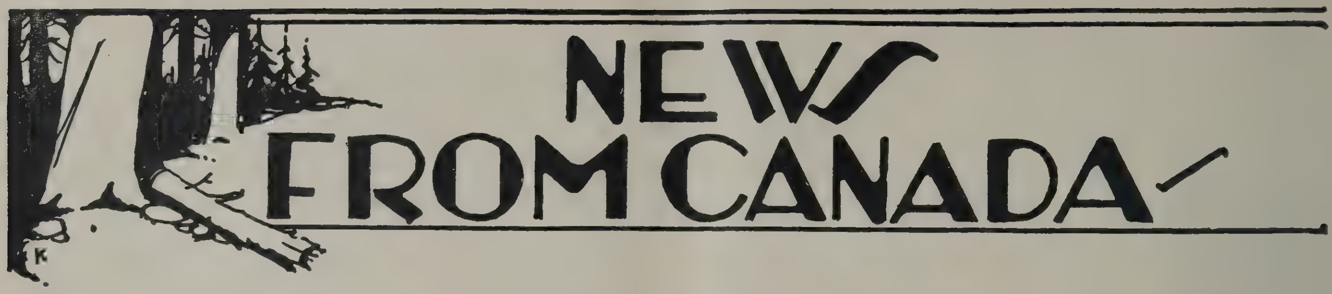
You have a pretty good idea as to what type of customers the meetings which will be held the same week as the Exposition will bring to an exhibit here, but do you realize the numbers of advertising men, direct mail men, printers, publishers, and—just consumers, shall we say, who attend the show? We are quite certain you don't! If you did there would be only one decision to make.

Watch some of the advertisements as they appear in the trade papers like "Printing," "Printer's Ink," "Postage," "American Printer," "American Paper Merchant," "Advertising & Selling," and you'll be convinced that there is a real selling opportunity for you. The Exposition company is advertising to these people because you and your fellow manufacturers have something to sell in the way of good papers. They are advertising in such papers as "Paper Industry," "Paper Trade Journal," "Paper Mill," "Paper," and others which more frequently come to your hand so that you won't forget to come to the Exposition to see the equipment, supplies and materials which will help you make your paper better and increase your profits.

This has been sticking in the back of many heads and preventing joining with a movement which was organized entirely for their ultimate benefit.

If the Deacon is working for you, don't look on while he lets the poor horse die; educate the horse to better food.

The machinery companies have responded well and will be largely represented at the Exposition. The paper mills themselves should not neglect this opportunity of reaching the public.



NEWS FROM CANADA

NO ACTION EXPECTED IN EMBARGO

Expectations Now Are That Nothing Whatever Will Be Done About It

THERE is nothing now in the Canadian situation with respect to the proposed embargo in exports of pulpwood to the United States. It may be taken for granted that, in spite of the demand of a number of manufacturers for the imposition of such an embargo, nothing will be done during the coming session of parliament to put it into effect. The King Government is very dependent on the good will of the settlers, all of whom practically oppose the embargo, and it may be taken for granted that nothing will be done that might in any way alienate them.

In some circles of the Canadian pulp and paper industry the impression has existed that production is being so rapidly increased that the saturation point has actually been reached. That is to say in some lines the manufacturers are right up against over-production. In this connection the following interesting contribution was made at the recent pulp and paper convention in Montreal;

"New machines brought into operation during the year have enlarged our producing capacity to 75,000 tons annually of book, bond and fine papers. This far exceeds the domestic demand and world-wide conditions at present militate against us in the foreign markets. Our difficulties have been further increased by the additional tariff preference accorded the United Kingdom by our government and which has been taken advantage of, in some instances, by British paper manufacturers to undersell us in our own market."

F. W. Clarke, chairman of the groundwood pulp section, prophesied a demoralized market for the product of 1924, unless cooperative marketing were arranged.

C. Howard Smith said respecting the sulphite outlook:

"Prospects for the coming year are difficult to outline, but general opinion appears to point to quiet, steady business. The presidential election will have its effect on business in the United States and will probably not be conducive to activity in general. There will undoubtedly be keen competition from Europe, possibly greater than during the past year, so that it will be necessary for the Canadian manufacturers to pay strict attention to the costs of manufacture and other factors that will assist them in meeting this competition."

* * *

Wants Concessions

J. D. McArthur, who is the chief promoter behind the Manitoba Pulp and Paper Co., is spending some time in Ottawa, with a view to securing wider concessions in the pulp wood lands controlled by him in Manitoba, and which belong to the Canadian Government. Upon the success of these negotiations depends very largely the future of this corporation, in so far as early developments are concerned.

CANADA ANNOYED AT BECKER'S WORDS

Said That Company's Troubles Were Due to Bad Faith by Canadians

CANADIAN pulp and paper circles are rather annoyed at the bitter criticism of Sir Frederick Becker, the English paper magnate, who has been declaring before meetings of his company's shareholders that his troubles have been due largely to the bad faith of certain Canadian pulp and paper men. Senator Beique, president of the Saguenay Pulp and Power Co. has replied in the following:

1. Sir Frederick Becker was a party to my being given for ten years the nomination of five out of nine members of the board of the Saguenay Pulp and Power Co., and its subsidiaries, a condition of my accepting the presidency in 1919;

2. I agreed to accept the presidency at the reqnest of the syndicate who underwrote the $5,500,000 worth of bonds which were then issued and for the protection of the bondholders;

3. When I accepted the presidency it was understood that I would take no personal interest in the companies, except one share as qualification. I never bought a share since;

4. Sir Frederick has had to this date the nomination of four members of the board of the several companies, and throughout my actions have received the unqualified and unanimous approval of the board;

5. The form of the Ludgate Syndicate contracts agreed upon between the parties, under which the pulp was sold f.o.b. Port Alfred, contains the following: "Terms of payment; cash before delivery if required." Becker & Co., Ltd., were apparently unable to comply with this reasonable and usual clause and in connection Chicoutimi is losing heavily with them;

6. The $400,000 referred to by Sir Frederick was paid when Chandler mill was transferred to Bay Sulphite Co., Ltd., and the amount was repaid to Sir Frederick and Mr. Dubuc;

7. Since July, 1922, Becker & Co., have always been indebted to Chicoutimi Pulp Co., and their indebtedness exceeds a million dollars;

8. The collateral trust bonds were issued by Saguenay Pulp and Power Co. at the initiative of Becker & Co., Ltd., and on the expectation that same would place Chicoutimi in an easy financial position, which would have been the case had they carried out their undertaking with regard to the Ludgate Syndicate and other contracts;

9. I was at all times ready to discuss terms of settlement with Becker & Co., Ltd., or their representatives, but got no response from them. In December, I issued a printed letter addressed to the European customers of Chicoutimi, giving detailed information on the relations of the company with Becker & Co., Ltd.

DIVIDE COMMISSION IN TWO PARTS

One Section Will Handle West and the Other the East

THE Canadian Pulp Wood Commission has been divided into two sections, one for the hearing of evidence in Western Canada, and the other for the completing of this work in the eastern provinces. This has been found necessary, if a report is to be made ready for submittal and made a basis for legislative action during the approaching session of parliament.

Testifying before the western section, settlers from the northeastern portion of Manitoba said that they would starve, if an embargo were placed on exports of pulpwood. Their protests were of a very vigorous nature. One witness presented a petition signed by several hundred of settlers who declared that the sale of pulpwood was their one means of livelihood while clearing their land.

At the Sherbrook, Quebec, session of the Commission, F. J. Campbell, general manager of the Canada Paper Co., refused to commit himself on the question of the proposed embargo on exports of pulpwood; but he did think that if it were allowed to be exported to the United States, book and other miscellaneous papers made in Canada should be permitted to enter the Republic duty free. He admitted that probably American mills would object strongly to this, but thought that the magazine publishers would just as strongly favor it. Respecting timber limits he said that his company was a much larger owner than most others, having 35,000 acres of freehold and 125,000 acres of Government lands. He added that it was not true that Canadian mills did not buy large quantities of pulp wood from settlers, and in proof of his statement instanced the Brompton Pulp & Paper Co., which bought 50,000 cords outside. His company also had bought all its wood. If the Canadian mills had free access to the American market there would be a much stronger demand for poplar. In conclusion he contended that if the Americans wanted Canadian wood, that privilege should be accompanied by the free entry of Canadian paper into the United States.

* * *

'Talking Trade

An Australian trade mission is now in Canada, and in the negotiations over trade between the two countries, the question of the admittance of Canadian paper into the Commonwealth on the same preferential trade basis as that granted to Great Britain is sure to receive much consideration. How hard the existing Australian tariff regulations hit Canada is to be seen in the fact that whereas during the eight months ending November, 1922, exports of newsprint to the Commonwealth were 458,552 cwts., during the same months in 1923 they fell to 27,243 cwts. In November there were no shipments, whereas in November, 1922, they amounted to 51,000 cwts.

PAPER MILL BUILDING THROUGH CANADA

New Brunswick Government May Allow International to Proceed

REPORTS are current that the New Brunswick government which took from the International Paper Company the leases of the water power privileges at Grand Falls, may allow the company to develop the hydro-electric possibilities there. A year ago the government revoked the lease of the company on the ground of inaction, it having been charged that the company made no effort to develop the water powers there. The government planned on doing the work, but after spending $25,000 in preliminary investigation, there is apparently a hitch in the plans, and the report has been spread that the paper company will be allowed to control the development work under the supervision of the government if the company will agree to start construction on the proposed Grand Falls paper mill project this year or next year. This mill was to have been built some years ago, but owing to unforseen difficulties, the mill was not built.

Another paper mill in the Grand Falls area that was to have been constructed some years ago, but has not yet been started, was one scheduled for the mouth of the Tobique River by Fraser Companies. The Fraser Companies now operate pulp mills at Edmunston, also in the Grand Falls area and in Chatham which is near the mouth of the Miramichi River. The site of the proposed new Fraser mill was at the junction of the Tobique and St. John Rivers. Some objection has been made by salmon and trout fishermen on the Tobique on the ground that the building of the dam will impair the salmon and trout fishing on the river. However, these objections are not looked upon as very formidable. At present indications are that this deferred project may be initiated this year.

The record for speed in building paper mills in the world is claimed for the Bathurst Company's new paper mill at Bathurst. This mill was built in five months. A Walmsley newsprint machine has been installed in this mill and it is likely that another newsprint machine will be added. The executives of the company are well satisfied with the newsprint production. Much of the newsprint thus far produced has been sold to Canadian newspapers. There are two flies in the Bathurst Company ointment—Scandinavian competition and the Compensation Board. The latter body is again suing the company for non-payment of compensation rates.

* * *

A New Receivership

W. A. Black, president of the Dryden Paper Company, Dryden, Ont., in a letter to shareholders covering the annual statement, says that the finances of the company got into such an acute state that application was made to the Ontario courts for a receivership. Hope of improvement after eighteen months depression was entertained but this hope proved unattainable. Mr. Black points out that after three years of continued losses the working capital was diminished by $780,774, which left the company unable to continue. With its record it was useless to expect further financing, and the outlook for the moment, he declared, was uncertain. The balance sheet shows that the company has no net working capital. On the contrary current liabilities are $263,458 in excess of current assets.

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

J. B. DILLON

Denver, Colorado

Making of "Boy" Paper

It was out at the Meyer Pulp and Paper Mill, Denver, Colorado. A gentleman stepping out of the office escorted three ladies into the mill. One of the ladies seeing a huge pile of scrap paper, remarked:

"And is that what they make here? I thought you said they make 'boy paper' here!"

The man smiled and said:

"I repeat they do, so come this way."

At the mixing vat they saw many men engaged in assorting the scraps of paper and then dropping it into the vat, and after a time they reached the finished card board. The man said:

"Well, Lois, here's the boy paper!"

"Why boy?"

"Rags and tags and paper bags that's what little boys are made of."

New Plant Operating

The new Jones beaters and other equipment changing over part of the news mill of Consolidated Water Power & Pa. Co. Wisconsin Rapids, Wisconsin, to manufacturing 20 bleached papers for bread wraps, is in operation and one of the 132" Beloit machines is now turning out this new grade for these mills, of a good quality at a very satisfactory rate of speed.

Lyman Beeman for so many years an expert of the Kimberly-Clark Company, has been associated with the Consolidated Company for the past six months and is aiding in keeping this new grade up to the standard required.

The Consolidated Mills get their bleached pulp from their own slow cook sulphite mills at Appleton, known as Interlake Pulp & Paper Co.

* * *

IT SURE DID

In Boston a man was showing a British visitor the sights of the Hub. They were driving past Bunker Hill Monument. Not wishing to make any pointed reference to the fact that at one time we had been fighting with our cousins, the Boston gentleman merely indicated the monument with his thumb and said: "Bunker Hill."

The Englishman looked at the hill intently and asked: "Who was Mr. Bunker, and what did he do to the hill?"

"You don't understand," said the Bostonian. "This is where Warren fell."

The Englishman screwed his monocle into his eye, leaned back, and, looking at the top of the towering shaft, remarked inquiringly, "Killed him, of course?"

* * *

A healthful tip for the winter months—sleep with your window open and your mouth shut.

NEW MILL TO BE READY SOON

Work of Construction Will be Rushed to Complete it This Year

THE pulp mill and paper mill to be built on the Manicouguan River, by English newspaper interests, will be ready for operation late in 1924, according to existing indications. The work of construction will be rushed. The amount to be spent in the construction will exceed ten millions.

Factors in the building of the mills are a number of newspaper publishers of England who recently effected a combine, under which a group of important newspapers, dailies and weeklies, are being directed by one syndicate, headed by Lord Rothermere. Not long ago, a son of Lord Rothermore, and a nephew of the late Lord Northcliffe, toured Canada seeking a site for the pulp and paper mills, and chose the Manicouguan River territory.

The St. George Pulp and Paper Company, maintaining a mill at St. George, N. B., and another at Norwalk, Conn., may enlarge the St. George mill and increase the capacity. The St. George mill is one of the oldest pulp mills in Canada. It was founded by United States interests, and operated in conjunction with Canadian capital for more than forty years. Later the property changed hands, the New York World Publishing Company being interested in the new organization. Shipment of the pulp to the Norwalk mill from the St. George mill has been mostly by water, St. George being on the Bay of Fundy near the mouth of the bay.

With the prospect of cheap power from the proposed harnessing of the Bay of Fundy, there are indications that the St. George mill will be enlarged, and the extension may result in the doubling of production. Besides the proposed harnessing development, the mill is also within a short distance of the new hydro-electric station at Musquash River. The St. George mill is located amid a fertile pulpwood growing section. In this territory there has been much replanting, and thinning during the past few years and in a few years, the pulpwood supply is expected to be more extensive than ever. This section has not suffered heavily from the forest fires. In addition, there is much available pulpwood in the company's lands surrounding the mill site.

* * *

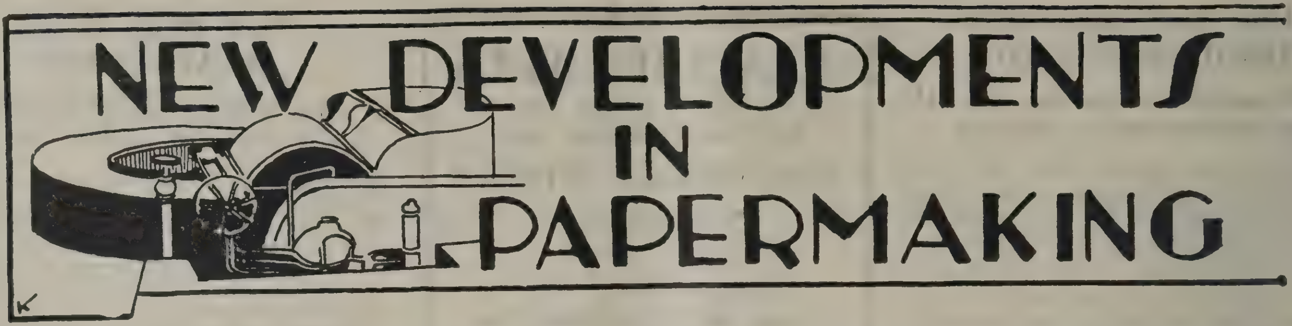
The debenture and noteholders of the Becker Wood Pulp Co., were told at a meeting in London, England, the other day, that their main chance of recovering anything was in the continuance of the Chicoutimi Company. It was admitted that the position of the company as respects working capital is critical, but it was also explained that the management, in spite of grave difficulties, was doing everything possible to prevent liquidation and was prepared to assume a reasonable attitude towards the Becker claims. The official receiver said: "The amount you will eventually receive is highly problematical. The Becker failure is largely due to over-trading, followed by the usual consequences."

* * *

A school nurse was telling a health story to a first-grade class. "Now what," she asked in review of the story, "was the name of the good fairy that was dressed all in white?" For a moment the class was silent, then a little colored bay answered hopefully, "Ku Klux?"

* * *

We used to shudder at the speed of express trains; now man travels 200 miles an hour, and faster, and lives to tell of it.

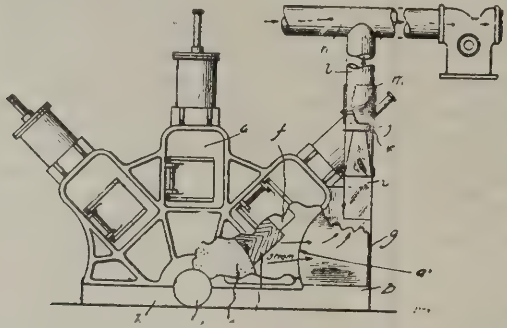


NEW DEVELOPMENTS IN PAPERMAKING

Removing Steam in Pulp Grinders

The accompanying figure shows the device which is patented in United States Patent No. 1,481,584 and which is designed for the purpose of removing the steam in a paper pulp grinder.

The housing of the grinder is provided with crevices in its walls and a relatively large opening at one side. There is also a supplementary housing section which is also open at one side in correspondence with the side opening of the main housing and this supplementary housing is made in such a manner that its walls are adapted to be placed in abutment with the walls of the main housing and in this manner there is formed a chamber of substantial dimensions. Means are provided for producing a draft from this chamber to the atmosphere, which results in the creation of a region of negative pressure in the chamber. The net result of this is that air is tended to be drawn into this chamber from the outside through the openings in the main housing. Arrangements are also provided so that the two sections of the housing may be easily taken apart.

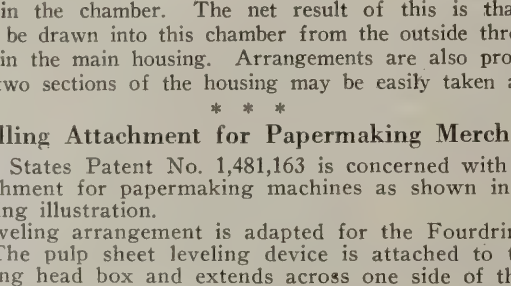


* * *

Levelling Attachment for Papermaking Merchants

United States Patent No. 1,481,163 is concerned with a leveling attachment for papermaking machines as shown in the accompanying illustration.

The leveling arrangement is adapted for the Fourdrinier machine. The pulp sheet leveling device is attached to the pulp distributing head box and extends across one side of the same.



The plate which is an essential part of the leveling device is just wide enough to extend across the width of the head box and has its lower end spaced from the wire to form a pulp feeding orifice. Brackets are used to support the plate and an arrangement is provided whereby it is possible to raise or lower the plate at will, so that the distance between the wire and its lower end is increased or decreased and thereby the thickness of the paper web. There is also provided an arrangement for warping the plate so that the thickness of the pulp sheet at different points on the wire may be increased or decreased.

* * *

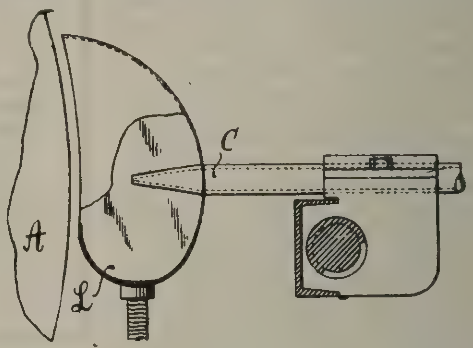
Removal of Organic Matter from Waste Liquors

Norwegian Patent No. 34,836 is concerned with a process of removing the organic matter from waste cellulose liquors by means of the gases that are obtained from the roasting process. This gas is derived from the roasting of sulphide minerals or sulphur and is exposed to the action of electric sparks which convert the oxygen into ozone. This compound then oxidizes the sulphur dioxide in the gas to sulphur trioxide. This gas is then lead into the waste liquors which absorb it. The liquors are then brought up to the proper temperature and pressure required for precipitation, that is decomposition, of the organic matters that are contained in it.

Sharpening Grinder Stones

German Patent No. 386,500 is concerned with a method and apparatus for sharpening grinder stones, particularly those employed in the manufacture of mechanical wood pulp. The accompanying figure shows the arrangement of the apparatus.

A fine stream of water or other liquid is caused to impinge upon the surface of the grinder stone. This stream of water or weak acid issues forth from the nozzle C. The grinder stone is seen at A. The stream of water is under considerable pressure. This effects the removal of all foreign bodies and impurities from the surface of the stone. The strong spray also washes away small particles of the stone which have been partly broken off during the grinding operations or which is actually eaten away by the strength of the spray of water. In this way a rather rough surface is attained on the stone A.



The spraying of the stone may be intermittent or else continuous and the nozzle is moved back and forth across the width of the stone so that every part of it is subjected to the action of the spray. The pressure at which the stream of water is directed against the surface of the grinder stone depends on the hardness of the stone itself and it may also be regulated so that any desirable surface may be given to the stone. It is also possible to direct streams of water from more than one nozzle against the stone surface. All these nozzles are provided with arrangements which permit their moving back and forth across the width of the stone.

In order to avoid that the particles of sand and stone, which are loosened up by the action of the stream of water, mixing with the mechanical wood pulp that is produced by the stone, the water which is bound back from the stone is made to flow through a certain channel and is thereby lead away from the grinder and does not mix with the pulp. The channel is seen at L.

* * *

German Patent No. 383,862

In a previous patent the inventor describes an arrangement consisting of a drying chamber, partially exhausted of air, in which the wet paper web is given a certain degree of tension by means of guide rollers which are placed between the drying cylinders without actually coming in contact with them.

The device which is patented in the present patent, German Patent No. 386,503 is an improvement over the aforedescribed apparatus. In the new drying arrangement the cylinders over which the wet paper web passes is dried and heated by electricity. The advantage of the use of electricity for this purpose lies in the ease with which the heating is regulated. This is particularly important in this case for the low air pressure within the drying chamber makes it necessary to employ a comparatively low temperature for drying purposes. This naturally requires fine regulation which can be accomplished by using the electric current as the heating agent.

Another important advantage of the use of electricity for this purpose is the comparatively small amount of space taken up by heating and drying cylinders with the result that the chamber may be made in small size and heat losses are correspondingly reduced. The radiant heat effect of electricity is also very well suited for drying the paper web in the partially evacuated chamber.

The Editorial Page

More Attention to Power

NOT sufficient attention is being paid in the paper mill to the power plant, the cost, efficiency and modernity of it. It is the old, old tale. There is absolutely nothing new in it.

As long as the old machine is turning out the goods, up to standard, without stops, as fast as it is supposed to turn it out according to records already established, who cares a hoot about how the power plant is working? To say nobody is interested is in error, but the number is very few.

The money men in the paper mill scarcely think about the power plant and the various ways it could be improved, oftentimes at small cost. The papermakers themselves give only a passing thought to power and its supplementary part in the mill, because their prime business is to make paper. As long as the wheels go around, drying is being properly done and nothing squeaks, everything must be all right. The engineers in the mill have a multiplicity of problems. Hence power is frequently neglected.

Are electricity, water and steam doing for you everything they can do and in the best way possible? Is everything being shouldered off on steam when its brother electricity might lend a helping hand? Or vice versa? Can you use water and how? Are all of those little needs in the mill for steam or current being filled adequately? These are pertinent questions. To solve them satisfactorily will save many dollars in a plant and will be just that much more velvet—for the Lord knows the velvet in the paper mill is minute and infinitesimal enough now.

Stop a moment and consider if your mill cannot be improved in its power plant, and by that we do not mean just the motor or force that turns the big wheels of the machinery. For there are a myriad minor uses of power in every angle of the mill that are worth considering. When a wrong goes on year after year, even though it be only a tiny wrong, time makes it a big wrong.

Of course, there is sanity in everything. Just because one system doesn't seem to be giving quite as fine and as pretty a service as a whole new plant, it is not always a reason to spend thousands of dollars in renewing or changing the entire outfit. The initial cost would sometimes eat up more than the small loss that is being sustained. But there is a sane, middle ground, and what must be done must be determined by the individual cases.

But at any rate thorough investigation into power and power plants, down to the last end of an exhaust steam pipe is worth while. If it doesn't reveal glaring errors it may at least satisfy your mind there is no leak in that department anyway.

Give a thought or two to the power plant. It may save you money.

* * *

On The Job

IF a business is successful, I know that somewhere in the organization is a man who is eating and sleeping with his job.

Men are always trying to get their income-producing enterprises into such shape that they can go off and leave them.

If they are successful in selecting and developing assistants this plan sometimes works out well, but assistants who are employed under these circumstances must be paid so much that usually little profit is left for the absentee owners.

No law seems to be as sure as this: That the price of success is hard work.

I recall once a member of the board of directors of an association which employed an executive secretary. This secretary seemed to be the most efficient man I had ever known. The board met only about once a year to vote an increase in the secretary's salary and to exchange stories.

This went on for three or four years. Apparently the association was thriving. I congratulated myself, feeling that for once in my life I held a position of honor and distinction which involved no work or worry, says Mr. Feather.

We eventually discovered, of course, that instead of matters being all right they were all rotten. To the membership, the directors looked like a lot of boobs —which we were.

We had to pitch in, work overtime, and correct our mistakes.

Yet, all of us keep trying to get our affairs on an automatic basis.

We seek investments that are safe without watching, helpers that will work without prodding, secretaries that will act without instructions.

Usually, however, when the showdown comes we find we have paid a long price for our temporary freedom from worry and responsibility. We return to a state of affairs like that which greets a housewife when she comes home from her vacation—a kitchen full of dirty dishes, a living room littered with newspapers and cigar ashes, bedrooms that look as though burglars had raided and slept in them.

PAPER PRODUCTS

Conducted by J. E. Willert

Just a Sample

St. Valentines,
February 14, 1924.

Dear Everybody:

Don't you like to get letters? I do. The first thing I look for in the morning at the office are letters, some are fine, like beautiful valentines, others are comics.

Letters are like people, formal, serious, gabby and humorous.

Sales letters are my favorites, they are so full of human nature, some of the writers try to be so different that they cease to be human beings, others are just like folks; chock full of good stuff.

After all, we are just folks and should talk to one another on paper just the same as face to face, that's just what I do in my Twiller Sales letters. Just believing in the goods all I know how I tell my prospect my belief and the power of my letter is my ability to impress my belief on others.

The power of my belief is this. That there is no commodity made that has not in it the qualifications to take care of the situation for which it was made and that I have the ability to present a word picture so vivid that any person can see the desirability of a commodity and be willing to buy.

There is a genuine pleasure in selling, gotten out of seeing others buy something of value and profit to them. That's why I write Twiller Sales letters.

I can do for you the very thing I would like somebody to do for me were I manufacturing, that is, popularize and sell your goods.

The advertisement in PAPER introduces you to the Jobber's business family. The Twiller Sales letter that goes with the advertisement develops a family intimacy, it becomes the welcome touch, the letter from a friend.

I have been asked, "why call yourself Twiller?" Well, it's easy to say and easy to remember, I just twisted the letters in my regular name which is

Salesfully yours
J. E. WILLERT

P. S. Twiller Sales letters go with advertisements in PAPER. Paper specialties have a definite and distinctive place and need definite and distinctive advertising.

* * *

At the Exposition

Last year at the Paper Industries Exposition a man rushed in and up to the booth of an exhibitor and breathlessly said, "Just got a minute, want to see you, got a lot of letters from you, fine line you have, no time to look around, hurrying for train, haven't been here before but had to see you, you'll hear from me. I'm a customer from now on." Throwing down his card he rushed away.

That exhibitor had used Twiller Sales Letters. They caused a prospect to nearly lose his train just to see the exhibitor's merchandise and made a customer. They can work for you. They go with advertising in PAPER. Send for information.

The Development of An Idea

By J. E. WILLERT

The development of the idea of an organization that may be known as "The American Association of Paper Specialty Maufacturers" is now in process. The important value of such an association with a definite purpose unhampered by a heavy expense is obvious. It is full of potential possibilities.

Foremost in the activities of real associational work is that cooperation which contributes a real benefit to its members, a reciprocal relation that increases distribution and a jealous oversight of the dignity of the Association.

The plans of the Association as far as formed comprehend a wide scope of operation, an adoption of a high order of method and practice and an economy of maintenance consistent with the perfect service that will be rendered.

All manufacturers of Paper Specialties, which includes special branded wrappings, toilet paper, napkins, paper towels, ice cream boxes, paper plates, paper cans, oyster pails, paper cups, paper spoons, parchment paper wrappings, paper bags of all kinds and the ever increasing line of specialty manufacturers, should be banded together in an Association that would bring about a mutuality of interest and protection, a resultant economy of distribution and the removing of dangers that impede the industry.

Such an Association with such a code of principles will appeal strongly to the distributor, generating confidence in Association goods and guaranteeing to the distributor a perfect service.

The American Association of Paper Specialty Manufacturers offers to the manufacturer a channel through which stabilization, understanding, economy and enlargement of distribution can be reached.

Full information on this subject can be obtained by addressing J. E. Willert, 152 West 42nd Street, New York City.

* * *

TWILLER SALES TALKS

Success likes company. Tell your customer the successful selling plans others are using.

* * *

Neighborhoods reflect the storekeeper's needs. Know the neighborhood.

* * *

Rest is just a change of thought. Give your customer a rest. Be versatile.

* * *

Remember your style reflects your ability, so have a good style.

* * *

Everybody knows some one thing better than you do. Learn what it is and use it.

Tell Them

The things you are most familiar with are those you see and hear about the most often.

So, if you want the trade to be familiar with your product you must let them hear from you often.

No matter how fine a production you have you must advertise it to popularize it.

All jobbers want to handle the best product they can get hold of so it is up to you to tell them about yours.

A trade paper is one channel, a sales letter another, together they are a mighty rush — the combination cannot be withstood. Try this way to tell them.

It's the every week repetition that makes them familiar with your name, it's your importunity that makes them order, it's the quality of your goods and service that makes them your permanent customers.

To start them you must tell them, to make them order you must tell them, to make continuous customers you must tell them. ADVERTISE and TELL THEM.

* * *

Wright Is Right

John Howie Wright, Manufacturer, Publisher, Editor and Direct Mail Expert says: "For every man who knows how to sell there are a hundred who know how to make. It takes more to sell a product than it takes to make a product."

John Howie Wright is right. We live in a critical, skeptical time, you've got to do some convincing nowadays. Constant advertising is convincing and the manufacturer who keeps at it will sell when others stand wonderingly by.

You have in your employ the best skilled help making your product, and you must have superskilled help in manufacturing a demand for it.

If you do not keep your machines in perfect running order and continually at it your product degenerates.

So must you keep your advertising, your sales manufacturing machinery, continually at work.

PAPER'S PLAN PRODUCES PATRONAGE.

* * *

Occupy New Plant

Warren Webster & Company of Camden, New Jersey, manufacturers of steam heating systems, feed-water heaters and steam specialties, have moved into their new plant at Federal and Seventeenth Streets, Camden.

While the move was made necessary by the fact that the former plant is on the site taken for the new Camden-Philadelphia bridge, now under construction, improved facilities have been provided and allowance made for extension.

Warren Webster & Company are known as pioneers in the development of steam heating systems. The company started business in Philadelphia in 1888 and moved to the plant just vacated five years later, extending it at four different times to provide increased manufacturing facilities.

Short News Briefs

Purity Paper Vessels Co., of Baltimore, have opened an office in the Canadian Pacific Building in New York City. Mr. W. A. Palmer is the Supervisor of Sales for the Metropolitan District.

* * *

Mr. A. E. MacAdam, Sr., of A. E. MacAdam & Co., Inc., Brooklyn, N. Y., has returned to his business after having recuperated from a severe cold.

* * *

The Metropolitan Bag & Paper Jobbers Association of N. Y. City will hold their annual dinner on March 13th at St. George's Hotel, Brooklyn.

* * *

MacAdam & Foster Co., Inc., Brooklyn are enjoying a good demand on their line of Ice Cream Pails and Candy Boxes.

* * *

There is a very optimistic feeling among the woodpulp board makers. Orders are now coming along for good quantities.

* * *

Mark Twain's spider looking for a place to build his web where he would not be disturbed scanning the newspaper discovered that one storekeeper did not advertise, the spider built his web across this storekeeper's door and lived happily ever after.

* * *

A certain concern prided themselves on their conservatism stating, "we just have a perfunctory advertisement in one trade paper." They did a short lived perfunctory business and made a perfunctory failure. The unusual advertisement means an unusual business with unusual success. Hitch on the Twiller Sales Service.

NEW GENERATOR FOR UNION BAG

General Electric Company Installs a Steam Generator in Hudson Falls Plant

A RECENT application of an electric steam generator is the installation of one of these units in the Hudson Falls, N. Y., plant of the Union Bag & Paper Company. This plant is devoted to the manufacture of paper, paper bags and other paper products, and the steam generator recently installed will furnish steam for heating purposes and process work throughout the plant.

The generator was built by the General Electric Company, is rated 5,000 Kilowatt, 6,600 volt, 500 boiler horsepower, and is designed to generate steam at 100 pounds' pressure. The generator operates in parallel with other fuel-fired boilers, but its operation is mostly confined to periods of high water and non-working days, when an excess of water is available for operating the power plant generators. In normal times, the fuel-fired boilers carry the steam load.

In the Hudson plant the operating conditions are such that the steam demand is very constant and the generator, for this reason, is equipped only with hand control. This consists of a valve in the discharge side of the hot water circulating pump. This valve regulates the water level in the electrode chamber of the generator to such a height as to convert into steam whatever power is available up to the capacity of the generator.

The generator is located in the same room as the fuel-fired boilers and takes up a floor space of approximately six by ten feet, with a 24-foot headroom for the pump, shell and primary switchboard panel. The unit is operated by the same crew operating the fuel-fired boilers, no increase in boiler room force being necessary.

* * *

SAFETY PAPER COMPANY BUILDING ADDITION

Perfect Safety Paper Company to Soon Put New Plant in Operation

THE Perfect Safety Paper Company, of Holyoke, Mass., has now under construction an addition to their mill. The new addition is of brick construction, 60x70 feet in dimensions. It has a saw-tooth roof machine room to give more light and ventilation.

Part of the machinery that will eventually be located there is already installed, with the rest scheduled to be soon there. The Casper Ranger Construction Company has the job of constructing the new building, while Fletcher-Thompson, Inc., of Bridgeport, Conn., was the engineering company.

It will be some months before it is ready for actual operation, but the work is being pushed with all rapidity. The company specializes in safety paper for bank checks and other negotiable documents. J. B. Weiss is the president of the company which has during the last few years been making steady progressive strides.

* * *

New Paper Jobbers

To take over the business formerly conducted by Turner Brothers in Peterboro, Ont., Card and Paper Works, Limited, has been formed in that city and has been granted an Ontario charter. The authorized capital of the new concern is $75,000. They will operate as paper jobbers.

IF YOU SAW , , ,

2000 potential buying jobbers all reading your Advertising and the story of your product in PAPER and then handing it over to 8000 of their salesmen to read, wouldn't that be a grand sight?

Well, that's just what's going to happen. Our issue of February 21st will be read by 2000 potential buyers and then by 8000 or more salesmen.

Your advertisement can be in it! !

It is not too late! !

Telegraph, Night Letter or Telephone in your copy.

PAPER will tell how, when and where to sell the product of our Advertisers. Big, economical, effective advertising for you.

You'll want to be in it and want every issue of PAPER.

Through the Middle West

New Pulp Unit For Nepco

At the last meeting of the Board of Directors of Nepco, it was learned today, a new pulp unit was authorized for the Port Edwards mill. Orders have already been placed for the necessary machinery, grinders, pulp refiners and it is hoped that the new machinery will be in operation by April 1st at the latest.

E. P. Gleason, engineer in charge, and John Walley, superintendent of construction, have the work in hand and everything arranged for.

This new unit will not greatly increase the product, but will cause greater economies and will greatly reduce the cost at certain times of the year.

Some machinery will be moved up from the Nekoosa mill and be added to the Port Edwards equipment and before the year 1924 is over, it is hoped that the manufacture of groundwood will be entirely removed from the Nekoosa mill.

* * *

New Paper Machine Screens

The machine at Port Edwards, known as No. 6, a 116" Beloit newsprint machine operating at speeds up to 650 feet per minute, is to be equipped with new screens of the Bird type universally used on new installations. Delivery will be made early in April and it is hoped that the transfer from the large number of flat screens to the two new screens of the Revolving type, can be made without any loss of time.

DISCUSSES ELECTRICITY IN PAPER MILL

Kimberly-Clark Official Gives Practical Address on Electrical Part of Mill

JOSEPH DOERFLER, chief electrician for the Kimberly-Clark Company, at Appleton, Wis., addressing the Y. M. C. A. Industrial forum, discussed "Electrical Drives." He illustrated his talk with charts showing how electrical drives are applied to paper mill machinery. Many paper mill men attended.

Mr. Doerfler explained that motors on paper mill machinery are so arranged that they automatically take up the slack in the paper, whereas with the steam drive the change of speed depends on the governors which do not operate until the actual change in speed takes place in the machine itself.

With electrical drives Mr. Doerfler said a paper machine will turn out a greater amount of paper than with the old form of drive. Electrical drives do away with shafting, he said, and their installation is more expensive than the old style steam driven machinery.

The Niagara Mill of the Kimberly-Clark Company was the second paper mill in the country, according to the speaker, to install the electrical drive. The first was a California mill, Mr. Doerfler said. The electrical drive is comparatively new and is being constantly improved, it was said.

"Printing and Its Relation to Paper" will be the subject of the next forum address to be delivered by Eugene Colvin.

Nepco Bleach Plant

The new bleach plant at Port Edwards Mill of Nekoosa Edwards Paper Company has started and is making a fine grade of bleached sulphite pulp.

Equipment for the use of liquid chlorine has been installed and the Company now produce its bleach liquor at the minimum of cost.

The Bellmer Bleachers, the Rogers wet machine and all other equipment is of the latest design and the arrangement is of the best approved type.

The new Yankee machine at Port Edwards is now producing bleached M. G. papers in 20, 23, 25 and 30 and with the already large line of M. G. papers in sulphite Kraft with the present large demand, things are very busy around Nepco mills, both in Nekoosa and Port Edwards.

January shipments were the largest ever heard of in the business of the Nekoosa Edwards Paper Company and orders for February looks like it will be a repetition.

It keeps some shipping crew to handle 200 tons per day of counter rolls, averaging around 35 to the roll, some 12,000 rolls per day being made and shipped.

* * *

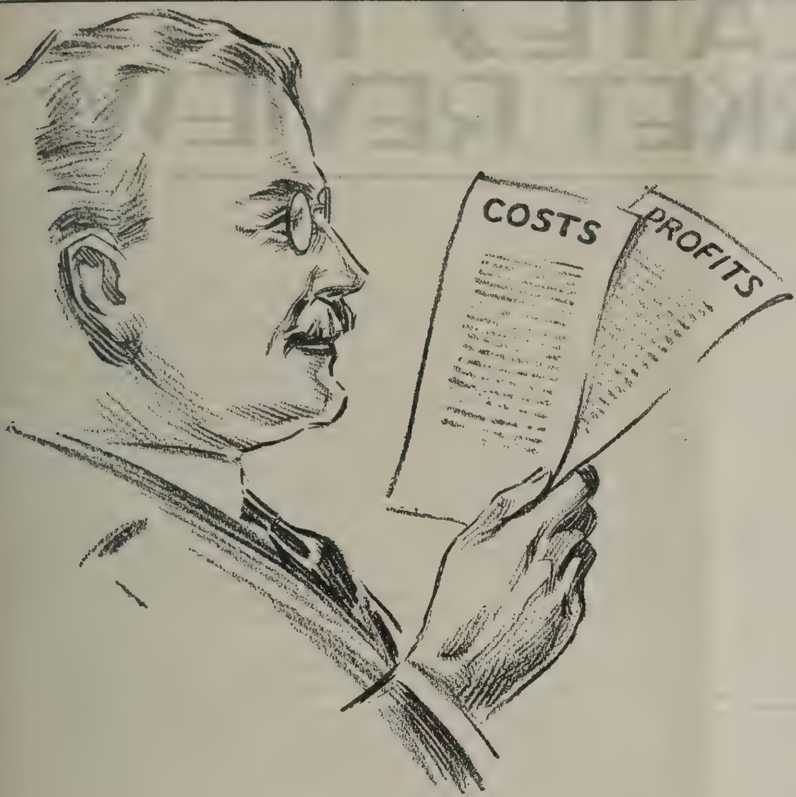
Announce New Company

The Hartig Pulp Company, Inc., 247 Park Avenue, New York, has announced itself as a branch of Hugo Hartig, Inc., Stockholm, Sweden, and Hugo Hartig, Hamburg, Germany. It has been organized to represent in this country a part of the agencies intrusted to the parent companies abroad.

INTERNATIONAL
Wire Works

"The Fourdrinier that took the Ire out of Wire"

INTERNATIONAL WIRE WORKS
MENASHA, WISCONSIN



Profits and Costs

THOSE significant sheets which tell the story of your business—what trifling items will sometimes affect them—to your benefit or otherwise. Every executive in the paper industry who is thoroughly alive to the importance of keeping in close touch with the elements which affect profits and costs to any degree, will be an interested visitor at the

SECOND ANNUAL
PAPER
INDUSTRIES EXPOSITION

Week of
April 7th
1924

Grand
Central
Palace
New York

On the main floor this year

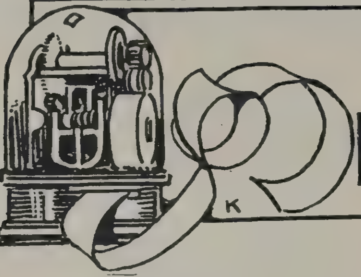
You'll see and hear something new and helpful every time you turn around. Exhibits of manufacturers will show how others have met the same problems you have encountered. You will see how machinery, supplies, methods, ideas of management, etc., can lower your production costs, increase the efficiency and the quality of your products.

Paper merchants, printers, advertising men and those who buy and use your products will be there in countless numbers, to learn more about paper.

An exhibit of your own will be a material factor in making those profit and cost sheets look more attractive to you. All those paper buyers will be greatly influenced by the knowledge of your paper which you can give graphically through your exhibit.

Get your sales department in action—write for diagram and cost of spaces.

Paper Industries Exposition, Grand Central Palace, New York



LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS

FINE			
Bond	9.00	@	40.00
NEWS			
Contract Basis	3.75	@	4.00
BOOK			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Coated and Enameled	8.00	@	12.00
TISSUE			
White	.85	@	.95
Manlla No. 1	.75	@	.85
WRAPPING			
No. 1 Domestic Kraft	6.00	@	6.50
No. 1 Jute	8.00	@	8.50
No. 1 Wood	4.50	@	5.00
Butchers	3.75	@	4.00
BOARD			
News	45.00	@	50.00
Chip	42.50	@	45.00

Paper and Board

New York, February 12—While reports continue to tell of a comparatively slow movement of several kinds of paper, the markets as a whole is fairly active and characterized by considerable firmness. Consumers are still proceeding cautiously in purchasing paper. There are few users who show interest in other than supplies directly required, and while it is true that the needs of some consumers are on the increase, thus bringing them into the market for larger amounts of paper, the process of improvement is so gradual that the effect on the market is scarcely observable

There is keen competition between paper manufacturers for business. This especially applies to book and wrapping paper producers. The demand for book paper, although decidedly improved over a few weeks ago, does not begin to approximate a volume ample to keep all mills fully occupied, and there is consequently a drive on by the various members of this branch of the trade to corral all the orders it is possible for each to secure, thereby making for some easiness in prices. Book paper mills are not hesitating to shade asked prices to obtain business. Some are cutting pretty deep in certain instances and low prices are mentioned now and then in different parts of the market. It is stated for example, that machine finished book paper has sold at as low as 5.75 cents per pound f. o b. New York, though it is acknowledged that book paper bought at this price was not of No. 1 quality. The average price quoted on a good grade of machine finished book is about 6.25c a pound f. o. b. New York, with quotations ranging from a low of 5.75c up to 7c. Coated book paper is quoted at from 8c a pound upward f. o. b. New York, with 9c about an average figure on such paper of the usual run of quality.

Wrapping paper is in limited demand. Importers continue to undersell domestic manufacturers, and are said to be securing the bulk of current business. Domestic producers of No. 1 kraft wrapping quote about 6c a pound New York, against a price of 5.50c or slightly higher for the imported product of similar grade. European manufacturers are reported quoting No. 1 kraft wrapping at approximately 4c a pound f. o. b. ports of shipment on the other side of the Atlantic, which with duty of one-third and frieght, brings the cost to importers up to around 5.25c, the freight, it is said, being a negligible matter since it amounts to something like 15 cents a hundred pounds.

Newsprint is firm and in a stable market position. Publishers are consuming print paper in heavy tonnage, and are steadily absorbing supplies from mills. Manufacturers with few exceptions are well booked on orders for shipment for several months ahead, and there is not much newsprint available in the spot market.

Fine papers are showing consistent improvement. Demand is slowly though surely expanding, and prices are stiffening. Increasing cost of raw materials, notably rag stock, is one of the main factors in the market, and manufacturers assert there will necessarily have to be further advances in fine paper prices to catch up with the sharp rise in production costs due chiefly to the high price of raw material.

The board market is quiet. Mills in the East are competing with one another and there is some price cutting indulged in. Latest quotations range around $42.50 a ton f. o. b. New York on plain chip board, and $45 upward on news board, with one of the large Eastern mills reported quoting $42.50 on both news and chip. Paper box manufacturers are buying board in small amounts, as a rule, and mills in general are operating on a curtailed schedule.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Exsuperfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50

Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.85	@	.95
Manila No. 1	.75	@	.85
White No. 2	.75	@	.85
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.00	@	6.50
No. 2 Fiber	5.00	@	5.50
Card Middles	4.00	@	4.50
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	42.50	@	45.00
Manila Lined Chip	65.00	@	70.00
Woodpulp	70.00	@	75.00

SCANDINAVIAN PULP
AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description
FOREIGN and DOMESTIC

PLUGS
for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

Mechanical Pulp

Prices of mechanical pulp are holding at about stationary levels. Most producers in the United States and Canada quote from $35 upward f. o. b. pulp mills for spruce ground wood for spot shipment, prices depending on the air dry test and the freight to consuming points and in some cases quotations ranging up to around $40 Indications point to a fair movement of ground wood. There is no unusual demand originating in any one consuming quarter, yet buyers in general are absorbing supplies in a There is no unusual demand originating in any one consuming quarter, yet buyers in general are absorbing supplies in a steady manner. Reports assert that there are good-sized quantities of Scandinavian ground wood on the spot in this country, for which importers ask around $32 a ton ex dock New York or other American Atlantic ports.

Foreign and Domestic Chemical Pulp

There is not much worthwhile improvement in chemical wood pulp. The market is at best quiet, and such demand as is developing is of very spotty character and mostly coming from consumers who are bent on purchasing pulp at price concessions. Moreover, indications are that available supplies are of such size as to make it necessary for sellers to be on the defensive, so to speak, at all times, and to grant the price reductions asked by buyers to accomplish sales.

Bleached sulphite is quoted at around 4 cents a pound f. o. b. pulp mills for No. 1 domestic sulphite, and at a range of 3.75 to 4 cents per pound ex dock New York for No. 1 foreign bleached sulphite. Unbleached sulphite of strong foreign quality is quoted at 2.60 to 2.75 cents per pound, with an occasional sale down to 2.50 cents ex dock New York reported. Kraft pulp is quotably easy and importers admit having difficulty including paper or board manufacturers to pay above 2.50 cents per pound for No. 1 Swedish kraft on the dock at New York, and some sales at lower prices have been reported. Stress is placed on the higher quotations from abroad, and the fact that sales are being made in the United States at below the cost of replacement in Europe, and members of the trade aver the prevailing market situation cannot continue indefinitely. Quotations ex dock New York and f. o. b. pulp mills are:

Sulphite foreign—			
Bleached No. 1	3.75	@	4.25
Unbleached No. 1	2.50	@	2.75
Unbleached No. 2	2.40	@	2.60
Easy Bleaching	2.75	@	3.00
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.60	@	2.80
Unbleached news grade	2.50	@	2.75
Easy Bleaching	3.00	@	3.25
Mitscherlich, unbleached	2.85	@	3.00
Soda, domestic, bleached	3.50	@	3.75
Kartf, foreign	2.40	@	2.60
Kraft, domestic	2.50	@	2.75
Sulphite screenings, refined	1.50	@	1.75

Domestic Rags

All grades of papermaking rags are very firm in price; in fact, the tone is strong, and higher market levels prevail on some kinds of rags. Demand is active, particularly for the low qualities used by roofing paper manufacturers. No. 1 roofing stock has sold at 2.50 cents a pound f. o. b. New York, and No. 2 packing has brought 2.30 cents and higher f. o. b. this city. Old thirds and blues are advancing, and replaced blues are quoted at 3.25 to 3.50 cents per pound at shipping points and miscellaneous packing at close to 3 cents. Old white rags are in demand and gradually moving upward in price. New cuttings of all kinds show an advancing price trend, with most grades freely inquired for by consumers. A feature in the market is that consumers other than papermakers are active buyers at present. The high price of raw cotton is causing manufacturers of cotton substitutes, such as shoddy and shredded materials, to purchase rags in abnormally large amounts, thus accounting in a measure for the strong prices prevailing. Prices on a f. o. b. New York basis follow:

New Shirt Cuttings,			
No. 1	13.75	@	14.25
No. 2	6.50	@	6.75
Fancy Shirt Cuttings	6.75	@	7.00
No. 1 Whites, repacked	7.00	@	8.00
No. 2 Whites, repacked	4.50	@	5.00
White Lawns	11.50	@	11.75
New Muslins, unbleached	12.00	@	12.25
Light Silesias	8.75	@	9.00
Black Silesias	5.50	@	5.75
Overall Cuttings, Blue	8.75	@	9.00
Washables	5.50	@	5.75
New Black Mixed	5.00	@	5.25
Soiled Whites, house	3.25	@	3.50
Soiled Whites, street	3.10	@	3.25
Thirds & Blues, repacked	3.25	@	3.50
Thirds & Blues, misc.	2.75	@	3.00
Black Cotton Stockings	3.75	@	4.00
Roofing Rags, No. 1	2.50	@	2.60
Roofing Rags, No. 2	2.30	@	2.40

Imported Rags

Foreign papermaking rags also are in a strong market position and are gradually advancing in price. Dark colored cottons have sold to roofing paper mills at 2.15 to 2.25 cents a pound dock New York, while blue cottons are fetching 3.50 cents and higher, depending on grade and tonnage. Linen rags are in good demand and are offered by importers in rather small amounts. Quotations ex dock New York are:

Lins, White, No. 1	13.50	@	14.50
Ger. Blue Cottons	3.50	@	3.75
French Light Blues	3.75	@	4.00
New Light Prints	7.00	@	7.50
New Unbleached	10.50	@	11.00
German Linen, blue	5.00	@	5.25
German Linen, grey	6.50	@	7.00
German S. P. F.'s	6.00	@	9.00
German Light Prints	4.00	@	4.50
Dk. Colored Cottons	2.15	@	2.25

KALAMAZOO VEGETABLE PARCHMENT CO.
Manufacturers of
PARCHMENT, WAXED AND BOND PAPERS
KALAMAZOO, MICHIGAN

A whistle does not always indicate the size of a factory, nor does the size of a factory indicate quality of merchandise.

Only quality folks make quality merchandise.

KVP

Genuine Vegetable Parchment

Waxed Papers

Bonds and Ledgers

Household Specialties

Daily Capacity of 600 Air-Dry Tons

The extent
of our production of
High Grade
BLEACHED
Sulphite Fibre
insures uniform quality, prompt
shipments and market prices

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

BACO Aniline Colors for PAPER

BACO—Paper Yellow GN Conc
BACO—Paper Red
BACO—Paper Violet
BACO—Paper Blue
BACO—Paper Brown

VATAMINE BLUE RS TRIPLE POWDER

Auramine OO Conc
Rhodamine B Ex
Victoria Blue B
Safranine Y Ex
Soluble Blue B

Send for trial tins or Kegs of these splendid paper products

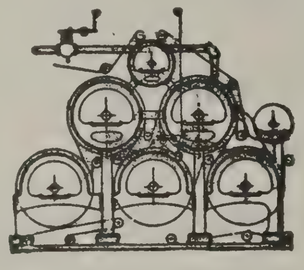
Imported and Domestic Dyes for Paper

BACHMEIER & COMPANY, INC.
438 West 37th St., New York.

The Pickles Drying Regulator

Reasons why you should have it on your machine are: First, it regulates the drying of paper automatically, irregularities are eliminated; second, higher machine finished papers are attainable, because it is possible to maintain the proper quantity of moisture in sheet, as it passes to calenders; third, mills having tried it on one machine have ordered it for all their machines. Full particulars upon application to

W. F. PICKLES - Buckland, Conn.



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BY ACTUAL TEST this felt will dry 33 per cent more paper, with ABSOLUTELY NO FELT MARKS IN THE PAPER.

TRIUNE
THREE PLY FELT for other paper

FITCHBURG DUCK MILLS
FITCHBURG - MASSACHUSETTS

Bagging, Rope, Etc.

A steady demand emanates from paper mills for old rope and prices hold firm. No. 1 domestic manila rope is selling at 6.50 to 6.75 cents a pound f. o. b. New York, and foreign manila rope is quoted by importers at 6.25 to 6.50 cents ex dock. Old bagging is in spotty demand. Roofing bagging is moving in fair quantities at prices of around 1.20 cents a pound f. o. b. New York, and No. 1 scrap bagging is quoted at 1.25 to 1.50 cents New York, prices depending on the quality of packing. F. o. b. New York quotations are as follows:

Gunny No. 1	1.50 @ 1.60	Wool Tares, heavy	1.50 @ 1.60
Foreign	1.40 @ 1.50	For. Manila Rope	6.25 @ 6.50
Wool Tares, light	1.40 @ 1.50	Domestic Rope	6.50 @ 6.75
Scrap Bagging, No. 1	1.25 @ 1.55	Mixed Strings	1.00 @ 1.25
Roofing Bagging	1.15 @ 1.25		

Old Paper

A good demand of increasing dimensions exists for the low grades of old paper, whereas most of the better qualities are noticeably neglected by consumers, No. 1 hard white shavings, for example, are almost a drug on the market, with dealers in New York offering this stock to mills at 3.75 cents a pound f. o. b. this city and failing to secure orders. Soft white shavings also are quiet though some few sales at about 3 cents a pound New York are reported. Old folded newspapers are selling at 95 cents to $1 a hundred pounds f. o. b. New York, and No. 1 mixed papers have advanced to 75 to 80 cents a hundred pounds New York. Old kraft paper is a firm item and is bringing 2.25 cents a pound at shipping points, while white blank news is quoted at the same figure. Magazines are in fair demand but buyers seem to be filling their wants through purchases at about a price basis of 1.60 cents f. o. b. this city. Quotations f. o. b. New York are:

No. 1 Hard White Shavings	3.70 @ 3.90	Ledger Stock	1.90 @ 2.10
No. 2 Hard White Shavings	3.15 @ 3.40	Kraft No. 1	2.20 @ 2.30
No. 1 Soft White Shavings	2.90 @ 3.10	New Manila Cuttings	2.00 @ 2.25
Box Board Chips	.80 @ .90	New Manila Env, Cuttings	2.75 @ 3.00
No. 1 Colored Shavings	1.60 @ 1.80	Bogus & Mill Wrappers	.90 @ 1.00
Magazine flat stock	1.50 @ 1.75	News, strictly overissue	1.10 @ 1.20
No. 1 Crumpled	1.25 @ 1.35	Folded News	.95 @ 1.00
Solid Ledger Books	2.00 @ 2.15	No. 1 Mixed Papers	.75 @ .80
		White Blank News	2.25 @ 2.35
		Common Paper	.50 @ .55

Twines

Twine prices display a hardening tendency. Raw material has been advancing in a consistent manner for some time and is commencing to have influence on values of the finished product. Demand is nothing more than routine, however, and the market is at best limited in compass. Quotations are as follows:

Sisal Hay, pure	14.25 @ 15.25	Jute Wrapping twine, A grade	20.00 @
Manila Hay, pure	16.25 @ 17.25	Papermakers Twine	11.50 @
Sisal Lath Yarn	13.25 @ 14.25	B. C. Hemp, 18	.39 @ .40
Manila Rope, pure, ¾ inch diameter	16.25 @ 17.25	B. C. Hemp, 24	.38 @ .39
Hardware Rope	14.25 @ 15.25	B. C. Hemp, 36	.37 @ .38
Jute rope, ¼ diam. and over, coils	13.00 @ 15.00	America Light India— No. 6	14.50 @
Sail twine, A grade	20.00 @	No. 7	13.50 @

Chemicals

There is a fairly steady movement of papermaking chemicals, and prices are marked by firmness. Bleaching powder is quoted at from 1.50 cents a pound upward f. o. b. works, depending on the shipment desired. Casein is steady at 13 to 15 cents per pound, duty paid on the foreign product. Caustic soda is quoted at around 3.15 cents per pound at works for spot shipment, and soda ash at 1.40 to 1.50 cents a pound f. o. b. shipping points

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IMPORTS AT NEW YORK

Week of February 4-9

Paper

Str. Belgian, London—W. H. S. Lloyd & Co., 25 bls. hanging; R. F. Downing & Co., 16 cs. hanging.

Str. Bremerton, Helsingfors—Pitt & Scott, 46 cs. tissue; Order 656 rolls newsprint.

Str. Port Bowen, London—H. Reeve Angel & Co., 3 cs. drawing and 6 cs. filter.

Str. Waukegan, Havre—Standard Products Corporation, 200 cs. cigarette.

Str. Vellalia, London—Order, 4 cs.

Str. Maryland, London—W. H. S. Lloyd & Co., 19 bls. hanging.

Str. Montana, Hamburg—Cellopap Paper Company, 214 bls. wrapping and 25 cs. pasteboard; Steffen, Johns & Co., 31 bls. wrapping; F. G. Prager & Co., 1,079 rolls hanging; Chemical National Bank, 301 rolls newsprint; American & Cuban Steamship Line, 190 bls. wrapping; Royal Mail Steam Packet Company, 52 bls. wrapping; Guaranty Trust Company, 112 rolls newsprint; Quality Art Novelty Company, 33 cs.; F. O. Nelson, nc., 326 rolls newsprint; W. Hartmann & Co., 531 rolls newsprint and 8 cs. parchment; International Acceptance Bank, 955 rolls newsprint and 70 rolls wrapping; Gallagher & Ascher, 115 bls. wrapping; Wilkinson Bros. & Co., 84 rolls wrapping; C. G. Keferstein, 151 rolls wrapping; J. P. Heffernan Paper Company, 5 bls. wrapping; Order, 127 bls. wrapping and 29 cs. pasteboard.

Str. Paris, Havre—M. Spiegel & Sons, 14 bls. cigarette; Park & Tilford, 4 cs. cardboard; Biddle Purchasing Company, 5 cs.; C. B. Richard & Co., 11 cs.; Coenca-Morrison Company, 13 cs.; Whiting-Patterson Company, 12 cs.; Morrison Machine Company, 21 cs.

Str. Wells City, Bristol—J. & H. Berge, 4 cs. blotting.

Str. Doric, Liverpool—Meadows, Wye & Co., 8 cs.

Str. Nieuw Amsterdam, Rotterdam—A. Vuyck, 200 pkgs. straw board; Kupfer Bros. Company, 12 cs. printing; Steffens Sons & Co., 31 cs. printing; Miller & Wright Paper Company, 8 cs.; Basket Importing Company, 10 cs.

Str. Scythian, London—Redden & Martin, 32 rolls printing; W. H. S. Lloyd & Co., 14 bls. hanging.

Str. Takaoka Maru, Canton—Ault & Wiborg Company, 20 cs. litho; from Tientsin—R. F. Downing & Co., 11 cs.

Str. Zarembo, Bordeaux—Bernard, Judae & Co., 26 bls. filter; American Tobacco Company, 800 cs. cigarette; from St. Nazarie, —R. J. Reynolds Tobacco Company, 770 cs. cigarette; De Manduit Paper Corporation, 182 cs. cigarette.

Str. Independence Hall, Havre—Standard Products Corporation, 13 cs. cigarette.

Str. Havana Maru, Kobe—H. C. Davison & Co., 11 cs.

Str. Minnekahda, Hamburg—Bank of the Manhattan Company, 6 cs.; W. Hartmann & Co., 33 bls. wrapping; International Acceptance Bank, 506 bls. wrapping and 16 rolls newsprint; Metropolitan Import & Mfg. Company, 10 cs. pasteboard; F. J. Emmerich & Co., 3 bls. hanging; Fourth and First National Bank of Nashville, 96 rolls newsprint; M. Greenebaum, 4 cs.; New York Label & Box Works, 3 cs. pasteboard; Chemical National Bank, 385 rolls newsprint; Hensel, Bruckman & Lorbacher, 12 cs.; National City Bank, 1,420 bls. hanging; Order, 22 cs. pasteboard.

Str. President Garfield, London—G. W. Sheldon & Co., 3 cs.; J. J. Gavin & Co., 1 case photo.

Str. Tyrrhenia, Liverpool—F. J. Emmerich & Co., 7 bls. hanging; B. F. Drakenfeld & Co., 25 cs. printing.

Str. Ala, Antwerp—Perkins-Goodwin Company, 67 cs. printing.

Str. Assyria, Glasgow—Perry, Ryer & Co., 45 cs. printing.

Str. Oscar II, Copenhagen—Order, 26 bls.; from Christiania—E. Naumberg & Co., 188 rolls newsprint; Order, 180 rolls newsprint.

Str. Mount Carroll, Hamburg—P. H. Petry & Co., 4 cs. and 7 cs. pasteboard; Quality Art Novelty Company, 18 cs.; F. G. Prager & Co.; 3 rolls pasteboard; International Acceptance Bank, 296 rolls newsprint and 487 rolls and 132 bls. wrapping; F. J. Emmerich & Co., 68 bls. hanging; J. P. Heffernan Paper Company, 1,312 bls. wrapping; Wilkinson Bros. & Co., 162 rolls wrapping; Wilhelm, Hartmann & Co., 54 rolls newsprint; Chemical National Bank, 155 rolls newsprint; New York & Hauseatic Corporation, 57 rolls newsprint; W. Schall & Co., 5,717 rolls and 29 bls. wrapping; Chase National Bank, 646 rolls wrapping; New York Label & Box Works, 6 cs. cardboard; Seantis, Inc., 5 bls. wrapping; Order, 1,426 rolls and 191 bls. wrapping and 2 rolls newsprint.

Str. Providence, Marseilles—P. J. Schweitzer, 53 cs. cigarette; Defiance Sales Corporation, 5 cs. writing; Order, 14 cs.

Wood Pulp

Str. Bremerton, Helsingfors—Lagerloef Trading Company, 842 bls.; from Gavle—Pagel, Horton & Co., 7,000 bls. sulphite; Bulkley, Dunton & Co., 4,925 bls. sulphite; Scandinavian Pulp Agency, 500 bls. sulphite; from Sundsvall—Johaneson, Wales & Sparre, 2,250 bls. sulphite; American Woodpulp Corporation, 2,750 bls. sulphite.

Str. Montana, Hamburg—A. J. Bracher & Co., 370 bls.

Str. Minnekahda, Hamburg—A. J. Bracher & Co., 28 bls.

Str. Oscar II, Christiania—J. Andersen & Co., 600 bls. sulphite.

Str. Mount Carroll, Hamburg—Order, 500 bls.

Old Rope

Str. Belgian, London—Ellerman-Wilson S. S. Line, 46 coils.

Str. Waukegan, Havre—International Purchasing Company, 36 bls.

Str. Jufuku Maru, Genoa—Maurice O'Meara Company, 215 bls.

Str. Wells City, Bristol—Brown Bros. & Co., 224 coils.

Str. Luxpalile, Naples—Italian Discount & Trust Company, 114 bls.

Str. Nieuw Amsterdam, Rotterdam—Order, 43 coils.

Str. Oscar II, Copenhagen—Brown Bros. & Co., 93 coils; Bank of New York & Trust Company, 116 coils.

Str. Carlier, Antwerp—Guaranty Trust Company, 115 bls.; Brown Bros. & Co., 55 coils and 40 bls.

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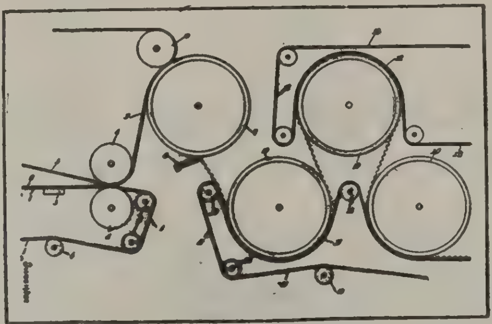

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Str. Carlier, Antwerp—Equitable Trust Company, 57 bls.

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Str. Belgian, London—Order, 101 bls.

Str. Waukegan, Havre—Order, 36 bls.

Str. Maryland, London—Irving Bank-Columbia Trust Company, 75 bls.; F. P. Gaskell & Co., 112 bls.; Order, 75 bls.

Str. Norfolk Range, Leith—Chase National Bank, 93 bls.; Draycott Mills, 44 bls.

Str. Paris, Havre—Chase National Bank, 15 bls.

Str. Wells City, Bristol—Guaranty Trust Company, 93 bls.

Str. Nieuw Amsterdam, Rotterdam—Leshner Paper Stock Company, 52 bls.; A. W. Fenton, Inc., 311 bls.; American Woodpulp Corporation, 89 bls.

Str. Scythian, London—Order, 65 bls.

Str. Siboney, Havana—M. Wolfer & Co., 22 bls.

Str. Zarembo, Bordeaux—E. J. Keller Company, 64 bls.; from St. Nazaire—M. M. Atterbury, 108 bls.

Str. Independence Hall, Havre—E. W. Dutton, Inc., 71 bls.; from Dunkirk—Castle & Overton, 76 bls.

Str. Assyria, Glasgow—Brown Bros. & Co., 111 bls.; American Express Company, 48 bls.

Str. Oscar II, Copenhagen—Goldman, Sachs & Co., 863 bls.

Str. Mount Carroll, Hamburg—Order, 65 bls.

Str. Carlier, Antwerp—National City Bank, 580 bls.; Leshner, Paper Stock Company, 22 bls.; International Acceptance Bank, 84 bls.; W. Schall & Co., 161 bls.; Irving Bank-Columbia Trust Company, 145 bls.; Brown Bros. & Co., 395 bls.; Order, 438 bls.

Paper Stock

Str. Belgian, Antwerp—International Acceptance Bank, 83 bls.

Str. Tyrrhenia, Liverpool—Order, 20 bls.

Str. Ala, Antwerp—Equitable Trust Company, 84 bls.; Mechanics & Metals National Bank, 56 bls.; Merchants National Bank, 16 bls.

Str. Carlier, Antwerp—Equitable Trust Company, 121 bls.; W. Schall & Co., 50 bls.

Casein

Str. American Legion, Buenos Aires—Brown Bros. & Co., 417 bags.

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Str. Dunstaffnage, Genoa—C. Mathieu, 200 bags; J. H. Fur- nan & Co., 200 bags.

China Clay

Str. Wells City, Bristol—Kalamazoo Paper Company, 4 cks; loore & Munger, 305 tons.

Blanc Fixe

Str. Vellavia, London—Order, 200 bags.

Coating and Drying

A process for coating and drying a paper web has been patented in ngland. The apparatus that is employed in this process is seen rom the accompanying figure.

The web of paper, designated by 1 in the figure, passes through mercury seal 4, passing around the rollers 29 which are im- nersed in the mercury. The mercury is kept hot by suitable means. Then the web passes through a bath 7 which contains the liquid with which the paper is to be impregnated and round other rollers 29 which exert a drying action and then out of the evacuated chamber 5 by way of the second liquid seal 4 to a winding spool 19. The bath 7 may be alternately located at the entrance or exit of the chamber and the drying means may take the other forms such as heated cylinders or electric heaters between suspended loops of the material.

* * *

Recovery of Products in Waste Liquors

French Patent No. 558,183 is concerned with a new process of recovering the values in waste liquors derived from paper manufacturing processes and the heat that is contained in the organic materials that are dissolved in these liquors. The process consists in mixing the waste liquors with a liquid combustible, such as fuel oil, anthracine oil or crude low grade petroleum (mazout) and then the entire mixture is burnt. The inventor claims that the burning process when carried out in this way is complete and all the heat that is contained in these liquors in the form of dissolved organic substances is recovered and can be used to good advantage in heating steam boilers. The residual matter is inorganic in nature and can be recovered almost completely and in a rather pure condition after the organic matter has been burnt off.

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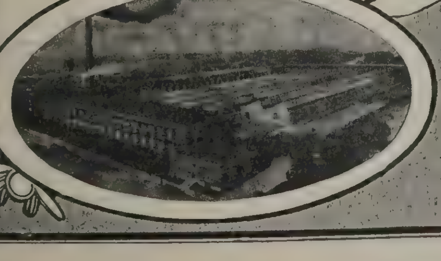

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King, E. & F. & Co., 367 Atlantic Ave., Boston, Mass.
Reardon Company, 127 Clinton, St. Louis, Mo.
Wiarda, John C. & Co., 91 Provost St., Brooklyn, N. Y.
Sheffield By-Products Co., Hobart, N. Y.
Atterbury Bros., 145 Nassau St., (French Imported) New York City.
Casein Mfg. Co., 15 Park Row, New York City.
Duche & Sons, T. M., (Imported), 376 Greenwich St., New York City.
Hamilton Company, 50 Church St., New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff, New York City.
Kalbfleisch Corp., The, 31 Union Sq., New York City.
Peek & Velsor, 8 Gold, New York City.
Scheel, Wm. H., 159 Maiden Lane, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Amalgamated Gum Co., (Vegetable for Wall Paper & Paper Coater Mfgrs.) Troy, N. Y.
Ferguson, Alex C., Jr., 460 Chestnut St., Philadelphia, Pa.
Rosin & Co., Penna. Bldg., Philadelphia, Pa.
Smith, Kline French Co., 431 Arch St., Philadelphia, Pa.
Union Casein Company, 822 Broad, Philadelphia, Pa.
Turnbull, J. G. Co., Orleans, Vt.

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du Pont, E. I. de Nemours & Co., Inc., Lithopone, Pigments & Heavy Chemicals Div., Wilmington, Del.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
American Woodpulp Corp., 347 Madison Avenue, New York City.
Battelle & Renwick, 80 Maiden Lane, New York City.
Burns Mfg. Co., 46 W. Broadway, New York City.
Cooper, Charles, & Co., 194 Worth, (Job), New York City.
KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.
National Sales Co., Cincinnati, O., (Bentonite).
Paper Makers Chemical Co., Easton, Pa.
PENNSYLVANIA Salt Mfg. Co., Chestnut St., (Bleach), Philadelphia, Pa.
EMPIRE Size & Chemical Co., (Rosin Size—Foam Killer—Felt Soap), Albany, N. Y.
Philadelphia Quartz Co., 121 So. 32 St., Philadelphia, Pa., Silicate of Soda.

CLAY
China

United Clay Mines Corp., Trenton, N. J.
Bernhan Chemical & Metal Corp., 309 Broadway, Job), New York City.
Bingswanger, H. P., 7 West 16, New York City.
Chrystal, Chas. B., Co., Inc., 99 John, (Imp.), New York City.
Drakenfeld, B. F., & Co., Inc., 50 Murray, New York City.
English China Clays Sales Corp., 33 West 42nd St., New York City.
General Mineral Co., Inc., 104 Spring, New York City, (Imp., Exp. & Mfrs. Agts.)
Hammell & Gillespie, 240 Front, New York City.
Higman Company, John W., 29 Broadway, New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff (Job), New York City.
Keystone Minerals Co., 41 Union Square, New York City.
Penn-Keystone Co., 41 Union Square New York City.
Roessler & Hasslacher Chem. Co., 709 6th Avenue, New York City.
Salomon & Bro., L. A., 216 Pearl, (Imptr., Exptr. & Dir.), New York City.
Scheel, Wm. H., (Dept. A.), 159 Maiden Lane, (Imptrs., Exptr. & Dir.), New York City.
Smith & Co., J. Lee, 23 Jacob, New York City.
Taintor Mfg. Co., H. F., 2 Rector, (Bolted), New York City.
Tennant Sons & Co., C., 76 William New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City
Vanderbilt, R. T. Co., Inc., 50 East 42nd St., New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Hardis Kaolin Co., Dillsboro, N. C.
Onondaga Pottery Co., (Vitrified), Syracuse, N. Y.
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National Sales Co., 31 East 13th, Cincinnati, Ohio.
Harshaw, Fuller & Goodwin Co., (Imptr.), Cleveland, Ohio.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Florida China Clay Corp., (Fla.), Easton, Pa.
Immaculate Kaolin Co., (For filling, coating & pottery purposes), Easton, Pa.
Peper Makers Chemical Co., (Eng.), Easton, Pa.
Williams, C. K., & Co., (Bolted), (Imptrs.), Easton, Pa.
Atlas Mineral Products Co., Mertztown, Pa.
Star Clay Co. (powdered & lump washed), Mertztown, Pa.
Fergusson, Alex. C., Jr., 460 Chestnut, Philadelphia, Pa.
Foote Mineral Co., Inc., 113 No. 19th, Philadelphia, Pa.
Nevins Co., Samuel, 109 So. 2nd, (Dried, Grd. & Bolted), Philadelphia, Pa.
Philadelphia Clay Co., 1201 Chestnut, Philadelphia, Pa.
Wayner, Chas. A. Co., Inc., 814 Noble St., Philadelphia, Pa.
Lyon & Bro. S. C., Bennington, Vt.
Horn, Crockett & Co., (Miners & Refiners), Brandon, Vt.
Dill-Coppage, Inc., 235 Pine (Imptrs. & Exptrs.), San Francisco, Calif.
Savannah Kaolin Co., Savannah, Ga.
Bennett & Davis, Inc., 327 So. LaSalle, Chicago. Ill.
Mepham, Geo. S., & Co., East St. Louis, Mo.
Cooley Ball & Sagger Clay Co., Hazel, Ky.
Kentucky Const. & Improvement Co., Pryersburg, Ky.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McHose Clay Co., Perth Amboy, N. J.
McHose, L. H., Inc., P. O. Box 345, Perth Amboy, N. J.
Such Clay Co., Perth Amboy, N. J.
Perrine, Hy. C., & Son, South Amboy, N. J.
Golding Sons Co., Trenton, N. J.

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Owyhee Chemical Products Co.,3946 So. Union Avenue, Chicago, Ill.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
Laclede-Christy, Railway Exch. Bldg., St. Louis, Mo.
Crossman Co., South Amboy, N. J.
Wright, Marcus S., South River, N. J.
United Clay Mines Corp., Trenton, N. J.
Carbola Chemical Co., Inc., 299 Ely Avenue, Long Island City, N. Y.
Binney & Smith Co., 81 Fulton, New York City, N. Y.
Chrystal, Chas. B. Co., Inc., 99 John, New York City.
General Mineral Co., Inc., 104 Spring, (Imptrs. & Exptrs., Mfg. Agts.), New York City.
Higman, John W. Co., 29 B'way, (Eng. & Amer.), New York City.
International Pulp Co., 41 Park Row, New York City.
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United Color & Pigment Co., Evergreen Ave., Newark, N. J.
Janeway & Carpender, New Brunswick, N. J.
Debrook Co., Inc., 1105 Metropolitan Ave., Brooklyn, N. Y.
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Harmon Color Works, Inc.. (Pulp), College Point, N. Y.
Imperial Color Wks., Inc., Tait Paper & Color Industries, Inc., Glenns Falls, N. Y.
Tait Paper & Color Industries, Inc., Glens Falls, N. Y.
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Heller & Merz Co., 503 Hudson St., New York City.
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Metz, H. A. & Co., Inc., 122 Hudson, New York City.
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Palatine Aniline & Chem. Co., Poughkeepsie, N. Y.
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Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
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International Process Co., 5 Beekman, New York City.
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Loew Mfg. Co., 9100 Madison Ave., Cleveland, Ohio.

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Bagley & Sewall Co., Watertown, N. Y.
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Perkins, B. F. & Son, (size pumps, rag cutters), Middletown, Ohio.
Shartle Bros. Machine Co., Middletown, Ohio.
Sandusky Foundry & Machine Co., Sandusky, Ohio.
Phoenix Iron Works, 360 Hawthorne Ave., Portland, Ore.
Wetherill, Robt., & Co., Chester, Pa.
Erie Lay-Boy Co., Ltd., Erie, Pa.
Altemus, Jacob K., 2824 N. 4th, (tube winding), Philadelphia, Pa.
Moore & White Co., 15th & Lehigh Ave., (fourdrinier & cylinder paper, roofing paper, saturating,) Philadelphia, Pa.
Tinker, F. & Sons Co., 57th & Harrison, Pittsburgh, Pa.
Textile Finishing Machy. Co., 83 Exchange Pl., (finishing machy. for writing, ledger, coated & glazed papers), Providence, R. I.
Stellman, L. H, & Son, Battleboro, Vt.
Hooker Mfg. Corp., St. Johnsbury, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works (cylinder & fourdrinier), Appleton, Wis.
Beloit Iron Works, (tissue news, bookboard), Beloit, Wis.
Lawton, C. A. Co., The, De Pere, Wis.
Moloch Co., (paper, wall paper & sulphite), Kaukauna, Wis.
Manitowoc Ship Building Corp., Manitowoc, Wis.
MURRAY Mfg. Co., D. J., Wausau, Wis.

Slitters and Rewinders

Hamblet Machine Co., Lawrence, Mass.
Horne, J. H. & Sons, Co., Lawrence, Mass.
Clark-Aiken Co., Lee, Mass.
Fales, L. F., Walpole, Mass.
Hobbs, Mfg. Co., Worcester, Mass.
Rice, Barton & Fales Mach. & Iron Co., Worcester, Mass.
McDonald, Chas. J., (Rolls), Worcester, Mass.
Koegel's, Chas., Sons Inc., Holyoke, Mass.
Perkins, B. F. & Sons, Inc., Holyoke, Mass.
Kidder Press Co., Dover, N. H.
Langston Co., Samuel M., Camden, N. J.
CAMERON Machine Co., 57-61 Poplar St., Brooklyn, N. Y.
Central Machine Co., Niagra Falls, N. Y.
Moore & White Co., 15th & Lehigh Ave., Philadelphia, Pa.
Hudson-Sharp Mach. Co., (soft toilet roll rewinders), Green Bay, Wis.
Hewitt, J. W. Mach. Co., (Rolls), Neenah, Wis.

Waxing

Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Potdevin Machine Co., Inc., 1221 38th, Brooklyn, N. Y.

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Petroleum Products, (Lubricating-Fuel-Cylinder), New York City.
Vacuum Oil Co., 61 Broadway, New York City.
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PULP AND PAPER TRADING Co., New York City.

PAPER MACHINERY DRIVES

LINK-BELT Co., Chicago, Ill.

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Island Paper Co., (ground wood dry), Carthage, N. Y.
Chateaugay Pulp Co., (ground wood), Chateaugay, N. Y.
High Falls Pulp Co., (ground wood, dr), Chateaugay, N. Y.
Dexter Sulphite Pulp & Paper Co., (Mechanical ground wood & Mitscherlich sulphite), Dexter, N. Y.
Fort Miller Pulp & Paper Co., (ground wood), Fort Miller, N. Y.
Arrowhead Milling Co., (sulphite Pulp), Fulton, N. Y.
Oswego Falls Pulp & Paper Co., (wood), Fulton, N. Y.
Finch, Pruyn & Co., Inc., (gorund wood pulp), Glens Falls, N. Y.
Blandy Paper Co., (ground wood pulp), Greenwich, N. Y.
Mohican Pulp & Paper Co., (wood pulp), Greenwich, N. Y.
Hinckley Fibre Co., (sulphite fibre), Hinckley, N. Y.
Tindale, Wm. H., (wood), Keeseville, N. Y.
United Indurated Fibre Co. of N. Y., (ground wood, dry), Lockport, N. Y.
Gould Paper Co., (ground wood), Lyon Falls, N. Y.
Malone Paper Mill, (sulphite fibre: gound wood), Malone, N. Y.
Hoornbeek's, John C., Sons, (ground wood, dry), Napanock, N. Y.
American Woodpulp Corp., 347 Madison Ave., (wood, chemical & mechanical, Kraft), New York City.
ANDERSEN—J. & Co., 21 East 40th St., (Imptrs. of chemical Pulps, Kraft), New York City.
Atterbury Bros., 145 Nassau, (foreign & domestic wood), New York City.
Beebe & Co., Ira L., 132 Nassau, (wood pulp), New York City.
Butterworth, E. & Co., 1123 B'way, (wood & bleached sulphite pulp), New York City.
CASTLE & OVERTON, 200 Fifth Avenue, (wood sulphite), New York City.
CRAIG-BECKER Co., Inc., 52 Vanderbilt Ave., (wood), (Mill Agts., Imp. & Exp.), New York City.
De Bary, Albert, Jr., Inc., 6 Church, (Exptrs.), New York City.
Great Northern Paper Co., 49 Wall, (ground wood pulp), New York City.
Helwig, Rudolph, 451 Wash'n., (sulphite pulp), New York City.
International Paper Co., (ground wood pulp & sulphite), New York City,.
International Pulp Co., 41 Park Row, (asbestine), New York City.
Interstate Pulp & Paper Co., Inc., Grand Central Terminal, (wood), New York City.
Meigs Pulp Wood Co., Inc., 10 East 43rd, (pulp wood), New York City.
Nashwaack Pulp & Paper Co., Ltd., (Canadian bleached sulphite), New York City.
New York Overseas Co., Inc., 44 Beaver, (imp), (wood), New York City.
New York & Penna. Co., 200 Fifth Ave., New York City.
Oxford Paper Co., 200 Fifth Ave., New York City.
Paine, A. G., Jr., 200 Fifth Ave., New York City.
PERKINS-GOODWIN Co., 33 W. 42nd St., New York City.
Price & Pierce, 30 East 42nd St., New York City.
Union Bag & Paper Corp., Woolworth Bldg., (ground wood, sulphite & kraft pulps), New York City.
SCANDINAVIAN Pulp Agency, (Inc.), 342 Madison Ave., (wood pulp), New York City.
Cliff Paper Co., (fibre & ground wood, dry), Niagra Falls, N. Y.
Defiance Paper Co., (ground wood), Niagara Falls, N. Y.
Niagara River Mfg. Co., (ground wood pulp), Niagra Falls, N. Y.
Pettebone-Cataract Paper Co., (ground wood), Niagara Falls, N. Y.
Defiance Paper Co., (ground wood), Norwood, N. Y.
Martin Pulp & Paper Co., (wood), Ogdensburg, N. Y.
Lake Champlain Pulp & Paper Corp., (Dry ground pulp), Plattsburg, N. Y.
Saranac Co., (ground wood pulp), Plattsburg, N. Y.
Underwood Paper Mills, Inc., (ground wood), Plattsburg, N. Y.
Hannawa Falls Water Power Co., (ground wood, pulp), Potsdam, N. Y.
Raquette River Paper Co., (ground wood sulphite), Potsdam, N. Y.
Johnston & Son, (dry ground wood), Port Leyden, N. Y.
St. Regis Falls Wood Corp., (ground wood pulp), St. Regis Falls, N. Y.
American Wood Board Co., (ground wood pulp), Schuylerville, N. Y.
Blandy Paper Co., (ground wood), Schuylerville, N. Y.
Iroquois Pulp & Paper Co., (ground wood pulp), Thomson, N. Y.
Ticonderoga Pulp & Paper Co., (Soda Fibre, Wood), Ticonderoga, N. Y.
Santa Clara Lumber Co., (pulp), Tupper Lake, N. Y.
Schroon River Pulp & Paper Co., (ground wood, dry), Warrensburg, N. Y.
Diana Paper Co., (ground wood pulp), Watertown, N. Y.
St. Regis Paper Co., (ground, wood, dry sulphite fibre), Watertown, N. Y.
SHERMAN Paper Co., (ground wood pulp), Watertown, N. Y.
Champion Fibre Co., (paper pulp), Canton, N. C.
Halifax Paper Corpn., (sulphite fibre & ground wood), Roanoke Rapids, N. C.
Mead Pulp & Paper Co., (soda fibre), Dayton, Ohio.
SRERE Pulp & Paper Co., Franklin, Ohio.
Williamette Pulp & Paper Co., (sulphite fibre, also paper), Oregon City, Ore.
Oregon Pulp & Paper Co., (bleached & unbleached sulphite pulp), Salem, Ore.
Bayless Mfg. Corp'n (ground wood, sulphite fibre, also paper), Austin, Pa.
Durham Paper & Pulp Co., Durham, Pa.
Williams & Co., C. K., (mineral), Easton, Pa.
HAMMERMILL Paper Co., (unbleached sulphite), Erie, Pa.
Analomink Paper Co., (ground wood pulp), North Water Gap, Pa
Cherry River Paper Co., (sulphite pulp), 2129 Land Title Bldg., Philadelphia, Pa.
Dill & Collins Co., 140 N. 6th, (soda fibre, paper), Philadelphia, Pa.
Jessup & Moore Paper Co., Com'l Tr. Bldg. (soda pulp), Philadeiphia, Pa.
Parson Pulp & Lumber Co., (spruce bleached & unbleached sulphite pulp), Finance Bldg., Philadelphia, Pa.
Bare, D. M., Paper Co., (soda fibre, also paper), Roaring Spring, Pa.
Glatfelter, P. H. Co., (soda fibre. also paper), Spring House, Pa.
Carolina Fibre Co., (ground wood, dry, sulphite also paper), Hartsville, S. C.
Tenn. Fibre Co., (cotton hull, fibre, dry), Southern Ry & Linden, Memphis, Tenn.
Yellow Pine Paper Mill Co., (sulphite fibre), Orange, Tex.
Sugarland Pulp & Paper Co., Sugarland, Tex.
Ryegate Paper Co., (Pulp), East Ryegate, Vt.
Parks Paper Co., (ground wood), Fitzdale, Vt.
Groton Mfg. Co., (wood pulp), Groton, Vt.

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Hummel-Ross Fibre Corp., (sulphate pulp), Hopewell, Va.
Stamsocott Co., The, Inc., (cotton linter pulp), Hopewell, Va.
Virginia Carolina Tie & Wood Co., (wood), Norfolk, Va.
Chesapeake Corp., (papermakers' pulp), Westpoint, Va.
Washington Pulp & Paper Co., (ground wood), Port Angeles, Wash.
Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
Combined Locks Paper Co., (sulphite fibre), Appleton, Wis.
Marshall Paper Co., (wood), Appleton, Wis.
Riverside Fibre Co., (bleached — unbleached sulphite fibre also paper), Appleton, Wis.
Ashland Paper Co., (spruce ground wood), Ashland, Wis.
Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.
Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.
Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.
Kaukauna Ground Pulp Co., Kaukauna, Wis.
Outagamie Paper Co., (ground wood), Kaukauna, Wis.
Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
Medford Lumber Co., (wood), Medford, Wis.
Mellen Lumber Co., Mellen, Wis.
Island Paper Co., (sulphite fibre), Menasha, Wis.
Ewing Everest Pulp Co., (ground wood), Merrill, Wis.
Grandfather Falls Co., (ground wood pulp), Merrill, Wis.
Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry ground wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Elambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.
Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS
Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES
Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia, Pa.

RAGS

American Woodpulp Corporation, New York.
Keller Co., Inc., E. L., New York.
CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill.

ROPE DRIVE

LINK-BELT Co., Chicago, Ill

SCREENS
Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill.
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman, H. L. (centrifugal), Dayton, Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale, Pa.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS
Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS
Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.

Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE
Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific, Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.
Paper Makers Chem. Co., (combination), Easton, Pa.
Boley, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.
Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.
Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel, T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
MURRAY Mfg. Co., D. J., Wausau, Wis.
Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.
Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Co., (Cylinder; Hot Air), Cohoes,
Cohoes Iron Foundry & Machine N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.
Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA
Pulp

Mead Fibre Co., The, (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SPLITTERS
Wood

Grace, C. M. & Co., Huntsville, Ala.
Ripley, Lewis R., Harvard, Mass.
Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.
Ryther & Pringle Co., Carthage, N. Y.
Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Multnomah Iron Works, Portland, Ore.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works, Co., Appleton, Wis.
Smalley Mfg. Co., Manitowoc, Wis.

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TRIMBEY Machine Works, Glens Falls, N. Y.

STONES
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Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.
Lombard & Co., 238 A Street, Boston, Mass.
JONES Bros. Co., Boston, Mass.
Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.
Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.
Empire Pulp Stone Co., Empire, Ohio.
C. & M. Quarries Co., Marietta, Ohio.
Smallwood Stone Co., Steubenville, Ohio.
American Stone Co., Wheeling, W. Va.
JONES Bros. Co., Barre, Vt.

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Johnson & Carlson, 848 Eastman, (Wood), Chicago, Ill.
New York Central Iron Works Co., Inc., Hagerstown, Md.
New England Tank & Tower Co., Boston Postal District, Everett, Mass.
Acme Tank Co., 41 Cortlandt St., (Wood), New York City, N. Y.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Hendrick Mfg. Co., 75 Dundaff St., Carbondale, Pa.
Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.
Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawer 539, Sharon, Pa.
Newport Foundry & Machine Corp., (Siphon), Newport, R. I.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.
Textile Finishing Mach. Co., Providence, R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill

DE-INKING PROCESS

CASTLE & OVERTON, New York

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VALVES
Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich
WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

CYLINDER MOLDS

Appleton Wire Works, Appleton, Wis.
BLACK-CLAWSON Co., Hamilton, Ohio.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

WRAPPERS
Bread and Candy

WOLVERINE Paper Co., Otsego, Mich.

Volume XXXIII, No. 18

PAPER

February 21, 1924

The Magazine of the Paper Industry

THOMAS J. KEENAN, F.C.S., Technical Editor
RUSSELL C. HUGHES, Publisher
ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

FRANKLY stated opinions expressed to PAPER have disclosed that the paper industry wants more than a stereotyped presentation of just news. So PAPER will institute next week a Finance Page. What it will amount to depends upon how it is received.

It will be a page that will interest those heavy browed men who stand back of the paper mill and the industry, those chaps whose word is law and before whom everybody and everything quails. Not that PAPER is going to turn into a financial magazine. Far from it. But it will try to have something to interest another group of paper men.

Stewart Tuttle & Company, 120 Broadway, New York, a newly formed firm which will specialize in paper securities, will furnish the late market quotations. The principals of this company have long been identified with the manufacturing end of paper.

This is just another step ahead for PAPER.

* * *

The *Pulp and Paper Magazine* of Canada takes a definite and emphatic stand on the Canadian embargo matter.

This Canadian publication looks at the matter this way:

> "If you look at the matter from the point of view of a Canadian citizen, and that is the only way that Canadians should look at the question, there is but one answer; there should be an embargo. A study of the economic situation of the Dominion of Canada shows a very serious condition. The country needs population and the population must be supported primarily by home markets. Everyone must purchase some share of what every other Canadian produces. The larger this share the more prosperous the Community. Foreign goods are brought into Canada at a higher rate than Canadian-made goods are exported in exchange. To increase the tariff against imports will go only part way in solving the problem. A higher duty will shut out a proportionate amount of imported materials, but this can only increase the home market for domestic production to the extent that foreign goods are excluded and will not materially increase the employment in the production of the increase in domestic commodities thus absorbed.
>
> "On the other hand any measure which will definitely increase Canada's manufacturing population will definitely increase the home market for domestic production in every other line. There is no field so rich in promise of success toward this end as the more complete manufacture in Canada of Canadian produced raw materials to the condition of a finished product for which there is practically an insatiable demand in the export market."

And that is arguing bluntly and plainly.

* * *

The technical man will find much of humor in the article by Louis Wise in this issue. He discusses nomenclature with an acumen that touches the soul of the man who wants and likes correctness. But not only is there humor, but there also is wisdom. We advise you to read it by all means.

* * *

Last week we promised a review of R. S. Kellogg's new book. It is here. Mr. Keenan has gone into it with a searching, comprehensive view.

* * *

There is also much wisdom in the other articles in this issue. Read them.

* * *

Have you signed that contract for space at the Paper Industries Exposition? Eventually you will, why not now?

Have you planned to be present at the convention? It is less than two months until the convention and exposition. It is high time to be laying plans for the biggest week the paper industry ever had.

* * *

The yielding of bad times before the onslaught of good times as mentioned last week, continues. As yet this yielding isn't tremendous, but it is noticeable. The tide has turned and that is something. It won't be long before this same tide will be creeping up and up to high water mark.

The chap who is ready will gain the most.

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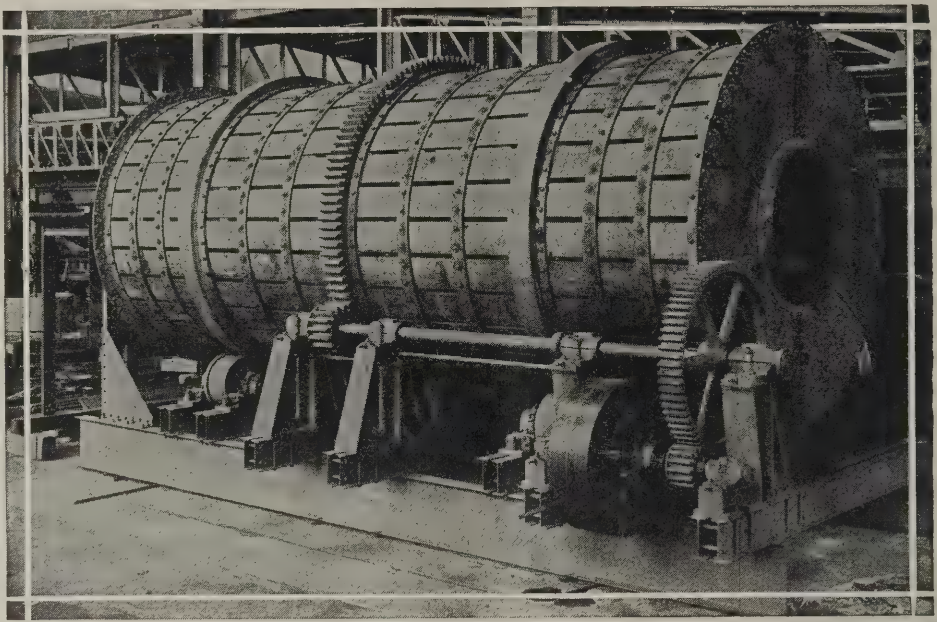
MURRAY



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The Power of an Obsolete Nomenclature

Authority Makes a Plain Statement Regarding Frequent Errors in Technical Terms

By LOUIS E. WISE

New York State College of Forestry at Syracuse University, Syracuse, N. Y.

In this discussion of what he terms an "obsolete nomenclature," Professor Wise pokes fun at some of the notions entertained by paper technologists and other workers in paper pulp or cellulose concerning the nature of the changes which take place in cellulose under different treatments. The paper was originally read before the Cellulose Division of the American Chemical Society at the New Haven meeting in 1923, and has been contributed by the author for publication in PAPER.

THE triumvirate of terms, cellulose hydrate, hydrocellulose and oxycellulose, has always held a strange fascination for the technologist of the cellulose industries. The pulp and paper mill chemist thinks in terms of sufficiently or insufficiently "hydrated" stock. The manufacturer of textiles, and the paper technologist, as well as the laundryman (and the victimized consumer) have had to guard against the formation of "oxycellulose," whether this oxycellulose be formed as a result of over-bleaching, ing, rust-stains, or the use of chromates in printing calico. The term "hydrocellulose" for years has been a convenient pigeonhole, in which to file numberless products formed by the hydrolyzing action of weak and strong acids on the cellulose of cotton and wood. Not infrequently "hydrated" and "hydrocellulose" have been confused, and oxy and hydrocellulose have been confounded. All of these terms have their element of respectability and apparently all of them insist on remaining in our chemical vocabulary, in spite of the haze which surrounds them. All of them form a very convenient fog behind which the cellulose chemist is able to hide his gross ignorance of fundamental data; a fog which is being very slowly and painfully dissipated.

"Hydrated" Cellulose

It is common knowledge that cellulose, no matter what its source, behaves characteristically under certain treatments. In concentrated solutions of alkalies, it swells and shrinks, and after the alkali has been washed out, it no longer enjoys its original properties. In the parlance of the chemist it has been "hydrated." If the technologist has taken pains to prevent shrinkage during the process, the chemist modifies his term and says that the cellulose has been "mercerized." If the cellulose is mechanically beaten in a "beater" or tumbled about in a ball-mill in the presence of water—it also becomes "hydrated." If it is treated with certain peptizing agents like cuprammonium, or alkali followed by carbon bisulfide, or potassium thiocyanate, a hydrosol is formed, and when by the use of suitable reagents this hydrosol is converted into a hydrogel, "hydrated" cellulose again results. If the cellulose is treated with certain acids, and is "swollen" by them, the product after removal of acid is once more "hydrated" cellulose. If the acids peptize the cellulose, and the latter is immediately precipitated out of solution, again we have "hydrated" cellulose. (In this latter case, however, we tread on controversial ground. Cellulose chemists may contend that the term hydrated-hydrocellulose should have been used. So be it!) The tremendous industrial significance of "swollen" (hydrated) cellulose has recently been ably discussed by Schwalbe (1).

The wide use of the term "hydrated cellulose" forces us to examine it critically. All "hydrated celluloses," no matter whether they have been beaten or mercerized into existence have certain traits in common.

1. When air dry they retain more water than did the cellulose from which they were obtained. There is no real experimental evidence, however, that a definite relation exists between the cellulose and the water.
2. They are all less resistant to hydrolysis than was the original cellulose from which they emanated. Interpreted quantitively this means that their rate of hydrolysis under standard conditions is higher than that of cellulose.
3. In general they are less resistant to chemical attack or to the action of peptizing agents, than is the original cellulose.
4. They are more adsorptive of dyestuffs than are the celluloses from which they were obtained, and they give different and more permanent colorations with staining solutions (like iodine solutions) from those given by cellulose itself.
5. When anhydrous, they have (very nearly) the same percentage composition (C, H, and O) as had the original cellulose, and they often show no greater reducing action towards Fehling solution than did the cellulose from which they are derived.

If we assume that the cellulose fiber is made up of an aggregate of cellulose units (2) and that the units are held together through the agency of residual valence, then all the properties of "hydrated" cellulose point to one direction, namely, that these cellulose *units* remain intact but are more widely separated from one another than in the original cellulose. They, therefore, present a greater surface area and are more adsorptive and more easily attacked by those reagents which destroy or dissolve cellulose. [Figs. 1 (A and B)].

The term cellulose hydrate is apparently a misnomer. Various substitutions in name might be proposed: "Dispersed" cellulose, cellulose hydrogel, "swollen cellulose," gelatinized cellulose, are all possibilities, but the term "hydrate" will probably persist, just as our obsolete term carbohydrate persists. There is really no harm in an obsolete term if we have a stranglehold on its true meaning and when we are not ensnared by its deceptions and take it too literally. "Cellulose hydrate" then, refers to no definite compound between cellulose and water. It refers to no product of hydrolysis. It involves a colloidal phenomenon and should be put in its place.

Hydrocellulose

If cellulose, from any source in any industrial operation has been treated with an acid (or a salt readily hydrolyed to yield a strong acid) and this acid is adsorbed on the cellulose fiber, and the fiber dried, we have what is termed in the vernacular, "hydrocellulose." The substance thus obtained is brittle and easily pulverized, has decided reducing action (Fehling solution), is more or less soluble in alkali, is much less hygroscopic than the original cellulose, and is evidently the result of a more or less extensive hydrolysis. Besides the properties mentioned above, hydrocellulose yields acetic acid when heated with alkali under pressure and forms saccharic and oxalic acids on oxidation. Since, however, cellulose itself under similar treatments yields acetic acid and oxalic acid, and since saccharic acid is a product of glucose oxidation, and glucose is formed by hydrolysis of cellulose, these chemical properties of "hydrocellulose" are not very noteworthy or characteristic.

The claim has frequently been made that hydrocellulose contains one molecule of water *more* than does cellulose and that this water is chemically combined with the cellulose. Analysis of the "hydrocellulose" obtained by various investigation hardly supports this viewpoint.

Thus Girard (3) finds a hydrocellulose $(C_6H_{10}O_5)_2H_2O$; Ost (4) and his coworkers a hydrocellulose $(C_6H_{10}O_5)_6$

H_2O; Buettner and Neumann (5) a hydrocellulose $(C_6H_{10}O_5)_8H_2O$. Perhaps there are still other hydrocelluloses. The composition of hydrocellulose varies with the technic of preparation. A definite homogeneous compound that we can term "hydrocellulose" after applying even the roughest criteria for homogeneity, still remains to be made.

Nearly all of the so-called hydrocelluloses can be readily separated into at least two fractions—one, alkali soluble, and the other insoluble. The insoluble material appears to be nothing more or less than mercerized cellulose (hydrated, dispersed, swollen.) The alkali appears to have removed the "reducing substances of the crude hydrocellulose.

Nettœfel (6) suggests that in hydrocellulose formation from the seed hair of the cotton plant, the surface of the cellulose wall is partly hydrolyzed and that the hydrolyzed material is retained by adsorption on the cellulose. Since such material is retained by adsorption on the cellulose. Since such material is alkali soluble, the residue after treatment with alkali is unchanged (or at most physically changed) cellulose. Heuser's *Cellulosechemie*, p. 117, indicates this diagrammatically. A similar picture is obtained by using the "cellulose unit" hypothesis. (Fig. II). Here the partly hydrolyzed units are still vicimal to the unchanged units (being held in the aggregate by secondary valence, but are themselves mechanically weaker, and cause weakening of the entire cellulose aggregate (wall).

Just prior to the death of Knoevenagel (7) he and Busch reinvestigated the hydrocellulose question. They found that if viscose (itself a cellulose hydrogel) were subjected to the action of HCl gas, a substance was obtained which was completely soluble in 10% NaOH and which according to Heuser and von Neuenstein (8) *may* be a homogeneous derivative of cellulose; the pure "hydrocellulose" so eagerly sought by the chemists. Their criteria for purity and their analytical data, however, leave much to be desired, and "hydrocellulose" still remains the conveniently indefinite expression of the industrialist.

Products which result in part from hydrolysis and in part from the swelling of cellulose and which some wags have jocularly termed "hydrohydrated" celluloses are legion. Hydrated celluloses have low copper numbers and high hydrolysis differences. Hydrocelluloses have high copper numbers and low hydrolysis differences. Between these extremes lie the half-breeds referred to above. The most important ones are the so-called "cellodextrins." They are formed in the production of parchment paper by the partial peptization and hydrolysis of cellulose by H_2SO_4. In the case of *parchmentized celluloses,* the swollen or gelatinized surface character, coupled with an appreciable copper number and a high hydrolysis difference indicate that they are both hydrated and hydrolyzed. Copper numbers: 4.9 to 7.1. Hydrolysis differences:—10.5 to 10.8; (9).

Fleschigs Amyloid represents a much farther stage of hydrolysis since it has a copper number of 18.3, and a hydrolysis difference of 8.3. *Guignet cellulose* (10) still remains an unexplained phenomenon. It is prepared by treatment of cotton with H_2SO_4 (50 Be) and subsequently with water. The mass is washed with water by decantation or dialysis and the final product is readily peptized by water even after drying. Guignet claimed that this material had no copper number, but this is disputed by Schulz (10), who showed that the copper number of *his* preparation was 10.7 and *3.5 higher than the hydrolysis difference.* This indicated a *negative* hydrolysis difference. Guignet cellulose solutions represent typical emsulsoid sols, precipitated by salts, acids and by alcohol. The hydrogel thus

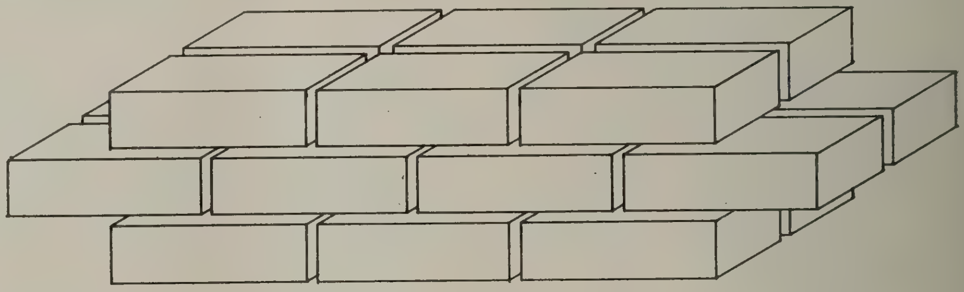


Figure 1 (A)

Original cellulose aggregate. Secondary valences undisturbed

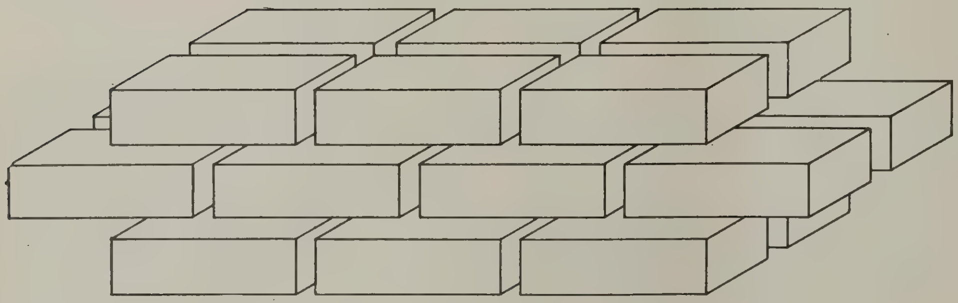


Figure 1 (B)

"Hydrated" or swollen cellulose. Secondary valences disturbed. Cellulose units apart, exposing greater surface and favoring adsorption

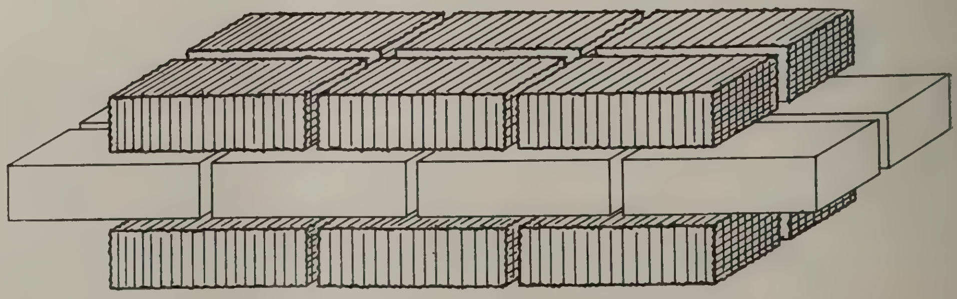


Figure 2

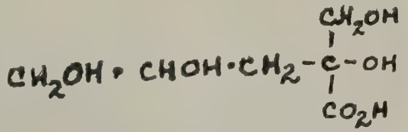
Diagrammatic picture of "hydrocellulose" (or oxycellulose). The shaded cellulose units have been partly hydrolyzed (or oxidized) but are still held to unchanged cellulose units through the medium of partial valence. The entire aggregate is thus weakened formed is converted readily to hydrosol, even after long drying. When Guignet cellulose is treated further with concentrated sulphuric acid it changes materially. Both copper numbers and hydrolysis differences increase and a positive hydrolysis difference is manifested (10).

Oxycellulose

Perhaps the most attenuated term of the hazy triumvirate is that of *oxycellulose.* In general oxycellulose results from the partial oxidation of any cellulosic material. Since many of the oxidizing substances are acid, not only oxidation but partial hydrolysis may take place. Needless to say "hydration" may also take place prior to oxidation. How anyone can assume oxycellulse to be a homogeneous substance remains a mystery. Fortunately modern textbooks (11) and all recent articles on oxycellulose indicate that few investigators hold to this old view.

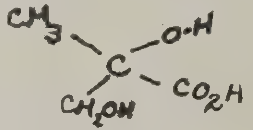
Superficially the "oxycelluloses" resemble the hydrocelluloses. They are brittle substances having a very appreciable reducing action, (Heuser reports copper numbers ranging from 7 to 22) partly soluble in alkali (often with a canary yellow color). However the oxidized celluloses appear to adsorb the *basic dyestuffs.* This coupled with certain other reactions make it appear that the oxycelluloses have acidic properties.

Another reaction of the oxycelluloses that has caused much speculation is the formation of isosaccharinic acid (12): when the oxycellulose is treated with lime. Hitherto isosaccharinic acid has been obtained only from milk-sugar (hydrolysis of which yields galactose and glucose) and the formation of products from oxycellulse remains to be explained. At all events the work should be repeated and the acid reidentified, since Tollen's work is not entirely conclusive, as the identity of isosaccharinic acid has not been fully proved.



$CH_2OH\cdot CHOH\cdot CH_2-\overset{CH_2OH}{\underset{CO_2H}{C}}-OH$

Isosaccharinic Acid



Dihydroxybutyria Acid

Certain characteristics of oxidized cellulose are quite different from those of hydrocellulose. Most oxycelluloses yield furfural when treated with dilute HCl. This reaction so characteristic of the pentosans is not given by cellulose itself (except to a very slight extent.) It has been found that those oxycelluloses which have been prepared by the use of *acid* oxidizing agents yield appreciable quantities of furfural (2 to 8%). This phenomenon may depend upon the formation of an *acid* (by oxidation of a primary alcoholic OH group) and the subsequent hydrolysis of the cellulose units to glucuronic acid. (13)

Taking Irvine's grouping as characteristic of a part of the cellulose molecule; the reaction may be as follows:—

This hypothesis, outlined by Heuser has been further strengthened by his recent work with Stockigt (14) who found that by treating oxycellulose with HCl, CO_2 as well as furfural was formed. Under similar conditions purified cellulose yielded only traces of CO_2. Cotton cellulose, unbleached pulp and hydrocellulose yielded no more than CO_2 than was obtained in the blank determination. Oxycellulose indicated from 0.8 to 2.0% CO_2.

Evidently the furfural reaction coupled with CO_2 generation serves to distinguish partly oxidized from merely partly hydrolyzed cellulose. The latter (like glucose) when treated with HCl may yield *hydroxymethyl furfural* and finally levulinic and formic acids, but would not yield furfural, or CO_2.

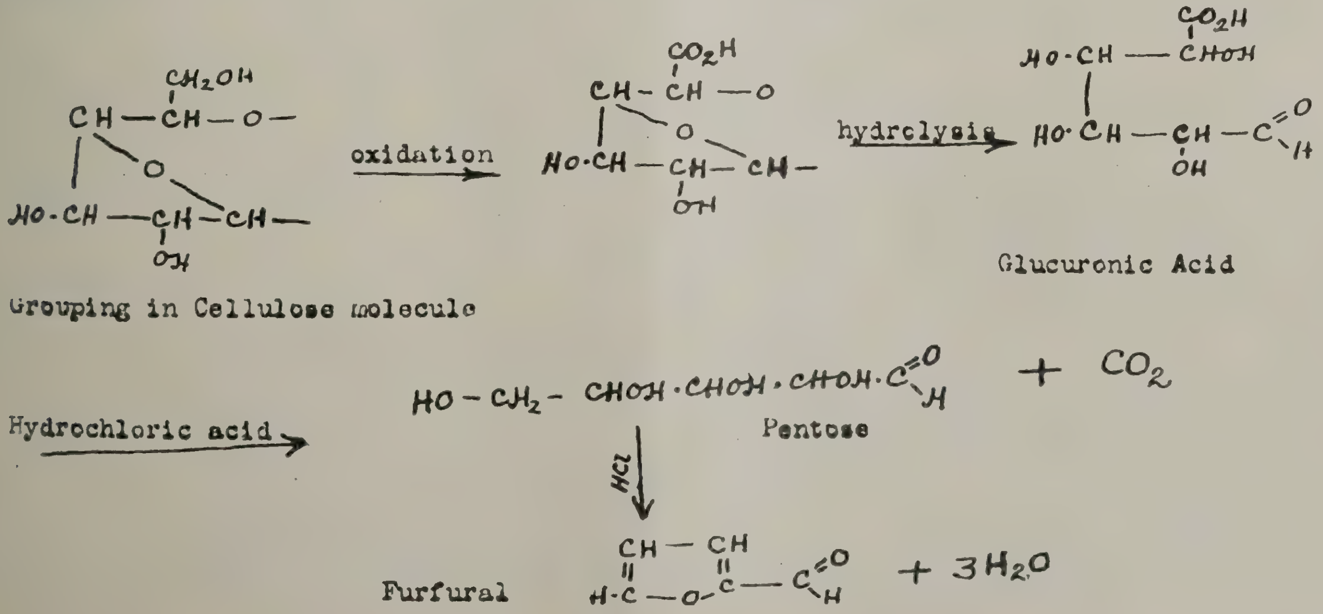
The hydroxymethyl furfural phloroglucide is alcohol soluble and can thus be separated and distinguished from the true furfural phloroglucide, obtained from the oxidized cellulose (or the pentosans).

It is evident then that by quantitative determinations (CO_2 and furfural) we are able to gain some knowledge of the history of the cellulose derivative.

If oxycellulose is treated with dilute acid the residue which remains is partly hydrolyzed cellulose which when subjected to further hydrolysis give yields of glucose practically identical with those obtained from cellulose itself, treated similarly (over 10% higher than the glucose yields obtained from the original oxycellulose).

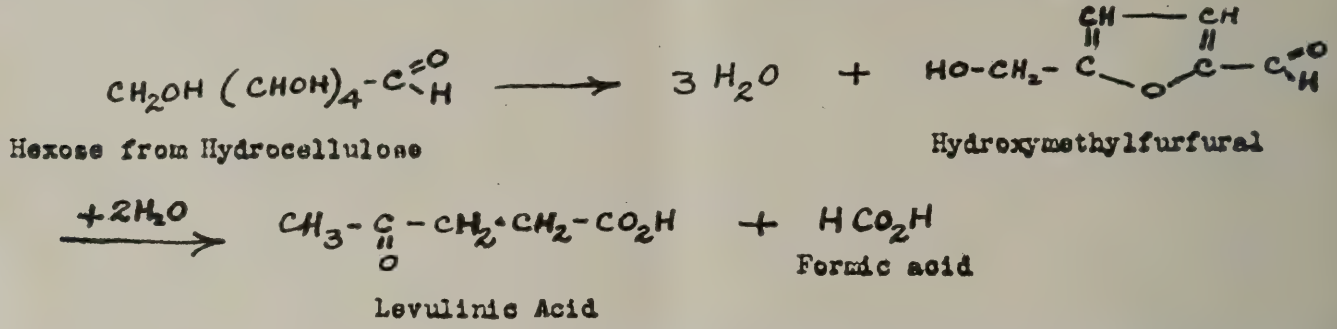
One word more. So called total cellulose determinations instituted by the Cross and Bevan method are usually used in the estimation of cellulose. The longer chlorinations are continued in this method the less alpha and the more beta and gamma cellulose we obtain.

Is it not reasonable to assume that we may be obtaining oxidized and hydrolyzed celluloses in this process, and that beta-cellulose is in fact a partly oxidized product, and gramma-cellulose perhaps a completely hydrolyzed or oxidized product. Here again we have a collection of derelicts in nomenclature—the alpha, beta, and gamma aggre-



gation being old, respectable and thoroughly decrepit. The sooner we recognize that beta and gamma cellulose are convenient terms but that they do not represent chemical entities or have a bearing on the constitution of cellulose, the better. In fact all of the terms: hydrate, hydrocellulose and oxycellulose refer to the past history of the cellulose involved. They are broadly description terms, which become meaningless when stretched to cover actual properties of mixtures deliberately or inadvertantly obtained in the varied industries utilizing cellulose.

(Continued on page 11)



Notes of the New York Trade

Harold Svenson, of 120 Broadway, New York, has issued an announcement that the Holmens Bruk Paper Mills at Norrkoping, Sweden, having terminated its agency agreement with the Newsprint Paper Corporation, of New York, he will henceforth represent this print paper manufacturing organization as agent in the United States. Mr. Svenson has handled Holmens Bruk newsprint in this country for the past three years, the last part as representative of the Newsprint Paper Corporation, and some of the largest newspapers in the United States have used this newsprint and found its quality fully equal to the best American and Canadian print paper. The present capacity of the Holmens Bruk mill is about 70,000 tons per annum. The mill is equipped with all the latest improvements in newsprint manufacturing and has studied the requirements of the American market closely. The mill is situated on tidewater, making it possible to load on ships from its own wharves, thus eliminating all handling on the other side.

* * *

The Sutphin Paper Company, Inc., of which Herman Wunderlich is treasurer, paper jobbers of 439 Lafayette street, New York, has been elected to membership in the Merchants' Association of New York.

* * *

The Canadian Export Paper Company, Ltd., of Montreal, has leased offices in the Park-Lexington Building for its New York executive headquarters.

* * *

Frank Branscombe has severed his connection with Gosling & Farr, Inc., box board dealers of 141 Wooster street, New York, of which concern he was secretary, and is now associated with Charles M. Mead in the New York office of the Philadelphia Paper Manufacturing Company, of Manayunk, Pa., at 110 East Forty-Second Street. Mr. Branscombe will assist Mr. Mead in marketing the Philadelphia Company's box board in New York and New Jersey.

* * *

William F. Farren, hitherto connected with several prominent paper stock concern in New York and Brooklyn and well known in the trade, is now with William Steck & Company, of 13 Park Row, New York, dealers in papermakers' supplies of all kinds.

* * *

Don A. Fisher, son of Samuel J. Fisher and associated with his father in the firm of S. J. Fisher, Inc., dealers in paper manufacturers' supplies of 309 Water street, New York, has returned from a honeymoon trip to the South. Mr. Fisher was married recently to Miss Betty Palmer, the wedding taking place in the home of the bride's parents in Brooklyn.

* * *

The domestic and export machinery and paper mill supply business conducted by the late H. B. Wadsworth at 51 East Forty-second street, New York, will continue to be operated by his widow, Mrs. Jessie B. Wadsworth, under the firm name of H. B. Wadsworth, Inc. Mrs. Wadsworth is thoroughly familiar with the paper and pulp trade as for over seven years she handled all the office details of her husband's business and traveled considerably among the mills during this period. Associated with Mrs. Wadsworth in conducting the business is C. W. Quinn, who is well known in the industry through his former connections with the Craig-Becker Company, Inc., and R. F. Hammond, Inc.

* * *

Edgar Rickard, president of the Pejepscot Paper Company, has returned to New York after spending a few days at the company's mills in Brunswick, Me. Regarding changes which have taken place in the local management, Mr. Rickard stated that, having completed the first unit in a plan for rebuilding the equipment, F. C. Clark has retired as resident manager, and that the regular staff will carry on the operations. Charles Dickinson, general superintendent for the last 30 years, will have charge of the operating department, and E. S. Catlin, for the last three years chief assistant in the administrative branch, will act as direct administrative representative of the president and the board of directors. The R. B. Wolf Company will confine its connection with the company to such work as it may be called on to perform as consulting engineers, but will not perform any service in the adminstrative functions of the company.

* * *

Elysee Arie, a specialist with a broad knowledge of imported fancy papers and formerly with the fancy paper manufacturing firm of Keller, Dorrian-Silvian, of Lyons, France, is now a member of the sales staff of the Whiting-Patterson Paper Company, of 265 Canal street, New York. Mr. Arie will act as road representative of the company under the direction of William B. Pitts, manager of the imported paper department of the concern.

* * *

Charles B. Foster, for the last year and a half in the sales department of the Pejepscot Paper Company, of Brunswick, Me., has severed his connection with that concern and is now associated with the Carpenter Container Corporation, of 1 Broadway, New York. Mr. Foster is widely known in the paper industry, partly through the excellent work he performed for the period he served as assistant general sales manager of the American Writing Paper Company, of Holyoke, Mass., and also through his connection with the Pejepscot Paper Company, for which firm he was in charge of sales in the New England territory. In his new connection Mr. Foster will have an active part in the development of the Carpenter Container Corporation.

* * *

The Beekman Paper and Card Company, of New York, has been appointed agents in this territory for the Relyon line of proofing papers manufactured by the McLaurin-Jones Company at its coating mill in Ware, Mass. This paper is coated on one side for the especial purpose of engravers in proving up their plates. Miss Ruth E. Bracker has been put in charge by the Beekman Paper and Card Company of this new line.

* * *

The Canfield Paper Company, paper jobbers and mill agents of 62 Duane Street, New York, announces that it has opened a paper testing laboratory and is now prepared to furnish accurate information regarding the ream weight of any paper from a sample as small as an inch square, and, from larger samples, the bursting strength and tensile strength, amount of loading, amount of coating, nature of contents, and similar information. The service is provided free to the firm's customers.

* * *

Lindenmeyr's Get Estate

The will of Gustave Lindenmeyr, for thirty years President of Henry Lindenmeyr & Sons, 32 Bleecker Street, New York City, leaves 1,000 shares of the capital stock in the paper firm, all personal effects and $100,000 to his to his wife, Elsa J. Henry Lindenmeyr, a nephew, and Mary A. Lindenmeyr, a niece, receive $10,000 and $5,000 respectively.

The will, filed for probate in the Surrogate's Court recently by Bean, Callender & Cullen, 45 Wall Street, bears the date February. 14, 1922. Howard W. Charles, 325 West End Avenue, and the United States Trust Company are executors. Mr. Lindenmeyr died December 27, 1923.

Processes of Coloring Coated Paper

Varieties of Coated Papers, Their Uses and Forms of Coloring Employed in their Manufacture—An Expert Account of the Pigments and Dyes Used

By NORMAN CLARK
*A. M. Collins Manufacturing Company,
Philadelphia, Pa.*

MOST OF US are familiar with coated paper as it appears in magazine covers, box covers and the illustrated pages of books. But there are many other uses to which coated paper is put, some of which are probably not so well known as those cited. The more important varieties of coated papers are enumerated below, together with an indication of their uses.

1—*Friction* and *Flint*. High glazed papers taking their names from the machine on which finished.

2—*Plate*. A flat finished, stack-calendered paper, harder sized than a friction surface, used for labels, signs, kindergarten supplies and box coverings.

3—*Book*. A dull semi-gloss, soft sized paper, used for printing of various kinds.

4—*Litho*. A very hard sized, flat finished paper, used to take the impressions from a lithographic press.

5—*Dial*. A hard sized, well made sheet, used for clock and watch faces.

6—*Playing Card*. The cards as we get them are pasted two to five ply. The outside or liner carries a hard sized coating and is pasted to the usually softer middle, with a flour or starch paste colored black, or red, to render the card opaque.

7—*Brush Enamel*. A very important velvet finish paper, used largely for illustration and box coverings. It is so named because the coating contains a large proportion of satin white and the sheet is subjected to a brushing operation before calendering.

8—*Translucent*. A heavily coated, good quality sheet used principally for embossed work.

9—*Label*. A hard sized clay-coated sheet used for printed labels.

10—*Metal*. This paper is coated with various metals in the powdered form, including bronze, copper, tin, zinc and aluminum. It is stack-calendered or frictioned, plain or embossed and is used principally for embossed labels and box coverings.

11—*Mica*. Fancy box coverings, coated with mica, tinted with aniline dyes, usually printed with a design on an intaglio press and embossed.

12—*Waterproof*. The better grades are double-coated with a hard-sized ground coat and a top coat of shellac, or casein, or a mixture of the two waterproof coatings are usually embossed and are used for high grade box coverings, imitation leathers for suitcases, note book covers, and similar purposes.

13—*Cover Papers*. Consist of fancy coatings combined with embossed effects, used for book and magazine covers, menus, programs, catalogues, etc.

14—*Photo Mounts*. Varied effects produced in minor colors for use by photographers, usually made on a board stock.

Other grades might be mentioned but enough has been said to make the reader acquainted with the great variety of raw stock used and the consequent troubles of the color man. Mills making many grades of fancy papers may use nearly every variety of raw stock from tissue to board.

Theory of Coloring

The coloring of coated paper is different from the coloring of almost any other material, in that the material to which the color is given, namely the paper, is not the material colored. What is done is to color the coating which covers the paper. This coating consists essentially of pigment, size and color. The pigment forms the body of the coating; the size holds it to the sheet and the color gives it the desired appearance. The pigment and the color may consist of several different constituents but the size is nearly always casein, sometimes glue or starch being used.

It can readily be seen that the action of many materials upon the coloring matter must be taken into consideration. For example, basic dyes mix well with clay and are in fact, largely adsorbed up to about 3 per cent concentration, but it is impossible to mix basic dyes with casein, owing to the precipitating action of the size.

There are three principal forms of coloring used in the manufacture of coated paper. They are given in the order of their use:

1. Lake colors or "pulps."
2. Aniline dyes.
3. Colored pigments.

Coloring With Lake Colors

Lake colors or pulps are the products produced by the precipitation of aniline dyes on suitable mediums by metallic salts or bases. The medium or carrier varies with the use for which the lake is intended. The precipitating agent varies with the nature of the particular dyestuffs used, two or more dyestuffs being usually present. The dyestuff varies, of course, with the color desired and the special characteristics which the finished lake must possess. The dyes used most extensively are those of the acid class, barium chloride being used as a precipitant for these dyes. There are acid salts to wash out of the lakes and the color man should know something of lake preparation to understand the changes that take place. For instance, on mixing casein with a lake or pulp, the casein will often coagulate. This may result from a reaction with the salts that are present, which have a decomposing effect on the casein solution. The remedy is to mix the lake with a little ammonia before adding the casein, thus neutralizing any free acid that may be present.

Among the lakes in common use, the following may be noted:

Red—Turkey red, magenta, Persian red, Arabian red, red lake, rose lake, maroon.

Orange—Orange lake, chrome orange.

Yellow—The chromes used are lemon yellow and medium yellow.

Green—Emerald green, silk green, chrome green.

Blue—Blue lake, marine blue.

Violet—Violet lake.

Blacks—Satin black, black lake, friction black.

The reason lakes are preferred to dyestuffs are to be found in their wide applicability and greater ease of handling and use, in addition to the fact that they are dyestuffs not pushed by dye manufacturers in coating mills.

Lake colors may be used alone for deep tones, which is indeed the only way to produce a deep shade, or they may be mixed with clay or other white pigments. Pulps, being insoluble, are all mixible one with the other. Care must be taken, however, to see that they form a homogeneous mixture. For example, the chrome yellows are among the heaviest of the pulps while the blacks, as a class, have the lowest specific gravity. Considerable difficulty would be experienced by combining these two colors in a mix owing to the fact that the black would tend to rise to the surface and the yellow to seek the bottom. This would spoil the uniformity of the coating. The same holds true of many other colors. The color man should have a list before him showing the specific gravity of his colors and indicating what colors may be safely mixed.

Chemically prepared and natural pigments in a pulp form are usually classified with the lakes. The most common are:

Chrome yellows, oranges and greens
Sienna and umber pulps
Ultramarine pulp
Prussian blues.

They are treated in every way as lake colors, though subject to the same objections as noted under pigments, with the exception of the chromes. These are the finest of coating colors of any class.

Coloring With Aniline Dyes

Aniline dyes afford the simplest, and in many cases, the most satisfactory method of coloring the coating. There are certain conditions which must, however, be borne in mind if one desires the best results with this method.

In the first place, the density of the color to be matched must be taken into consideration. Dyes are suitable for light and some medium shades; not for dark shades. The reason is that most dyes, for over a 2 per cent concentration of dyestuff, contain too much free dye, difficult to render fast. To make a dyestuff color fast it is necessary to do one of two things, either form a lake or harden the size so as to make it waterproof. For the first method consult a standard work on lake colors. For the second, with casein size use hexamethyl enamine, and with glue, chrome alum is the most suitable hardening agent.

Secondly, the nature of the mix must be considered. If casein and wax are used both solutions are alkaline. Also if ammonia is used to free out the coating color, the total alkalinity of the mix is comparatively high. Hence, it is impossible to use basic dyes and recourse must be had to the acid or direct dyes. Here again a choice must be made depending on the brightness of the color. If bright, the acid dyes must be used. If flat and rather dull, then direct dyes may be used. Clay seems to have the property of dulling down direct dyes. If it is desired to use basic dyes, one must then use glue as a sizing agent.

Dyestuffs find splendid application in the line of specialties. One of the most useful fields is in tinting the shellac solution used for the top coat of a waterproof: Also in tinting mica coats and in the spatter method of coating where the raw stock or coated sheet is subjected to the spattering of dyestuff solution. Another appreciated application is the blotch method of printing—which is really a coating operation—where cloud effects and fancy designs are produced.

Coloring With Pigments

Because pigments possess the highest fastness properties of any of the coloring matters, they are still used. The most commonly used pigments are those enumerated below, as follows:

Raw and burnt sienna
Raw and burnt umber
Several grades of ocher
Several grades of carbon black
Red and yellow oxide
Ultramarine
Prussian blue
(The chromes have been mentioned under lakes)

With the exception of the chromes, the factor which limits their usefulness is the coarseness and hardness of the individual particles. These particles are not softened in the mixing operation and when subjected to the action of the friction calender, they break up and present a dull surface instead of the high glaze which is usually produced. Some mills successfully grind the pigments in a water suspension with an ink grinder and hold the pigments in a pulp form. In this way the objection to their use is obviated.

Coloring With Natural Organic Colors

Although these colors were much used at one time, they find very little application at present except indirectly. They are still used by the lakemaker and in this way find their use in coloring coated paper. The kinds still used in quantity consist of quercitro, querbracho, logwood, hypernic.

Matching Colors

Much has been written on the matching of colors, especially for textiles, that can be read with profit by the coating color man. Three points are often forgotten which it may be well to emphasize. The first two may be corrected by a single remedy—keep the mix simple.

(1). The color man must bear in mind that it is extremely difficult to mix colors without introducing a graying effect. For instance, take such a simple mixture as green and yellow. If the green needs yellowing, then presumably it is a bluish green. There are very few yellows which have not a touch of red in their make-up. Then we have two graying combinations, the red and green, the blue and yellow. Thus in any combination, we should consider the purity of the colors and if a few moments are taken with a pencil and paper to set down the subsidary tones of the colors we intend mixing, the graying effect will be easily noted and avoided.

(2). Where a medley of colors are used, the likelihood of changes in the final color are greatly enhanced. These changes may be caused by a number of things, but they usually result from chemical reactions taking place between the dyestuffs themselves or between the dyestuffs and some other ingredient of the mix, or to effects from heat used in drying, or to unequal fading. To illustrate this, I recall making a bright green out of patent blue and chinoline yellow. The mixture coated beautifully but when the paper reached the reel, blue stick marks were apparent. To make a long story short, it was found that too great a heat at the beginning of the line affected the yellow, driving it into the sheet at the places the sticks touched, leaving the blue. This trouble showed at the stick because the heat transference from the sticks to the paper was greater than from the air to the paper.

(3). Although all color men may not agree with me, I feel that we should have the mill sheet the same size as the sample to be matched. Seventy-five percent of the samples of paper the color man gets for matching vary from half the size of a postage stamp to a piece about 2 x 2 inches. The color man too often takes a large mill sheet and tries to compare it with the smaller sample. Owing to the large amount of light reflection from the mill sheets and, very often, a different surface, this is obviously bad practice. What should be done is to reduce the mill sheet to an equal size with that of the sample to be matched. A method recommended is to cut a frame out of white flat finished paper having two apertures the size of the sample. Insert the sample and a piece from the mill sheet and compare them. Precaution must be taken about the light used for matching. It should be a north light and contain no colored reflections, as red from a brick wall or green from trees, etc.

Many coating men are now making use of so called hand matching. This is simply preparing the color run in a small way before making up the larger quantity for the tank with hand brushes making a brushout of the weight and on the raw stock required. It is then finished as the order specifies. This method turns out satisfactorily if it is not carried to excess and, a needless amount of time is wasted in getting an absolute match. The hand brushout very seldom agrees with the machine sample. It is useful to carry the method to a point where only minor changes need to be made when the larger quantities of color are mixed.

Standardization of Lake Colors

Anyone who has had much experience with lake colors knows that they vary a great deal in water content. The only square way to deal with this variation is to buy them on a quaranteed solid content. If we take a ton of pulp that is supposed to contain 35 percent solids, amounting to 700 lbs. and the shipment arrives 30 percent solids, there then should be 2333 lbs. in order to fulfil the order. If it is 38 percent then 1842 lbs. will be sufficient. The shipment should be tested both by the manufacturer and the coating mill and adjustments made accordingly.

Standardization of pulps is necessary on account of the gradual drying out of the lake; the effect being that 100 lbs. of pulp this week means 35 lbs. of dry pigment, while next week it may mean 40 lbs. An average barrel of 600 lbs. of pulp when freshly made and barrelled will lose 10 to 30 lbs. after standing two weeks. There are many ways in which standardization may be effected, but one will suffice for an example.

Determine the percentage solids at which a particular pulp is to be maintained (always lower than the percentage at which it is received), empty the contents of a barrel into a mixer. Agitate and determine dry contents, add the necessary water to lower the solids to the standard and empty the contents, after agitation, again into a covered metal container.

Agitate with a paddle each time any of the pulp is used. If the lid is fairly tight the pulp will remain constant for at least two weeks. It is convenient to use the nearest even 5 per cent to the average per cent at which the pulp is received. As an example, suppose the average for Turkey red as received is 33 per cent and the barrel of color weighs 600 lbs. net. Then the dry contents is 198 lbs. If the standard is set at the nearest even 5 per cent then it will be 30 per cent. The final color will weigh 660 lbs. or 60 lbs. of water will have to be added. This method, although somewhat laborious, will be found to repay the pains taken.

BUREAU OF STANDARDS IS BUYING NEW PLANS

Government Department Has Notes of Interest for the Paper Industry

THE following notes of the activities of Bureau of Standards, Department of Commerce, have been compiled in relation to the paper industry.

A new type of tester for determining the bursting strength of paper has been received by the Bureau of Standards, Department of Commerce, and a comparison is being made between this device and the ordinary type in commercial use. In connection with machines of this kind, which employ a pressure gauge to indicate the results, a study is under way of the effect of the weight of the needle on the indications.

Tests of Paper Towels

Various methods of testing folded paper towels have been investigated. Fourteen samples representing the products of nine different manufacturers were used. An attempt was made to develop a method of determining the tensile strength when wet, as it was believed that such a test would approximate service conditions. However, satisfactory results could not be obtained because of the weakness and poor formation of most of the samples. Apparently the bursting strength of the dry paper is the most satisfactory indication of its strength. Its absorbency is satifactorily determined by applying one drop (0.2 cc.) of water to the surface and noting the time for complete absorption. The various samples differed considerably in strength and absorbency.

Studying Window Envelopes

The Bureau is conducting a study of the papers used for the outlook aperture of window envelopes, from the point of view of properties and methods of testing.

The transparency and glaze of these papers are of great importance since both low transparency and high glaze are objectionable. In fact mail clerks handling large numbers of window envelopes have complained of the eye strain produced by certain types.

An attempt is being made to find the most suitable paper for this purpose and to develop test methods which will insure securing this kind of paper in the future.

Compiling Data

The Bureau is making a compilation of data relating to the size of plant fibers suitable for the manufacture of paper. There is a great deal of information of this nature to be found scattered through the literature, and it is believed that if gathered together in convenient form it will be of considerable value to those carrying out fiber investigations.

The Power of an Obsolete Nomenclature

(Continued from page 8)

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Demand Relief

Demanding relief for what they regard as unreasonable and discriminatory incerase in freight rates for hauling pulpwood between Maine points a number of pulp and paper concerns have joined in an appeal to the Public Utiilties commission and a hearing on the complaint has been ordered to be held Feb. 28.

The concerns joining in the complaint are the Oxford Paper Co., Rumford; the S. D. Warren Co., Cumberland Mills; Eastern Manufacturing Co., South Brewer; Orono Pulp and Paper Co., Basin Mills; Penobscot Chemical Fibre Co., Great Works; Advance Bag and Paper Co., Howland; Poland Paper Co., Mechanic Falls; Coated Paper Co., Rumford; Nekonegan Paper Co., Old Town; Pine Tree Paper Co., Inc., South Gardiner; Keyes Fibre Co., Shawmut; Skowhegan Paper Co., Skowhegan; Androscoggin Pulp Co., South Windham and Steep Falls; Gilman Paper Co., Gilman, Vt.; and E. M. Frye, Walter S. Wyman and F. D. True, trustees in bankruptcy of the Cushnoc Paper Co. and the Kennebec Co., Augusta.

The complaint is made in connection with the new mileage scale, effective February 4, 1924, and the complainants point out that this rate makes heavy increases and that since April, 1918 there have hitherto been increases of 80 per cent offset only by one ten per cent reduction.

* * *

Going Good Again

All paper machines in the three mills of the Pejepscot Paper Co. are again operating on full time except for Machine No. 1 in Bowdoin mill. This plant and the mills at Lisbon Falls have been closed for several weeks but it is said that the prospect for regular production is now excellent for some time to come.

C. B. Thorne Says:

Riordon Pulp Corporation, Ltd.,
Hawkesbury, Ontario

MY DEAR MR. KEENAN:

I wish to congratulate "PAPER" in having persuaded you to accept the position as Technical Editor.

I also received the copy of PAPER which you forwarded me which I may say looked very well indeed. May I wish you all success.

Whenever I have anything that may be of interest to your paper I certainly shall take advantage and send it to you.

Very truly yours,
RIORDON PULP CORPORATION, Ltd.
C. B. Thorne.

Decayed Wood for Sulphite Pulp

Wood Used in Experimental Work at Forest Products Laboratory to Determine Availability of Rotted Wood for Pulping—Fungi and Insects that Attack Wood

By JOHN D. RUE, R. N. MILLER
and C. J. HUMPHREY
Forest Products Laboratory, Madison, Wis.

At the annual meeting of the Canadian Pulp and Paper Association held in Montreal, January 24, the Technical Section and the Woodlands Section met in joint session for the discussion of this important paper on the utilization of infected wood in the manufacture of news grade of sulphite pulp. The conclusion of the authors is that most rotted woods can be cooked with good results as regards colors and strength. The exceptions are woods that have been softened too greatly or that have been infected by the fungus called Trametes pini, though pulp from wood so infected is not materially weaker than pulp from sound wood. The subject is one of vital importance to all pulp manufacturers and the paper is accordingly one that should be studied carefully.

THE most vital problem confronting the paper industry of this continent is the provision of an adequate and continuous supply of pulpwood. One of the most important factors in this problem is the loss caused by decay, which is on a par with fire in its destruction of wood. The recent devastation by the spruce budworm in Eastern Canada and North-Eastern United States and the Lake States has added to the gravity of the situation because it has been followed by serious decay. The attention of the industry throughout the country is, therefore, very rightly focused on the relation of decay to a supply of wood. Too much emphasis cannot be laid upon the necessity of utilizing even the rotted wood, provided this can be done economically. Equal emphasis should be laid upon the need for every precaution in handling and storing pulpwood to protect it from unnecessary further decay after it leaves the stump. Decay is caused by wood-destroying fungi which feed upon the wood, rendering a portion of it volatile, another portion water soluble, and other portions less resistant to the action of chemicals. Some of these organisms cause destruction chiefly of the cellulose; some, in addition to their action upon the cellulose, also attack the lignin to a greater or less degree; some initiate their attack in the sapwood and others in the heartwood. All of these effects have a vital bearing upon the use of the wood for pulp manufacture. Faull, Schierbeck, and Hawkings have called attention to various diseases and decays in spruce and balsam as found in the forest. The types of decay which these authors have discussed are characteristic and readily distinguishable.

The logging superintendent who is supplying his sulphite mill with wood is confronted with the very practical problem of determining how to select wood which will produce sufficient pulp of a commercial grade to warrant sending it to the mill. He needs to know whether the mill can use wood which is decayed. More than that, he needs to know how badly it may be decayed before it has lost economic value. He should have some method, therefore, of measuring or determining the degree of decay. He should know how the various prevalent types of decay vary in their destruction of the pulping value of the wood. He should know, further, how rapidly the wood will continue to decay under the conditions of transportation and storage to which the wood is subjected before it actually enters the manufacturing processes.

This report deals with some of the results obtained at the U. S. Forest Products Laboratory in a study of a very limited phase of this problem. A preliminary survey has been made of the utility for sulphite pulp of spruce and balsam infected with a few of the most important types of wood-destroying fungi. The study has so far been limited to the determination of the utility of the wood as found. The effect of transportation and storage on utility is a matter of vital importance which must receive attention as opportunity permits.

Through the courtesy of Price Brothers, Ltd., and the Laurentide Company, Ltd., the wood studied was supplied gratuitously from the limits of Price Brothers near Lake Kenogami, Quebec. The wood was selected by a forest pathologist representing the Laurentide Company, Ltd., and Price Brothers, Ltd., working in conjunction with a pathologist from the U. S. Forest Products Laboratory.

The wood selected, represented (1) sound balsam, (2) balsam infected with the fungi, *Fomes pinicola Polystictus abietinus,* a mixture of several species of fungi referred to as mixed feather rots, and a particular type of fungus resulting in a decay which has heretofore gone under the name of "hemlock heart rot," and (3) spruce infected with *Trametes pini.* A sample of sound spruce from Minnesota, was also included in the investigation for purposes of comparison.

The name "hemlock heart rot" is inappropriate, and a more suitable one should be selected. So far as known, it is not an important decay of hemlock. Studies of the organisms producing this type of decay and the feather rots are under way by Dr. Faull of the University of Toronto.

Areas of balsam and spruce killed by the budworm, or other agencies, are particularly subject to infection from several of the fungi represented, particularly *Fomes pinicola* and *Polystictus abietinus.* The fungus of "hemlock heart rot," besides producing a heart rot in living trees, also causes an important sap rot in dead balsam timber. When developing in a living tree it may occur at any point on the trunk, although but rarely in the butt. *Trametes pini,* while primarily a heart rot in living spruce, can also rot the sap-wood of dead timber. The feather rots are principally confined to the heartwood and usually start at the center of the trunk, enlarging the area of infection as they develop. They usually enter the trees through the roots and cause butt rots.

The rots due to *Fomes pinicola* and *Polystictus abietinus* are somewhat darker than the normal wood and in advanced stages make the wood soft and easily crumbled. The "hemlock heart rot" is accompanied by a decided reddening or browning of the affected wood and a progressive softening of its structure until in the last stages the wood becomes very soft, and stringy rather than crumbly. The feather rots in an advanced stage cause a disintegration of the center of the log into flattened strips and slivers of softened wood, which gradually fall away, leaving a hollow in the log. Around the slivered center a darkened area is found; in the earlier stages of infection this darkened area may be the only easily discernable characteristic.

Trametes pini is easily recognized by a brown and white speckled appearance of the cut end of the log, caused by the presence of pockets which are lined with the bleached wood fiber. With this fungus the softening of the wood structure in the living tree is not so apparent in advanced stages as in the case of the other species studied.

All the fungi represented are prevalent in the balsam and spruce forests of Eastern Canada. The percentage of infection of any given fungus may vary widely for different localities, but they can all be found to some extent in any of the regions investigated. On any large operation in living timber the feather rots and "hemlock heart rot" are bound to be well represented and of great economic importance. If the forests contain a considerable proportion of unthrifty spruce, *Trametes pini* may prevail, while in forests with much timber dead for two to three years or more such fungi as *Fomes pinicola* and *Polystictus abietinus* become common and very destructive.

There are several other important rots in the region investigated, the physical characteristics of which do not differ essentially from the types above indicated. They may therefore be expected to have similar effects upon the pulping value of wood infected with them.

So far as is known, "hemlock heart rot" is not prevalent in the United States. The other species will probably all be found extensively represented in northern forests in the United States as well as in Canada, and will probably be equally destructive in both countries.

All the material taken from the woods for experiment was graded by the pathologists before shipment. Based on the apparent degree of firmness the different samples would rank as follows, beginning with the least softened: sound wood, "hemlock heart rot" grade 1, "hemlock heart rot" grade 2, *Trametes pini* rot in spruce, mixed feather rots, sap rot due to *Polystictus abietinus* "hemlock heart rot" grade 3, and friable sap and heart rot of *Fomes pinicola.*

With the exception of "hemlock heart rot" grade 1, the experimental logs would, under present logging practices in this region be considered unsuitable for pulp and probably would be culled by the scaler and left in the woods.

Preparation of the Wood for Pulping

The wood was received at the Laboratory in the form of 4-foot bolts. Representative portions of each type or grade of rot were selected for cooking and were barked by hand with draw knives. In the case of the sap-rotted specimens, care was taken to remove only the bark. A cross-sectional disc was removed from the middle of each barked bolt, and the discs were photographed.

Table 1.—PHYSICAL PROPERTIES OF WOODS AND YIELDS OF PULP

Samples for each species listed in order of decreasing firmness of the wood. Yield figures are averages for two cooks.

BALSAM

Sample No.	Fungus	Volume of discolored wood Percent	Weight per cubic foot of wood Pounds	Yield of oven dry screened pulp Percent	Yield of oven dry screenings Percent	Total of pulp yield per 100 cubic foot of wood Pounds
975-0	None	None	20.8	49.6	0.8	1048
975-3	"Hemlock heart rot" grade 1	55	21.0	51.0	0.9	1085
975-4	"Hemlock heart rot" grade 2	74	21.1	48.9	1.2	1057
975-1	Mixed feather rots	31	21.0	50.6	0.9	1082
975-6	Polystictus abietinus	66	17.8	49.1	1.5	900
975-5	"Hemlock heart rot" grade 3	100	16.6	45.6	1.3	785
975-2	Fomes pinicola	69	18.0	40.0	0.6	733
			SPRUCE			
963	None	None	26.2	45.7	1.7	1240
975-7	Trametes pini	96	22.3	51.1	0.7	1153

The measurement of the amount of rot was based upon the outline of discoloration visible to the unaided eye on the freshly exposed cross sections. Tracings of the discolored and the total areas of the freshly cut center sections were made on tissue paper. The volume of the sound and the infected wood in each bolt was calculated from these areas, measured with a planimeter, and from the length of the bolt. This calculation is based upon the assumption that the discolored portion was uniformly disposed through the bolt, an assumption justified by an examination of several of the bolts after splitting. The error in these volume measurements is perhaps + 5 per cent.

The various portions of wood were weighed and chipped, the thoroughly mixed chips were sampled for moisture, and the weight of the dry wood per cubic foot was calculated on the basis of the volume obtained as indicated above. A portion of chips was taken from each sample for chemical analysis.

The chips were not screened before cooking but the knots were picked out by hand. The yields obtained in this way, therefore, show the losses that take place in the cooking operation when the wood is cooked in its entirety.

Conditions of Pulping

The same volume of chips was used in each cook. The variation in the weight of the chips together with the need for keeping the digester filled with liquor, prevented the maintenance of a fixed ration of acid to wood. In all cases 50 gallons of acid were used and the digester was filled with chips.

The acid used was made up from high grade calcium lime and liquid sulphur dioxide to a strength of 5.00 per cent total—3.80 per cent free and 1.20 per cent combined sulphur dioxide.

Discussions of Pulping Data

The yields obtained from the various samples of infected wood, together with those obtained by way of comparison from sound spruce and balsam, are shown in Table 1.

The sample of wood infected with *Polystictus abietinus* gave a normal yield on the weight basis, but, owing to a marked decrease in the density of the wood, the yield on a volume basis is somewhat below normal. These samples infected with "hemlock heart rot" and *Fomes pinicola* gave yields which on both the weight and the volume bases are below normal. The yield from the wood infected with *Trametes pini* was higher, on the weight basis, than that from sound wood. This fact is in accord with observations made by Johnsen and Lee and is not surprising in view of the comparatively high cellulose content of the decayed sample. (See Table 3.) The density of the decayed wood was, however, sufficiently lower than that of the sound wood to show a reduction of yield on the volume basis.

When considering the yields obtained it must be remembered that in these cooks all the wood except the knots was cooked. In the usual mill operation, however, some of the weakened portions of the wood will be mechanically disintegrated and lost. Wood containing sap rot will suffer a loss when passing through the barking drums. Wood containing either sap or heart rot or both will suffer a further loss in friable material in chipping and screening. The tendency will be, therefore, to increase the proportion of sound wood that goes into the digesters, and to throw the loss on the wood room operation rather than on the cooking operation. In mill operation, in comparison with the results, obtained in this investigation, the final effect will be lower yields per cord, little or no change in the yields per digester, and better quality of pulp because of the greater proportion of sound wood reaching the digesters.

Strength of Pulps

The strength tests on the pulps, results of which are given in Table 2, are very encouraging. In the unbeaten state (20 minutes in the ball mill to open them up) the pulps from the decayed woods show a strength which, with the exception of that from *Trametes pini,* is not appreciably lower than that of pulp from sound wood. The strength of the pulp from *Trametes pini* was not so far below that of normal commercial pulps as to preclude its satisfactory use for newsprint. The behavior on beating, however, was different, inasmuch as the pulps from the decayed woods hydrated rapidly to a parchment, the strength reached a maximum quickly and fell off rather rapidly.

In the manufacture of newsprint, however, beaters are rapidly being displaced by mixers, consequently, the initial strength of the pulp is of more importance than the strength that can be developed with hydration.

Color of the Pulps

The chief objection to the pulps made from the infected wood is to be found in their poorer color. This darkening was roughly proportional to the degree of discoloration of the wood, but in no case was the color worse than that of hemlock sulphite used regularly in middle western news mills.

The measure of the practical utility of a bolt of pulpwood is the yield and quality of the pulp that can be obtaned from it.

Firmness of the Wood

From a study of Table I, in which the samples are listed in the order of the decreasing firmness of the wood, there is evident some parallelism between decrease in firmness and decrease in yield; the greatest loss in yield is obtained from the wood which shows the greatest loss in firmness. Had the wood been prepared under mill conditions still greater reduction in yield would doubtless have occurred, as already pointed out, because of the mechanical losses incident to wood room operations.

No accurate method is now available to measure and record the degree of firmness of the wood. The parallelism between this property and the yield indicates the need for the development of some simple method of measurement which can be used to aid the scalers and inspectors in their selection and evaluation of pulpwood for sulphite pulping.

Density

There are several factors, however, that render density as a laboratory test a somewhat unreliable indicator of degree of decay. Sound wood varies greatly. These variations may be greater than the differences in density from tree to tree and a large number of determinations are necessary to arrive at a true average, density between sound and decayed wood; variability in volume of the wood with changes in moisture content is also a disturbing factor. Evidence is still lacking furthermore, to prove a direct parallelism between density and degree of decay. The data in Table 1 indicates that insofar as the samples included in this investigation are concerned, such a general parallelism does not exist.

Discoloration of the Wood

The volume of discolored wood, as compared with the total volume, Table 1, is clearly not an indication of the possible yield of pulp and should not be taken as a measure of the degree of rot or of the pulping value of the wood except that the amount and intensity of discoloration may to some degree be reflected in a darkening of the pulp.

Chemical Properties

Some of the chemical properties of the wood are shown in Table 3, in which the samples are arranged in the order of decreasing firmness of the wood. For purposes of comparison this table also includes the yields of pulp obtained from the various samples of wood.

In all cases the solubility in alkali is higher for the decayed than for the sound samples. In the cases of advanced stages of decay, as represented by "hemlock heart rot" grade 3, and *Fomes pinicola,* there is a good parallelism between the increase in solubility in alkali and the degree of rot as indicated by the decreased firmness of the wood and by the decreased yield of pulp. Decrease in cellulose content in these cases reflects the same changes in degree of rot. For the three grades of "hemlock heart rot" the cellulose content of the wood is nearly uniform, otherwise the same relationship holds also for this type of decay.

Spruce rotted by *Trametes pini* shows an increase in solubility in alkali but an increase also in cellulose content and in yield or pulp. The pulp, however, as already pointed out, was the weakest of all those obtained in this investigation. Solubility in alkali does, therefore, give some indication of the reduction in pulping value.

It is doubtful whether a definite relationship between chemical properties and degree of decay in general can be

Table 2.—STRENGTH OF PULPS DETERMINED BY THE BALL MILL BEATING METHOD

Samples in each species arranged in order of decreasing firmness of wood. Figures at top of columns indicate minutes in ball mill.

Sample No.	Fungi	Volume of discolored wood	Bursting Strength			Breaking length			Double folds			Tear		
			20	40	60	20	40	60	20	40	60	20	40	60
		Percent	Per lb. ream			Meters			Number			Grams lb ream		
						BALSAM								
975-0	None	None	0.93	1.02	1.04	3625	4480	4353	4765	3234	1783	2.20	2.15	2.38
975-0	"Hemlock heart rot" grade 1	55	0.93	0.99	1.04	4670	4292	4230	4681	1812	1998	2.34	1.95	2.45
975-4	"Hemlock heart rot" grade 2	77	0.97	1.06	1.10	4411	5561	5300	1813	1383	933	1.94	1.77	2.01
975-1	Mixed feather rots	31	1.09	1.22	1.23	5986	5571	4871	1701	1603	1479	2.27	2.26	2.29
975-6	Polystictus abietinus	66	0.87	0.95	0.99	3393	4340	4405	3165	2120	2066	2.02	2.09	2.21
975-5	"Hemlock heart rot" grade 3	100	0.91	1.03	0.97	4632	4336	4175	553	633	909	1.90	1.48	2.78
975-2	Fomes pinicola	69	0.91	0.88	0.66	3507	2708	2339	1014	787	295	1.63	1.73	1.73
						SPRUCE								
963	None	None	0.80	1.05	1.11	3355	4372	4090	459	1102	1141	2.46	2.62	2.50
975-7	Trametes pini	96	0.077	0.95	1.11	3075	4520	4073	726	910	772	1.97	1.81	1.89

Table 3.—CHEMICAL PROPERTIES OF THE WOODS
The samples for each species are listed in order of decreasing firmness of wood.

Sample No.	Fungi	Volume of discolored wood Percent	Solubility in 1% sodium hydroxide Percent	Lignin Percent	Cellulose Percent	Yield of screened pulp
		BALSAM				
975-0	None	None	9.3	30.7	57.1	49.6
975-3	"Hemlock heart rot" grade 1	55	13.6	31.8	53.9	51.0
975-4	"Hemlock heart rot" grade 2	74	14.1	30.8	53.9	48.9
975-1	Mixed feather rots	31	11.9	31.8	54.8	50.6
975-6	Polystictus abietinus	66	13.3	30.0	54.0	49.1
975-5	"Hemlock heart rot" grade 3	100	17.6	28.7	53.5	45.6
975-2	Fomes pinicola	69	20.6	34.45	49.7	40.0
		SPRUCE				
963	None	None	10.4	28.4	58.4	45.7
975-7	Trametes pini	96	15.6	25.8	59.8	51.1

established. The relationship must in all probability be considered with reference to the specific type of decay. The data so far obtained and the importance which such relationship would have in furnishing a reliable means of evaluating pulpwood warrant its further and intensive investigation.

Summary

1. The samples of wood investigated, with the exception of "hemlock heart rot" grade 1, were so badly decayed that, at least in the region from which they were obtained, they probably would have been called by the scaler, and left in the woods.

2. The pulps obtained from these woods cooked for news grade sulphite, with the exception of that from *Trametes pini*, are not materially weaker than those from sound wood. The strength of the pulp from *Trametes pini* was not so far below that of normal commercial pulps as to preclude its satisfactory use for newsprint.

3. The color of pulps made from infected wood may be poorer than the color of these made from sound wood, the darkening being roughly proportional to the intensity of the discoloration of the wood.

4. The yields obtained from the infected wood both on the weight and the volume basis were not materially lower than those from sound wood, except in cases in which the wood had become materially softened, or friable.

5. Wood softened or friable to such a degree as to give abnormally low yields of pulp would largely be eliminated in the wood room operations. Commercial yields per cord from decayed wood will therefore probably be lower than those from sound wood in proportion to the amount of wood so badly weakened that the decayed portion will not withstand wood room operations.

6. Some parallelism has been shown between the degree of firmness of the wood and its pulping value, the wood softened to the greatest extent by decay having suffered the greatest loss in pulping value.

7. Density of the wood is not in general a reliable indication of the pulping value.

8. The amount and intensity of discoloration of the wood may indicate lower color of the pulp but does not necessarily indicate other pulping values.

9. The solubility of the wood in 1 percent alkali may prove helpful in evaluating decayed pulpwood. Further investigation is necessary to establish the limitations to its application.

10. The lignin and cellulose contents of the wood are not in themselves reliable indications of pulping values, but may prove valuable aids in connection with alkali solubility and degree of firmness.

Grateful acknowledgement is made of the assistance of the Newsprint Service Bureau which assumed a portion of the expense of this investigation.

Want to Borrow $150,000

A meeting of the creditors of the Cushnoc Paper Company, of Augusta, Maine, is scheduled for this month, at which the referee in bankruptcy will be present. to consider a petition for authority to borrow $150,000 for the purpose of purchasing pulpwood with which to start operations again. It is proposed to issue trustees' certificates as a first lien on all pulpwood now or later owned by the trustees. With this financing, creditors believe that the business will be put on its feet again and all claims paid in full.

* * *

All Going Except One

With the exception of Machine No. 1, of the Bowdoin Mills, all of the machines in the three mills of the Pejopscot Paper Company of Brunswick, Me., are now in full operation again. The plants in Brunswick, Bowdoin and Lisbon Falls, Me., have been closed for several weeks but new orders have resulted in the resumption of all of the mills again. According to officials, the outlook is excellent for full production for several months to come.

* * *

Burned for Second Time

For the second time within a year, the storehouse of the Davis Paper Company at West Hopkinston, N. H., was destroyed by fire Feb. 12 and the loss is placed in excess of $10,000. The first storehouse, on the same site as the one just burned, was destroyed last summer. The building contained about 400 tons of paper and paper stock valued at $6,000 and the wooden building was valued at $4,000. There was partial insurance.

* * *

To Hold Annual Meeting

The Board of Directors of the Canadian Weekly Newspaper Association met in Toronto a few days ago and decided to hold the annual meeting of the Association in Toronto on June 5, 6 and 7. After the sessions 150 newspaper men will leave on a two months' tour of England and Scotland, together with the battle fields. The Empire Press Union and the English Newspaper Society are co-operating in the Old Land to make the visit of the Canadian newspaper men and women a very enjoyable event. The party sails on June 11 from Montreal on the C. P. R. steamship, Melita.

* * *

Vast Cut of Timber

Major J. I. Hartt, Inspector of Crown Timber Agencies at Orillia, states that 408,000,000 feet of timber, 3,176,000 railway ties and 649,700 cords of pulpwood will be the output of the present logging season on Crown lands in Ontario. The money paid out in bringing logs and pulpwoods to the mills will amount to $21,876,000. This does not include the cost of manufacture. Then there is the revenue obtained from the railways for freight and the money made in converting the finished lumber into such products as doors, sashes, etc.

Goes to Hammermill

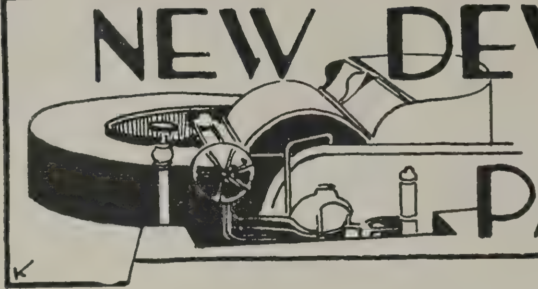
B. E. Claridge, assistant professor of forestry in the University of New Brunswick, has resigned his post and accepted a position as forester with the Hammermill Paper Company. He will be stationed on the Gaspe coast. He will not assume his new duties however, until the first of June. After graduating from Yale, he became instructor in forestry in the University of New Brunswick, later being appointed assistant professor. F. H. Gunter, formerly of the University of New Brunswick school of forestry has lately taken employment as of forestry, has lately taken employment as some months employed as such by the Wayagemack Pulp and Paper Company.

* * *

May Build Hotel

In addition to building a paper mill at St. Stephen, Hollingsworth and Whitney of Boston may build a hotel there. There is need of a new hotel, and it has been proposed that the paper manufacturing concern adopt the initiative in promoting this project. Hollingsworth and Whitney have purchased twelve separate properties at St. Stephen, and will build storage dams as well as the paper mill. This is one of the oldest paper manufacturing concerns in New England. A mill in Waterville, Me., has been operated for many years. The head offices are in Boston. In the control of the firm are valuable pulpwood tracts in Maine and New Brunswick, with the new paper mill located in the midst of the holdings.

NEW DEVELOPMENTS IN PAPERMAKING



Papermaking Process

United States Patent No. 1,482,012 is concerned with a process for manufacturing paper. The particular feature of this process consists in submitting the felt blanket of the papermaking machine to a treatment which comprises passing the blanket through a mixture of clay and water whereby the surface of the blanket is insulated against adhesive substances.

* * *

Effect of Acids and Salts on Hydrolysis of Wood

The effect of several acids and organic and inorganic acids, when used alone and in conjunction with mineral acids, upon the hydrolysis of wood is described in *Industrial Engineering Chemistry,* volume 15, pages 1164-5. Barium chloride and zinc chloride in the presence of hydrochloric acid gave yields of fermentable sugar slightly in excess of that obtained with the acid alone. Of the acids studied the most promising are the naphthalenesulphonic acids. The quantity of sugar produced from white spruce was studied, the concentrations of sulphuric acid being varied from five to thirty percent. The optimum concentration of sulphuric acid was ten per cent. the optimum time of digestion was ten minutes and the optimum pressure was 120 pounds per square inch. The effect of temperature upon mannose indicates that its rate of decomposition under similar conditions is practically the same as that of dextrose.

* * *

Waterproofing Drawing and Writing Paper

German Patent No. 378,849 is concerned with a process for manufacturing a writing and drawing paper which is not affected by moisture. The process consists in scattering over one side of the dry paper web a hard fatty substance, such as stearin, in a finely divided form and causing the particles of the fat to melt and a fatty film to be distributed over the surface of the paper by means of hot, smooth metallic devices, such as polished rollers or irons. In this manner it is possible to cause the fatty matter to penetrate into the structure of writing and drawing papers, provided they are not too thick, so that a surface is obtained which is absolutely resistant to water. The paper which becomes more or less translucent due to the action of the melted fat becomes white under the sharp pressure of the point of a drawing pencil and almost non-translucent, so that it is possible to write on the same by means of a metal pencil which produces white marks against a black background.

* * *

Sales Representative Changes Address

Kent Engineering Company, district representatives of the Conveyors Corporation of America, 326 W. Madison St. Chicago, has changed its address from 504 First National Bank Bldg. to 1110 Farnam Street, Omaha, Nebr. This engineering firm handles the sales of American Steam Jet Ash Conveyors and American Air Tight Doors, as well as other power plant equipment in Nebraska and Western Iowa.

Carbon Paper

The manufacture of carbon paper and colored papers, by a process, which is patented in German Patent No. 378,851, is accomplished in the following manner. A thin web of silk paper is drawn through a color bath. As the paper web leaves the bath it is run between a pair of squeeze rollers which remove the excess color. At the same time a dry paper web is pressed on one side of the wet web and united with the same. If coloring matter which do not posses sufficient adhesive power of their own are employed in this process, then the dry paper web is given a coating of some adhesive preparation before it is combined with the colored web.

* * *

Rapid High Pressure Digestion of Sulphite Wood Pulp

A rapid and satisfactory process, adaptable to the Ritter-Kellner and Mitscherlich methods, for producing sulphite pulp is based on the observation that wood, steeped in a solution of calcium bisulphite at a moderate temperature, absorbs from 70 to 80 per cent of the bisulphite and that this is retained by the wood during the necessary period in which the wood is raised to the highest temperature employed in the digestion. During the digestion process, accordingly, the wood is subjected to the action of calcium bisulphite which is evenly distributed through its mass. On a large scale, wood is saturated with calcium bisulphite at a temperature of 50 degrees C or 100 to 110 degrees C. With lower temperatures open vessels may be employed. Subsequently the temperature of digestion is rapidly raised to 140 degrees C and maintained there until digestion is complete, usually for a period of 1.5 to 2 hours.

For further details see *Papierfabrikant,* 1923, pages 493-5.

* * *

Malden Company Incorporated

The Malden Paper Company of Malden, Mass., has been incorporated with an authorized capital of $5,000, to make and deal in paper pulp. The incorporators are Charles Fine, Louis Werlinsky of 43 Upham Street, Malden and Samuel Werlin.

* * *

New Organization

Book and Coating Papers, Limited, is the name of a new organization which has been formed at Montreal and which will operate as jobbers in book and coated papers. The concern, which has an authorized capital of $50,000 has been granted a Dominion charter which covers a broad line of manufacture, including that of paper and paper products.

* * *

Raise Borrowing Capacity

The borrowing powers of the Whalen Pulp and Paper Company's receiver, W. Mills, have been increased by the British Columbia courts from $500,000 to $800,000. Most of the $600,000 had been used up, the working capital having been reduced to $112,000.

Manufacture of Paper

Vegetable fiber, such as esparto grass, hemp, jute, rags, etc., is boiled for 1.5 hours in an open or closed vessel at 100 degrees C with weak hydrochloric acid, for example five ounces of acid to four gallons of water, and, after separation of the liquor, is boiled at 100 degrees C for one hour with fresh water. The material, after being washed with hot water till free from acid, is then boiled at a temperature of 100 degrees C for two hours with a solution of sodium carbonate containing 455 pounds of soda crystals per ton of fiber. The resulting pulp is washed and made into paper in the usual manner. The process is patented in British Patent No. 206,010.

* * *

New Direct Color

A new direct color, known as Pontamine Brown D3GN, has just been placed on the market by the Dyestuffs Department of E. I. du Pont de Nemours & Company. It is intended for dyeing cotton or for half silk hosiery where the combination of colors used must be fast to the acid employed in scrooping. It can be used on cotton in all stages of manufacture, not only for self shades of tan and yellow browns, but also in combination for producing olives, slate browns and similar shades. It can also be applied on silk, paper, hemp, jute and leather.

* * *

Financing Announced

Financing of the Continental Paper and Bag Mills Corporation is announced. A nw issue of $6,000,000 first and refunding mortgage 6½ per cent 20 year sinking fund gold bonds are offered by a syndicate of bankers. This is part of an authorized issue of $12,000,000. The present issue will be followed, it is said, by $4,000,000 of prior preference 7% preferred stock, $2,500,000 of six per cent cumulative participating preferred stock and $3,750,000 common stock. The entire issue of prior preference stock, 70 per cent of the cumulative preferred and over 50 per cent of the common stock will be acquired by the International Paper Company. The bonds are being offered at 95 and interest yielding over 6.95 per cent.

* * *

Clocking Accidents

To encourage accident prevention, the Faluah Paper Company at Fitchburg, Mass., has erected a mammoth clock under the direction of George E. Ames, safety director of the company. During the past 115 days the clock has remained at zero, there having been no accident of any character during that time, a record which the company believes unequalled in the industry for a plant of their size. During 1923 there were 29 accidents at the plant but since Oct. 1 not an accident has occurred. Of the 29 accidents, 24 took place in the first six months of 1923. The new record established is being made a topic in addresses by industrial engineers throughout New England.

The Editorial Page

Just Going Along

THE recent commotion caused by the announcement of Attorney General Daugherty that trade associations could not legally compile and disseminate statistical information regarding their trades except through Government channels is settling down to—just nothing at all. The Chamber of Commerce has decided to go along in its old methods and the Department of Justice is doing nothing about it.

Likewise the trade associations of the land, including the multifarious organizations of the paper industry, are also proceeding along the same line they previously followed. However, several of them have exhibited considerable nervousness in the past few weeks, wondering what the outcome would be.

That the Chamber of Commerce will continue in the status quo ante, is shown in a letter from the Solicitor of the Department of Commerce, a copy of which has reached the editor of PAPER, which says:

> "The recent correspondence between this Department and the Attorney General relative to the legality of the collection, compilation and distribution by trade associations of statistics or information has caused widespread discussion, and I have been frequently asked for a statement of the attitude of the Department upon the subject. The Department of Commerce will continue to publish its monthly Survey of Current Business, in connection with which it has been receiving information and statistics from various associations. For the purposes of this and other publications and the performance of other duties imposed upon it by law, the Department will, from time to time, request associations to furnish it with such statistics as may be necessary or convenient for its purposes. The information which associations furnish will be used, within the limits of Department appropriations and facilities, in the publications to the extent that it proves suitable.
>
> "The department is not at present in a position to distribute the information received otherwise than through its publications.
>
> "The Department does not express any views as to the legal status of the association from which it receives the information, or any approval of any of its activities."

This seems to be the end of a muddled business in which the trade associations as well as the Department of Commerce wandered as though in a morass.

* * *

Timber Waste

REFORESTATION and economy in utilization of existing resources were stressed by Secretary of Agriculture Wallace in a recent address before leaders in the pulp and paper industry, as necessary to establishment of this resource on a basis independent of the outside world. Statistics make out a case for reforestation and economy in utilization that is not to be gainsaid. In recent years the drain of America's forest resources has greatly exceeded growth and reproduction.

The Government has long realized the need for conservation of forest resources and has broadcast information that warns private owners and users of timber of such need. Waste should be eliminated, growth and reproduction promoted and loss by fire prevented. In stressing these points before the leaders in the pulp and paper industry Secretary Wallace speaks in the nation's interest.

EDITORIAL NOTES

A little oil from the superfluity of the oil scandal at Washington might be used to good advantage to smooth the way of some paper companies bucking foreign competition.

* * *

United States exports of paper increased in value by a million and a half dollars last year. But that doesn't mean a thing, for the quantity of export wasn't commensurate.

* * *

"When you deny the right to a profit you deny the right of a reward to thrift and industry," says President Coolidge, editorially summing up as follows: "There is just one condition on which men can secure employment and a living, nourishing, profitable wage for whatever they contribute to the enterprise, be it labor or capital, and that condition is that someone makes a profit by it. That is the sound basis for the distribution of wealth and the only one. It cannot be done by law, it cannot be done by public ownership, it cannot be done by socialism."

* * *

A mule is bad enough, but man is the only animal envious enough to kick those in front.

* * *

A motoring writer says that the motorists in this country run into millions. We know that. We wish they didn't.—Passing Show (London).

* * *

So live that you never will need to tell an investigating committee that you cannot discuss your personal matters.

PAPER PRODUCTS

Conducted by J. E. Willert

CONVERTERS ARE NOW PUSHING AHEAD

Developments of the Last 25 Years Have Been Amazing in Their Extent

PAPER manufacturers, and more especially the consuming public, would be astonished if they were aware the extent of developments in the last twenty-five years in the use of paper and the volume of business in products into which paper is converted.

Even mill superintendents who are accustomed to seeing carload orders going out to specialty manufacturing concerns probably would be surprised if they saw the extent of this business.

Concerns engaged in the business of converting paper into finished products used in a thousand or more different ways are scattered throughout the country, but largely centered in the middle west and the East. In the Fox River valley of Wisconsin are a number of plants specializing in converting tissue into napkins, towels and numberless new uses. In an article in PAPER a few months ago it was told how the Hoberg Paper Company of Green Bay had built up an enormous business in wrappers for California oranges.

Milwaukee Lace Paper Co. Milwaukee, Wis. Where Milapaco Lace Papers are made

In Milwaukee there are two concerns engaged in the manufacture of lace paper on an enormous scale. They are the Milwaukee Lace Paper Company and the American Lace Paper Company. Both of these companies make a great many other paper specialties, but lace paper is a big item in their lines.

There was a time when the housewife used newspaper to cover her pantry shelves. Lace paper can now be purchased for that or any of hundreds of other uses. In the last few years paper doilies have become a big seller. Most elaborate patterns are turned out and at a distance of a few feet they cannot be distinguished from real lace. They are cheap and do away with laundry bills, so are popular with hotels and summer resorts, but of late have gained recognition with the housewife. Of course there are tray cloths, too, and some of the sets are such as to cause any hostess to thrill with pride. The doilies are made up round, square and oval and every kind of lace is imitated. It is even possible to duplicate embroidered pieces.

As an indication of the volume of business attained in lace paper and allied specialties it may be mentioned that the Milwaukee Lace Paper Company occupies its own six story building which is some 200x75 feet and during normal operations about 200 persons are employed. There is a printing department to take care of the many special orders received. All of the machinery for turning out the product is made and designed in the plant. This is said to be the only safe method on account of the quickness with which "pirates" seize on a new design of new products and duplicate them.

Some of the other products of the Milwaukee Lace Paper Company are cake laces, strip laces, box top laces, paper specialties for confectioners, wedding box top laces, candy pail laces, paper bon bon cups, paper sundae liners, finger bowl liners, paper souffle cases, pie collars, butter chips, chop holders, paper skewers, oyster doilies, baking cups, etc.

As may easily be imagined, special machinery is required for these products. Practically all the operations are by machinery and the speed with which the completed products are turned out is surprising. It is amazing to the outsider the enormous business done in these specialties. For example take bon bon cups. Some manufacturers have them made up special with their name in the bottom of the cup or perhaps some special printing on the side of the cup. When this is done it is on an initial order of 500 thousand—just a half a million.

Twiller Sales Talks

A close buyer is a quick seller. Cultivate his trade.

* * *

Real enthusiasm is contagious. Have yours real, the customer will catch it.

* * *

Don't be a one-tune soloist. Learn a lot of tunes, one to suit each customer.

* * *

Talk like you know about it and know what you're talking about.

* * *

Filled order books make the boss smile. Unfilled ones are grouch builders.

* * *

Value Received

By J. E. WILLERT

ADVERTISEMENTS are the sincere efforts of the advertisers to make known the active facts concerning their business. They are a true projection of themselves.

To read a magazine or paper of any kind without a thorough examination of the advertisements is a grievious error, a great opportunity is lost, you do not get value received.

Human progress has its milestones in advertisements, things that are vital to success and comfort in existence are found there.

The success of any business is proven by its persistent advertising. The wholeness of its life is founded on its product. In the recommended merit of the product lies its responsibility.

The largest concerns are the largest advertisers.

Read a magazine or newspaper entirely through, all phases of life are found in it. Its advertisements tell of trade and commerce, its stories of comedy, tragedy and love, its poetry of music.

Read a trade paper all through. Among the advertisements you will find all things you need for the proper extension of your business, in the reading matter the information and education for the conduct of your business.

Read all newspapers, all magazines, all periodicals all the way through, read everything. It means much. It is value received.

Show Them

A man came into my office one day and told me how he got an idea for a paper specialty from a moving picture. It was just the awkward way the actor portrayed a use. This specialty has sold in the millions. This man observed and went out and showed them.

There is not a commodity sold that does not have to be wrapped or contained in a package, the majority in paper. In the home, paper is continually in service. What a field for cultivation.

There is not a dealer, not a manufacturer, in the whole country who will not welcome a suggestion or an idea for an improvement in their wrapping and packing. Mr. Paper Salesman you have that opportunity.

By observation you will discover that just a little change in the sheet a storekeeper is using will effect an economy and do a more efficient job. Show him your idea of a sheet of paper.

You may know a paper bag that is better fitted to do the work necessary than the one he is using. Perhaps you can make the package more attractive. Take a bag along, fix up a package. Show him.

Some container is entirely unsuited for the purpose for which the dealer is using it and you, Mr. Paper Salesman, know one or can find one that will be just right. Get one and show him.

For every sheet and quality of wrapping paper, for every paper bag, for every paper container there is, or there can be created, a place where its use will be welcome, where it will be an economy, where it will have an ever increasing use. In the homes of the nation there are new occasions arising which will call for paper in some old form or in some new form easily to be created.

Mr. Paper Salesman, it is up to you to find these uses, to fit the proper paper to the proper use, to suggest new ideas and so increase paper tonnage, making price reductions possible, increasing sales and enlarging employment.

This article may appear idealistic, but to be a pioneer you must be idealistic, what you visualize you must work for and it is only work that brings accomplishment.

There is a great predudice that prevails everywhere against changes, so a salesman must show his customer the new way, and prove the rightness of this way. To know how to show you must be well informed, the trade paper will inform you.

Show them you know paper. It will help them and help you.

Woodpulp and Forestry Problems

ROYAL S. KELLOGG'S volume on *Pulpwood and Wood Pulp in North America* is a book that marks an epoch in the history of the woodpulp industry of this continent. It is a thought-provoking work that will be eagerly studied by economists and foresters no less than by pulp and paper manufacturers. Nine years ago attention was called by the writer of this review to the growing tendency among the important producers of pulp and paper to treat timber tracts as the agriculturist does his farm lands and crops, by careful regulation of cutting, attention to young and growing plants with regard to a proper supply of light and shade, and the subsequent replanting of cutover areas. It had been recognized for some time previously that growing timber crops for use was forestry, just as growing grain and hay in farming. Protection of the forests from fire was particularly emphasized.

The importance of fire protection in any plan for providing continual timber production has impressed students of forestry operations at all times, but never so much as at present. Mr. Kellogg repeatedly states that the cardinal principle, the thing of fundamental importance, in solving the problem of reproducing timber so as to save the paper industry of North America from extinction, is effective fire prevention. Many fires cannot be stopped, but nearly all fires can be prevented through constant and proper precautions during the danger season. When the forest is protected against fire, the work of timber reproduction is called for by nature, a future timber crop being assured. "Forestry aims at continuously productive state forest lands, and the propagation, growth and exploitation of the ripe timber crops in perpetuity." This statement, which is quoted by Mr. Kellogg from the 1922 report of the New Zealand State Forest Service, applies as fully to North America as to the other side of the world.

Just what is meant by forestry? This is answered by the author in the fourteenth chapter of his book where an account is given of forestry methods. Quite rightly he begins with a statement of negative considerations, thus:

> "Forestry is not a law compelling the planting of a new tree for every one cut.
>
> "Forestry is not a law limiting the cut to certain sizes and kinds of trees.
>
> "Forestry is not arbitrary control by any public body over the operations of private enterprise.
>
> "Forestry is not fire prevention, though this is fundamental."

After telling in this way what forestry is not, he gives a concise definition of what forestry is by stating that

> *"Forestry is the application of definite scientific principles to the growing and using of timber crops."*

The methods of forestry provide for a correct diagnosis of conditions, and it is in considering working plans that Mr. Kellogg demonstrates his familiarity with practice as opposed to what is often called theory, but which is really opinion or speculation, theory being a term that is frequently misused. In its true sense, according to J. S. Mill, theory is "the completed result of philosophical induction from experience," so that the "practical" man may be a theorist without being himself aware of it. Mr. Kellogg points out that the "practical" man is prone to make the charge against the forestry profession that foresters are indefinite in their statements as to what must be done in order to secure a continuous timber supply in any particular locality. He counters this with the observation that no reputable physician will prescribe for a patient in advance of a diagnosis, saying that only a quack deals in curealls. Neither will a forester undertake to say what should be done before he has carefully studied a given tract from all angles. After stating that the methods of forestry vary with locality, topography, climate, species, stands and hazards, he names the hazards as fire, storm, insects and fungi in this order. Forestry methods are also subject to the kind of forest product desired and they will differ according to whether the product is saw timber, pulpwood, fuelwood, poles, etc.

In addition to tables showing the properties and pulp yields of the principal American woods, in which the weight of a cubic foot of the bone-dry wood is given, as well as the fiber length, there are statistical data which greatly enhance the value of the book as a work of reference. Thus we find tables of the number and character of mills, with the value of products, number of persons engaged, the wages paid and horsepower consumed. In addition tabulations are given of the variety and quantity of raw materials used in the manufacture of paper, the statistics covering a period of forty years. Other tables show the quantities of woodpulp made, consumed and imported. Similar figures are given for the pulpwoods used, the kinds, quantities and values being fully enumerated.

The book should make attractive reading even for the layman. The two opening chapters dealing with processes of manufacture present a clear picture of the flow of timber from soil to machine-room. It is a picture that can be readily visualized as it is nowhere blurred by wordy digressions, the author having a gift of vigorous and sententious expression that goes straight to the point. In a style that is occasionally colloquial he tells all that is needed to be known by the technical man, technologist or general reader concerning the process by which wood is reduced to pulp fit for the manufacture of paper.

Some figures cited by Mr. Kellogg to show the increasing cost of raw materials will serve a useful purpose in educating the public to a better knowledge of condition in the pulp and paper industry, conditions which warrant higher prices on finished products. In 1899, for example, the 1,986,000 cords of pulpwood transformed into woodpulp cost some $9,838,000 laid down at the mills in the United States, or at an average of $4.95 per cord. By 1917 the cost per cord had doubled, while in 1920, the 6,114,000 cords that went into the wide variety of papers demanded by the public cost, in round numbers, $116,495,000, or an average of a little more than $19 per cord laid down at the mill. The cost of fuel, chemicals, equipment and labor increased in nearly the same proportion.

(Continued on page 36)

Town Hall Forum

For the Open Discussion of Trade Problems

The question before the Forum now is what method of payment for a salesman's services is the strongest incentive for intensive work and largest sales results? There are several methods of payments, among which are the following:

The salary basis.

The salary and commission basis.

The solely commission on sales basis.

The commission on money collected basis.

The co-operative plan, sharing profit basis.

The salary basis is perferred by some employers because they are always certain of their cost of selling.

The salary and commission basis is preferred by a great many of both employers and salesmen because it contains an element of both the assured and the improvable chance.

The solely commission basis on sales is purely chance, the man's entire income is based on his sales, which must be made to absolutely financially responsible houses.

The commission on money collected gives the salesman a free hand on credit and places the entire responsibility for the payment of accounts on him.

The co-operative plan or sharing of profits plan puts the salesman in the position of a partner in the concern, his only investment being his services. This plan necessitates a thorough understanding of what a cost is and how it is arrived at.

Which one of the above plans brings the best results to a large degree is dependent on the kind of salesman it is applied to.

There is the man of the temperament who must be assured of a definite income to instill him with the confidence necessary to make a sale. Then there is he who must have a little income assured but is willing to take a chance on part.

Apart from the foregoing types stand the men who maintain they want the full benfit of their efforts and so prefer the commission on sales, commission on money collected or profit sharing plan.

Entering in the application of any plan also is the manner in which different salesmen work. There is the man who hews right up to the line consistently, never asking for special favors, never complaining, and against him we have the one who is always wanting special concessions in price or selling nothing else but close-outs. The lame duck looms up in this connection, he who is always wanting help.

Territories are a factor in determining this question, some are more prolific than others in order production, the expense of covering some greater than others.

The salesman is a vital part of any onconcern, the position he holds is of the **greatest importance.** He must coordinate perfectly with his concern and to do this he must be financially satisfied, his ambitions must be aroused and his confidence made secure.

How can it be done? By which plan of selling can the largest number of salesmen be made to bring the largest results?

Of course in such a discussion the plan must be equitable. Shall the same salary go on in both dull and prosperous times or shall it be fixed to change the same as a commission or profit sharing basis will change as sales vary?

This question should be be of interest to every manufacturer, every jobber and to every salesman. It is interesting and vital. Already we have opinions which will be printed in the Forum next week. The Forum is open to you, let us hear opinions from manufacturers, jobbers and salesmen, we will quote you as you may direct.

* * *

The Forum solicits any question, which will be printed for open discussion.

* * *

Link-Belt Changes

Mr. C. S. Huntington, Sales Engineer in charge of the Sand and Gravel Washing Division of the Link-Belt Company, Chicago, and perhaps one of the best known plant engineers in that field, has been appointed to look after the interests of the Link-Belt Company in the cement industry, in addition to his regular duties.

In taking over this work, Mr. Huntington will continue to make his headquarters in Chicago, he looking after the cement business through the various plants and branch offices in the Western Division.

* * *

Mr. Howard MacNeal, formely of the Philadelphia plant of the Link-Belt Company, has been transferred to the Chicago works of that organization, where he will bend his efforts in the promotion of portable loaders, portable belt conveyors and electric hoists.

* * *

A Plant for Manila?

Rumors come from Manila that "the government contemplates the establishment of a paper pulp plant for experimental purposes."

DO YOU KNOW

DIAMOND A

Deep Paper Pie Plates and Ice Cream Dishes?

A Perfect Plate for a Discriminating Trade.

DEEP PAPER PIE PLATES

Sizes: 6-inch, 7-inch, 8-inch, 9-inch, 10-inch

Packed in strong bundles, 500 to a bundle.

ICE CREAM DISHES

Square 4¾-inch Round 4½-inch

Packed 1000 to a corrugated shipping case

DIAMOND A WHITE BUTTER CHIPS

Size: 2½-inch round

Packed 5000 to a corrugated shipping case

SEND FOR SAMPLES

Sold to the Jobbing Trade only.

AMERICAN PAPER FORMING COMPANY

152 WEST 42nd STREET, NEW YORK CITY

Factory: Kenilworth, N. J.

Bryant 6669

In the Far West

Start Construction Work

April 1 is the date announced at the latest board of director meeting of the newly organized Portland Pulp and Paper Company, for the actual beginning of construction work. The first unit of the immense plant that will eventually cover an eight-acre tract will be placed at that date under construction for a 50 ton per day output. Joe Kaster, vice-president of the concern, with twenty-five years' experience in the active lines of the paper manufacturing industry of the Pacific Coast has arranged to manufacture with a special process of eliminating the pitch from fir lumber, and in availing himself of the new sulphite process of reducing wood to paper pulp will cause the Portland Pulp and Paper Mill to be the first on the coast to use this process. With an extended contract for utilization of the entire waste products of the Monarch sawmill, situated near the location for the new paper plant, production will be on a very low cost basis.

* * *

Start Work May 1

Ernest Schweitz, engineer in charge of the construction work of the new Columbia River $1,500,000 paper mill at Vancouver, Washington, announces that on the first of March machinery will be moved into place, so that actual operation will be possible from about May 1. Vegetable paper will be the specialty of the Columbia River Paper Mills.

* * *

New Bleacher Building

A new bleacher building and increased transformer capacity are among the improvements to be effected at the immense plant of the Oregon Pulp and Paper Mill at Salem, Oregon, where wrapping paper, glassine, grease proof, and tissue paper are the principal output. Approximately $20,000 will be expended on a three story reinforced concrete structure 42 x 66 in dimensions to be used as a bleacher building, and a new 4500 kilowatt transformer will replace the present 1500 kilowatt one.

* * *

Norwegian Market Better

The paper and pulp market in Norway has reached its lowest level, and, as a result of the cessation of sales from Sweden, an improvement is noticeable, according to articles appearing from time to time in the Christiania Press. While inquiries are constantly coming in, however, so far transactions which would justify the forming of an opinion as to prices have not been concluded.

The chemical pulp market has been very much disturbed by the recent low quotations from Germany, Sweden, and Finland, but evidences are not lacking that prices have touched bottom, and sales prospects for the year 1924 seem brighter.

* * *

Short Snappy Items

The contract has been awarded to the Morton C. Tuttle Co., for erection of administration building for the Brown Paper Mill Co., Inc., in Monroe, La.

The Union Paper Bag Co., of Bogalusa, La., of which C. B. Sanders is secretary, has plans almost completed for a new paper bag factory to be erected at that point.

The Bogalusa Paper Co., of Bogalusa, La., has increased its capital stock from 2,000,000 to 4,000,000.

The Crown Paper Box & Label Co. has been incorporated in San Antonio, Tex., with a capital stock of $9,000, by Leon Singer, Lillie Singer and M. J. Arnold.

PAPER COMPANY ROBBED OF PAYROLL

Long Island City Paper Company Loses $2,570 to Hold-Up Men

IN a payroll hold-up where three armed men boldly entered the inner offices of the Ravenswood Paper Company, No. 22 Marion Street, Long Island City, and took more than $2,570 from the desk of a girl cashier, featured several crimes committed recently.

As Miss Grace Couch of No. 508 First Avenue, Astoria, sat counting out weekiy wages in the paper company's offices, three men entered. One pointed a revolver at Miss Lena Fruchten, telephone operator.

The second backed the manager, Eugene Boggs, into a corner, while the third swept bills and silver in front of the cashier into his pocket. In his haste, he dropped about $60 in change. The three escaped in an automobile.

* * *

Prices Advance

The Mathieson Alkali Works, Inc., announces a further advance in its prices for Liquid Chlorine and Bleaching Powder, effective February 14th, 1924, to apply on all business for future delivery taken after that date, as follows:

Bleaching Powder for spot sales and contracts for future delivery in carloads.

$1.75 per 100 lbs. in standard (700 lb.) drums f.o.b Niagara Falls

$2.00 per 100 lbs. in small (300 & 400 lb.) drums f.o.b Niagara Falls

Liquid Chlorine for spot sales and contracts for future delivery in tank car lots and in cylinders.

$4.00 per 100 lbs. (Single Units or Multi Units) f.o.b. Niagara Falls

$5.00 per 100 lbs. in cylinders, in carload lots, f.o.b. Niagara Falls

$5.50 per 100 lbs. in cylinders, for sales of more than one ton, f.o.b. Niagara Falls

$6.00 per 100 lbs. in cylinders, for sales of one ton and less, f.o.b. Niagara Falls.

"Shipments in less-than-carloads, spot or contract, fifteen cents (15c) per 100 pounds above these prices."

* * *

Envelopes Used Long Ago

The first envelope of which there is any knowledge enclosed a letter sent 226 years ago by Sir William Turnbull to Sir James Ogilvie. The epistle dealt with English affairs of state and, with its covering, is carefully preserved in the British Museum.

At that period, and long afterward, it was the general custom to fold letters and seal them with wafers of wax.

Early in the last century envelopes began to come into more general use, and stamped adhesive envelopes achieved wide popularity in England shortly after the establishment of the penny posts in 1840, and by 1850 were largely used on this side of the Atlantic.

The first machine for the manufacture of envelopes was patented in 1844 by George Wilson, an Englishman, and improvements were made the following year by Warren De La Rue and E. Hill.

* * *

And They Reminisced

When James O'Hara, superintendent of the Crown-Willamette Paper Company paper mill at Lebanon, Oregon, visited the West Linn, Oregon paper mills belonging to the same company he was shown through the mills by Thomas Warner, the West Linn paper expert. Mr. Warner was backtender 52 years ago for Mr. O'Hara's father who was then a machine tender at Newbery paper mills in Ontario.

Chicago Notes

Seaman Paper Co. Moves

The Seaman Paper Co., one of the largest distributors of news print and book papers in the west, will move its general offices on May 1st into the Wrigley Building, 400 N. Michigan Avenue, Chicago. The new quarters will be larger and more commodious in every respect.

For a number of years the Seaman Paper Co. has been located at 209 S. La Salle St., in the Continental and Commercial National Bank Building. Prior to that time the company was in the Tribune building. The growth of the firm has been rapid, and inability to secure enough space is given as one of the prime reasons for moving.

The Wrigley Building is one of Chicago's newest and most modern sky-scrapers. It stands at the head of the new "Boulevard Link," which is that part of Michigan Avenue recently reconstructed to connect the down-town business district with the north side. The growth of the business section is decidedly northeast, toward the region where the Wrigley Building is located.

* * *

Ellis Jones, secretary of the Kansas City Paper House, one of the leading western jobbers, spent a few days in the city during the week.

* * *

H. W. Sutter, of the Champion Coated Paper Co., is spending several weeks at Miami, Fla.

* * *

Prices Are Firm

Prices in the local paper trade have been firm during the past week. The high grade mills seem to have about all the business they can handle, and some of them have more than they can take care of in the usual time.

The jobbers are showing a disposition to withhold orders until the last moment. Upon placing orders, however, they are in a rush for delivery, indicating that their own demand is active, or in other words, that they have customers who have placed orders and are also awaiting delivery.

More confidence in present prices would go far toward improving business. Stocks in the hands of the jobbers are considered low for this time of the year, and there is said to be too much rush replacement on sizes and weights which should be carried in stock in more substantial quantity.

* * *

Clark Retires

Edgar Rickard, president of the Pejepscot Paper Company, Brunswick, Maine, announces changes in the organization of the company. Frederick C. Clark, resident manager, has retired and the regular staff will take care of operations. Charles Dickenson, general superintendent for 30 years will be in charge of the operating department, and Edgar S. Catlin, chief assistant in the administration branch, will be direct administrative representative of the president and the board of directors.

* * *

Oppose Waterways

The sentiment in Maine appears to be against the St. Lawrence Waterways project. The Maine representatives on the New England Joint committee that held a session in Boston, February 8 and 9, lined up in opposition to the project.

Through the Middle West

DISCUSS SHOP COMMITTEE PLAN

Kimberly-Clark Officials Talk Over New Plan at Luncheon

THE shop committee plan of handling its employes, which has been in effect in Kimberly-Clark company paper mills at Appleton, Wis., the last four years, was discussed by S. F. Shattuck of Neenah at the last weekly luncheon of the Appleton Rotary club at the Conway hotel.

Before relating his company's experience with this new system of co-operation between employers and employes, Mr. Shattuck touched on the experiences of the Bethlehem Steel works and the Pennsylvania railroad which were among the first to adopt it.

President Grace of the first company refused to give out any statement as to the success of the venture the first five years and then invited John Coulter to make an investigation. Coulter spent several weeks in the plant and then gave out a complete account of what he found. Seventy-one per cent of the 2,365 cases that came before the various bodies were decided in favor of the men, he said.

The salient fact in the Pennsylvania railroad's experience with the plan was that when the shopmen's strike was called 85 per cent of the men voted allegiance to the company. Mr. Shattuck recalled also the experience of the Brooklyn Transit company and Philadelphia street car company which corresponded with those already mentioned.

The speaker said the Kimberly-Clark company adopted the plan in 1920. A committee of fourteen men was organized at Niagara and another committee of fourteen at Niagara Falls. Of the 74 men elected to serve in the Wisconsin plant only nine had been with the company less than five years. In other words 65 had been with the company more than five years, from 5 up to 40 years. Older men usually are elected to these positions, Mr. Shattuck said.

"Of course when any such plan is considered," said the speaker, "the first thing proposed is the wage question. Since then nearly everything has been taken up. Rents in Kimberly and Niagara have been revised and likewise the sale of houses to employes. Overtime rules frequently make their appearance before the council.

"Various questions relating to watchmen come up and it was only this last week that one such matter was considered. Heat in various departments also comes in for consideration. At the Niagara plant a municipal swimming pool has been installed. A vacation system has been agreed to at Kimberly."

The speaker declared the union is opposed to the mill council plan and said the charge made against it is that it is composed of members industrially unassociated with the men outside and that it has no financial backing of nation-wide organizations.

Mr. Shattuck explained the relation of foremen to the council and said at the Niagara plant they have a foreman's club which holds monthly meetings to which the councilmen are invited. Just recently at the Niagara Falls plant a meeting of the council and foremen was called following a serious accident, Mr. Shattuck said.

* * *

As a proposition which is right, fair, honorable, economical, humanitarian and on the square, the safety movement deserves the loyal support of every American citizen.

Fortune To Family

The entire fortune of the late George Edward Bardeen, pioneer paper manufacturer of the Kalamazoo river valley who died recently at his winter home in St. Petersburg, Fla., was left to the immediate family by the terms of the will, which has just been admitted to probate at Allegan.

The value of the estate was not fixed in the will, but it is generally believed that it will be upwards of a million dollars. The Otsego and St. Petersburg mansions are left to the widow, who, with her two children, George Edward Bardeen III, and Mrs. Margery Bardeen McClellan, inherit nearly the entire estate, only small bequests having been made to a brother, two half-sisters, and eleven nephews and nieces.

At the time of his death, Mr. Bardeen was president of the Kalamazoo Stove Company and the Globe Casket Company of Kalamazoo, but his chief interests remained in the paper industry and he was a director in nearly every mill in the valley as well as heavily interested in many other important financial and industrial enterprises in Kalamazoo and Otsego.

* * *

Off to Europe

John Traquair, of the Research Department of the Mead Pulp and Paper Company, Chillicothe, sailed for France on Saturday, February 16. He will be gone about two months. He will study the newest developments in European methods of manufacture.

* * *

Workman Near Death

Twisted around a shaft in the Telulah mill of the Fox River Paper Company Friday afternoon, Rei Holcomb, 28, an employe of the mill suffered serious injuries and narrowly escaped death. The accident occurred when his clothing became caught on a screw. Suddenly the workman was picked up and twisted around the shaft. At St. Elizabeth hospital where he was taken an examination showed his left leg was broken between the knee and ankle. His left elbow was severely bruised and he also suffered lacerations at the back of his head.

* * *

Obliged To Curtail

Many Wisconsin mills were obliged to curtail operations temporarily by the most severe blizzard of the winter which struck here the first week in February. The snow was so deep railroad transportation was tied up several days and in some cases workmen were unable to get to the mills. The Peshtigo Paper Company at Peshtigo was one of those forced to shut down, but the mill was able to resume operations on February 11.

* * *

Off On Tour

Two Interlaken Pulp and Paper company executives sailed from New York on Feb. 16 for an extended tour of Europe during which they will make a study of paper and pulp manufacturing conditions in several countries. The two men are H. A. Babcock and Vance P. Edwards. Mr. Babcock and Mr. Vance expect to be gone about two months and will visit cities in England, Norway, Sweden, Finland, Germany, France and other countries.

* * *

The Changing World

We used to blow out the gas; now we step on it.

NAME CHAS. A. GOODMAN PRESIDENT OF COMPANY

Chosen to Head Peshtigo Paper Company at Recent Election

CHAS. A. GOODMAN, of Marinette, Wisconsin, lumberman, and one of the best known men in that industry, heads the Peshtigo Paper Company; Mr. Goodman was named to this important place at a meeting of the directors of the company held recently at their offices in Peshtigo. He succeeds John J. Sutherland of Dayton, O., who held the place since the merging of the Peshtigo Paper plants.

D. C. Everest, secretary and general manager of the Marathon Paper Mills Company at Rothschild, Wisconsin, also identified with several other paper manufacturing concerns, was named as vice president. The personnel of other officers of the company remains unchanged.

The annual meeting of stockholders of the company will be held in Peshtigo on Monday, February 21st.

* * *

Annual Election

The annual election of members to serve on the mill council plan was held at the Niagara mill of the Kimberly-Clark company by employes of all departments last week. The nominating ballots were issued by tellers from the respective departments, the two in each department having the largest number of votes to represent that department.

Following are the results of the election:

To represent the finishing room: Rollo Steeno, 45; Ed Olive, 11.

Sulphite and bleach department: Albert Johnson, 42; Emil Saler, 29.

Wood yard, warehouse and pulp yard departments: Edward L. Kelly, 22; Ed Bouche, 17.

Power and storage departments: Edward Bovee, 35; Max Raboin, 27.

Maintenance and statistical department: Harry Currier, 49; Elmer Bowman, 16.

* * *

To Study Paper

Henry A. Babcock and Vance P. Edwardes of the Interlake Pulp and Paper Co., Appleton, Wis., sailed for Europe, February 16th, to make a study of paper and pulp mills. Mr. Babcock is manager of the mill and Mr. Edwardes is superintendent of the sulphite department. They expect to be gone two or three months.

* * *

Doubles Its Capacity

Doubling the capacity of the Berlingham-Prosser Company at Kalamazoo, Michigan, will be considered at a meeting of the board of directors in March, it has just been announced. The board at that time will act on a proposal to erect a new building approximately the same size as that already in use. The new building will be constructed of reinforced concrete and brick and will be four stories high and 60 by 176 feet wide and long, giving a total floor space of 84,480 square feet. The company will then have the largest wholesale paper warehouse in Michigan.

* * *

Children are instinctive like minnows—attracted by bright colors and moving things; watch out for and protect them.

HONOR THE MEMORY OF LOUIS DESSERT

Resolution Passed by Directors of Wausau Sulphate Fibre Company Regard Former Director

DIRECTORS of the Wausau Sulphate Fibre Co., Wausau, at their annual meeting adopted a resolution honoring the memory of Louis Dessert, second vice-president and director, who died recently. The resolution characterized Mr. Dessert as a member of "that fast vanishing group of men and women that were the glory of early Wisconsin history."

"In the passing of our associate and friend, Louis Dessert, our company has lost an officer and director who ever looked upon his position as a trust for which he was responsible to all the stockholders," the resolution stated. "No claims of friendship or personal advantage could swerve him from his duty to the welfare of the companies of which he was a director or officer. Nor did he ever hesitate to put his material resources as well as his moral support back of every enterprise in which he was interested, when days of stress required loyalty and courage. Never afraid of taking a chance for himself, yet he was conservative where other stockholders were considered, that could not afford to risk their holdings. These qualities brought dignity, respect and stability to the corporations in which he was interested.

"We shall miss our friend for he had the enduring qualities that win the favor of men. He was modest, simple in his tastes, unostentatious in his life, humble as to his ability, of irreproachable habits, a man of truth and integrity, a passionate lover of nature in her divine enchantment, a gentleman who ever rejoiced in the success of others and sympathized with them in their troubles."

* * *

Dam Honors Alexander

The new dam across the Wisconsin river, above Merrill, Wis., built for the Wisconsin Valley Electric Co., has been named Walter Alexander dam in honor of Walter Alexander, a stockholder in the company since its organization. Mr. Alexander also is vice-president of the Marathon Paper Mills Co. and connected with various other industries. Directors, at their annual meeting, elected the following officers: President, C. C. Yawkey; vice-president, B. F. Wilson; secretary and general manager, H. L. Giese; treasurer, C. S. Gilbert. The foregoing and J. S. Alexander, G. D. Jones and A. L. Kreutzer are directors.

* * *

Snow Stops Logging

A severe snowstorm this week swept over Wisconsin and affected papermills and logging operations. Drifts from five to twenty feet high prevented many men from reaching the mills in the Fox river and Peshtigo river valley for a day or two and production was materially decreased. Deep snow in the woods is interfering with the getting out of pulpwood.

* * *

Re-elects Officials

With production at peak volume and an expansion program that is being carried out rapidly according to plans announced a year ago, the Bryant Paper Company at its annual meeting, Saturday, February 9, re-elected all its officials and board of directors. The board's membership, however, was increased to ten to make a place for H. E. Floercky, son-in-law of the late Frank Milham, long president of the book paper concern. Felix Pagenstecher was re-elected president; W. B. Milham, vice-president; and C. A. Fox, secretary and treasurer.

The Salesman's Forum

HAVE YOU EVER SEEN HIM?

DONALD W. WHITELAW

Here is a go-getter You can see it in his eyes and in his every lineament of his face. When he starts out for business you can rest assured he is going to get it. Not that he will make himself offensive. Far from it. But his affability, his good fellowship, his knowledge of what he is selling and his talking ability just naturally win him both friends and customers.

He is the northern representative of the Sabin & Robins Paper Company, mill job lot distributors, of Middletown, Ohio. He is no ordinary salesman. He is vice-president of the company and has risen from the ranks.

Mr. Whitelaw only recently leased an extensive warehouse at 8134 Mackie Street, Detroit, Mich. He will carry there a complete stock of paper, such as is distributed by this well known specialty house.

While this warehouse is in Detroit, you can look for Mr. Whitelaw anywhere.

Before going on to something else, look at him again, so that when he comes in to see you, you will recognize him. When he smiles broadly, we will bet a ginger cookie, he has a dimple in his cheek.

Look for him.

* * *

Bought Mill Years Ago

Purchase of the Star Paper Company, established over a decade ago by Selig Stern, has just been announced by Bert Cooper and Frank Niessink. The concern will remain in the same quarters and will continue to handle a complete line of twine, wrapping papers, stationery, office supplies, and all kinds of paper novelties. Cooper was for years purchasing agent for the Kalamazoo Paper Company and more recently was assistant treasurer of the Dunn Sulphite Paper Company of Port Huron. Mr. Neissink has been associated with his father in the wholesale and retail grocery business.

* * *

Two Chicago taxicabs made five hundred trips, 3 miles for each trip. One driver drove as fast as he could and the other never exceeded twenty miles an hour. Comparison of records showed a difference of 39 seconds between average trip time of two cabs. Write your own moral.

BAKER HEADS EXPOSITION COMMITTEE

Association Head to Urge Paper Mills to Have Exhibits

A FORWARD step in the direction of making the Second Paper Industries Exposition the big success it should be was taken at a meeting of the Advisory Committee held at the Belmont Hotel, New York, on Thursday, February 14, when Dr. Hugh P. Baker, who was elected chairman of the committee, consented to sending out a special letter to members of the American Paper and Pulp Association and to many manufacturers not in membership, urging them to participate. Prof. Ralph H. McKee, secretary of the Advisory Committee, is to send out another letter for the Advisory Committee asking the manufacturers of papers and paper products throughout the country if they are to be represented with exhibits at the exposition, and if not, why not.

A luncheon preceded the meeting, which was attended by as many of the local members of the Advisory Committee as could be got together. Fred W. Payne, co-manager of the exposition, described the progress that had been made to date in interesting possible exhibitors. He complained of a certain inertia that prevailed among the manufacturers of paper, many of whom were holding off from exhibiting until they could learn what their competitors intended to do. After a round-table discussion in which the business and educational features of the forthcoming exposition were emphasized from different angles it was voted to send out a special appeal to members of the paper industry asking their support for the exposition.

The custom of certain manufacturers of hiring rooms at hotel headquarters during convention and exposition week to which visiting members of the various associations in annual meeting are invited to call and look over samples was disapproved, this being considered as a possible factor of opposition to the exposition. Seeing that the Paper Industries Exposition was conceived originally for the benefit of paper manufacturers as a whole, besides being an educational institution where the public could inspect the range and varieties of papers made in the United States, and where capitalists might be shown the extent and importance of the industry, there had been a singular lack of appreciation on the part of those most nearly concerned.

It was pointed out that all of the paper manufacturing firms which had exhibited in 1923 had contracted for space in the Second Annual Exposition to be held during the week of April 7, 1924, one of the larger manufacturers having even trebled his space.

What it is that keeps some of the more prominent papermaking firms from improving the opportunity of displaying the products of their mills at so great an educational opportunity as is represented by the Paper Industries Exposition, is something of a mystery to the Advisory Committee as well as to the exposition management.

The Advisory Committee of the Paper Industry is determined to know the reason why more manufacturers are not lined up with the exposition management in staging a truly representative exposition of paper manufactures and letters will be sent out soon by Professor McKee as secretary which should clarify the situation and let the managers of the exposition know what they may expect in the way of exhibits from the principal papermaking centers.

Dr. Hugh P. Baker is greatly interested in the success of the exposition and has promised the full support of the American Paper and Pulp Association to it.

* * *

Save while you're young—aren't you glad your rich grandfather saved when he was young?—*Tree to Trade.*

News from New England

I. W. W. BUSY IN THE MAINE WOODS

Pulp and Paper Companies Complaining That Operations Are Impeded

MAINE pulp and paper companies operating in the vicinity of Greenville have been much bothered of late by the activities of organizers of Industrial Workers of the World who are said to be encouraging the men to demand different working conditions and making them dissatisfied with their lot. As a matter of fact the large companies operating in Maine afford remarkable conditions for the men, the food being of the best and excellent accommodations afforded. In this connection it is interesting to note the remarks of Governor Percival P. Baxter of Maine who has just returned from a visit to the woods in order that he might examine working conditions at first hand. Governor Baxter says:

"Conditions in the Maine woods have changed a great deal in the past twenty years and today, although the life there is rugged, there is a degree of comfort unthought of in the years gone by.

"Some of the larger companies have done everything possible for their employes. In those places the camps are kept clean and orderly and the food is simple and wholesome. As for the horses in the woods, their life is hard but the up-to-date companies have provided proper stables and competent hostlers.

"Much of the work, however, is done today by sub contractors or jobbers, many of whom are French Canadians from the Province of Quebec and foreigners from the Slavic States. These people do not know how to care for themselves or their animals, and life is hard for both. They need to be taught how to live and how to treat the faithful horses that work so hard for them.

"In one place I saw two new stables equally well constructed, one for the company's horses, where everything was clean and dry, and the other, with the same equipment, in a deplorable condition where the poor animals would come in reeking with sweat only to stand poorly blanketed in a wet, dirty place. My sympathy went out to these poor animals even more than to the men because they, at least, could do something for themselves.

"Liquor conditions in the woods of Maine are better than they ever were before. It is seldom that any quantity is brought across the border, due to the county authorities as well as to the detectives that some of the larger companies employ. The woods camps of Maine will average well up with the cleanest towns and cities of the state as far as liquor is concerned.

"Life in the Maine woods in winter is hard at best. To work in zero temperature in driving wind, hauling loaded pulp and long lumber, taxes the endurance of man and horses. The day we left the wind was blowing 40 miles an hour with the temperature 12 degrees below zero, but the horses and the men went to work in the woods as usual at daybreak. I do not see how they stand it.

"We visited some of the camps kept by French Canadians and life is about as simple there as can be imagined—one room with a few bunks, a stove and some kitchen tools with absolutely no comforts—not a book or newspaper, where the people are up two hours before daybreak and go to bed soon after dark.

"The cost of getting out Maine's annual crop of wood is heavy. Men are injured and horses are thrown about over stumps and logs and are driven through places that seem impassable, but if all the companies and operators were as considerate of their employes and animals as those at Rock Pond Farm, Somerset County, the hardships would be reduced to a minimum.

"Many people look upon the map of Maine and imagine that the great northern forests are uninhabited. As a matter of fact, there are countless tote roads and trails that form a network of communication into every nook and corner of the woods. These roads in winter are, as a rule, in good condition and camps may be found every few miles. I found one man 70 years old living in a camp eight miles from his nearest neighbor, paralyzed on one side and using a crutch. He refuses to leave the woods, has not a dollar in the world and would freeze and starve to death unless the tote team drivers, who pass his camp every day or so, brought him wood and clothing. This man is an old woodsman with a kindly, patient face, but some day before long the tote team drivers will stop at his camp and find that he has gone. I never saw a more desolate place but he came to the door and smilingly waved 'Good-bye' as we drove away into the blizzard."

* * *

All Made at Holyoke

President S. L. Willson of the American Writing Paper Company has announced that practically all of the paper which is to be furnished by this company to the federal government will be manufactured at the mills of the company in Holyoke. The government order is for 19 lots of paper totaling 7,637,000 pounds for the year commencing March 1. The contracts amount to a total in excess of $790,000. The award was made by the joint congressional committee on printing. Bringing of this business to Holyoke will mean a general improvement in the entire paper trade and industrial situation in Holyoke.

* * *

Operating Full Time

The Pejepscot Paper Company, Brunswick, Maine, is now operating on a full time schedule for the first time this year. All paper machines in the three mills with the exception of the Nol machine at the Bowdoin Mill are steadily at work. The Lisbon Falls plant has been shut down for six weeks, and the Bowdoin Mill has been idle for the greater part of that time. Present indications point to a long run.

* * *

To Manufacture Boxes

The New England Box Company, Greenfield, Mass., has been organized to manufacture boxes. The authorized capital of the company is $1,400,000. Charles H. Keith, president; William E. Dickinson, treasurer; and William S. Keith, secretary, are the officers of the concern.

* * *

To Erect Building

The Waterbury Paper Box Co., Waterbury, Conn., has awarded a general contract to the Clark Construction Company for the erection of a third story on their present two-story building. It is also planned to build an addition to the boiler house.

* * *

Buy 21 Tracts

The Oxford Paper Company, Portland, Maine, has purchased 21 tracts of land owned by the Oxford Lumber Company in Rumford, Peru, Bryon and Milton. The purchase price was under $26,000.

HASKELL A PIONEER

Col. Edward Howard Haskell, whose death from pneumonia, occurred recently in Pasadena, Calif., although a native of Massachusetts, took a very material part in the development of the paper industry in Maine. He was a volunteer in the Civil War and on his return home was engaged for a time in the newspaper business but soon shifted to the paper industry in which he was engaged for many years. In conjunction with Garret Schenck he built and operated the Rumford Falls Paper Co., the property afterward being sold to the International Paper Co. After this sale Mr. Schenck and Col. Haskell inaugurated the plans for the organization of the Great Northern Paper Co. and there followed the construction of the great mills of the company at Madison, Millinocket and East Millinocket. From its inception to the time of his death Col. Haskell was a director in this company and also a heavy stock holder. Col. Haskell several years ago retired from the active paper business and devoted his energies largely to the Haskell-Dawes Machine Co., producing cotton mill machinery. Col. Haskell was a very public spirited man. He gave $150,000 to the New England Baptist hospital and at the time of his death was building a nurses' home on Parker Hill, Boston. In 1919 he presented a modern gymnasium to the Shanghai Baptist college and was greatly interested in the American Girls' college at Constantinople.

* * *

Move Office to New Haven

The J. B. Engineering Sales Co., who are Connecticut sales representatives of the Conveyors Corporation of America, 326 W. Madison Street, Chicago, have moved their office from Hartford to Chamber of Commerce Building, New Haven, Conn.

This firm handles the sales of American Steam Jet Ash Conveyors and other power plant and engineering specialties.

* * *

Held "Office Warming"

The Hollingsworth & Vose Company, paper manufacturers of West Groton, Mass., and East Walpole, Mass., held an "office warming" of their new offices in the Province Building last week. The entire main office force, delegations from both of the mills and many guests including the staff of the International Purchasing Co., of Boston, were present. There were brief remarks from prominent officials and games, dancing and a general social good time. The offices were warmly praised for the arrangement and appointments.

* * *

New Firm Incorporated

The Poquonock Paper Co., Windsor, Conn., recently filed a certificate of incorporation under the laws of the State of Connecticut. The new company is capitalized for $300,000. William S. Kenyon, 16 Darien Street, Hartford, Conn., heads the new corporation.

* * *

Heavy Fire Damage

Between $4,000 and $5,000 damage resulted from a fire in the one-story building on Moulton Street, North Cambridge, Mass., occupied by Angelo Stephano as a paper warehouse last week. The cause of the fire is not known. Mr. Stephano plans to rebuild at once.

SAYS EMBARGO WOULD WORK HARDSHIP

Paper Manufacturers of Maine Hold an Informal Meeting

AT an informal gathering of pulp and paper manufacturers of Maine at Portland last week, the Canadian embargo was discussed. The embargo is now under consideration by a royal commission in Montreal.

George F. Teed, pulpwood dealer of Montreal, said that the supposed unlimited supply of pulpwood in Canada was a myth and that there is only a strip about three hundred miles wide, running from coast to coast, which is suitable for pulp. Further north, he said, is only a scrub growth. He estimated that within a period of twenty years the supply of pulpwood in Canada would be exhausted.

Mr. Teed said that at present there is overproduction and wood can be purchased cheaply. He said that while Canadian mills were paying $17 for pulpwood, mills in United States were paying $21 and the freight was but about 70 cents. The largest part of the export wood goes to New York and Pennsylvania. If, however, mills in the United States have to pay much more, they will get their supply from Europe.

E. Martineau, another Montreal dealer, said that while an embargo would have been a good thing years ago, today it would work great hardship and heavy losses, both financially and in population because many farmers now selling wood in the winter season, would be obliged to go elsewhere.

* * *

Get Fine Contract

The American Writing Paper Company of Holyoke, Mass., which recently was awarded large government contracts, is already at work filling the contracts. At the meeting of the bondholders, held in Boston, announcement of these contracts was made in detail. These include 2,000,000 pounds of machine finish book paper, six different lots of white writing paper aggregating 5,080,000 pounds, four lots of commercial ledger aggregating 1,200,000 pounds, 105,000 pounds, of colored antique cover papers, 125,000 pounds of colored machine finish cover paper, 36,000 pounds of white bristol board.

* * *

Carew Gets Some

The Carew Mill of South Hadley, Mass., was low bidder on two lots of government paper, calling for 90,000 pounds of colored commercial ledger paper, 150,000 pounds of white heavy ledger paper, and two other contracts aggregating 13,000 pounds of white index bristol board. Work on these lots for the government will be started this week.

* * *

Buy Big Building

The Wakefield Paper Box Company of Wakefield, Mass., has purchased the large building in the rear of the Brown Block, Main street, Wakefield, owned by the Wakefield Real Estate & Building Association, which has been occupied by the company for several years under lease. The company plans to make some alterations and enlargements. The company has been located in the building since 1911 when it was burned out of its former location in the Cutler property fire.

* * *

So far none of the paragraphers, in this neck of the woods at least has referred to Elihu as the Root of All evil.

FITCHBURG IS FORGING AHEAD RAPIDLY

Paper Mills Are Rushed, Improvements Being Made and Production Speeded Up

FITCHBURG, Mass., has rapidly been forging to the front as a paper manufacturing city until at present it produces in its several mills 292,000,000 pounds of paper annually. This product is largely used in periodicals, cigar wrappers, cigarette packages, blotters and other specialties.

There are now 30 paper machines in operation in the city, producing sufficient paper 136 inches wide to encircle the globe every ten days. The estimated payroll in the industry is $7,000 per week as there are some 1800 persons employed in the business.

The Crocker-Burbank Co. is the largest of the Fitchburg paper manufacturers, with 20 machines producing book paper, bristols and index paper. Among the company's largest customers is the Curtis Publishing Company, publishers of the *Saturday Evening Post and Ladies' Home Journal*. Alvah Crocker is president and treasurer of the company.

The Fitchburg Paper Company has seven machines and manufactures coated and lithograph stock, English finish book paper and wall paper. George R. Wallace is president and treasurer.

The Faluah Paper Company runs two machines and makes car sign paper stock, coated and lithograph and postal cards. Irving F. Lowe is president. Most of the stock of electric car signs in the country is made at this plant.

The Rollstone Paper Company, formerly the Wheelwright Company, has one machine making glassine and greaseproof stock. Louis T. Stevenson is president.

Of the materials used in the manufacture of these papers, approximately one-third is old magazine stock. About 25 per cent is sulphite pulp and is imported from Finland, Sweden, Norway, and in much smaller amounts from Germany and Russia. About 25 per cent is soda pulp, most of which is produced in this country. About 20 per cent is clay, imported from the chalk cliffs of England with a small amount supplied in this country.

Fitchburg is one of the largest purchasers of paper stock in the country and the growth of the industry in that city has made Holyoke, Mass., and Kalamazoo, Mich., watch its progress with much interest.

* * *

Shipping Pulpwood

The Thompson-Heyland Lumber Company, Limited, Toronto, are shipping from thirty to thirty-five cords of pulpwood a day in filling their contracts and have contracted to deliver during the present season 50,000 cords, a third of which will be poplar. The latter wood is exported to Tyrone, Penna.

* * *

Had Prosperous Year

According to the reports received at the annual meeting of the United Paper Mills, Limited, Spadina Avenue, Toronto, the company had a prosperous year. The company has been in existence for fifteen years and has a branch at Hamilton, Ont. The following officers were elected: President, R. I. Finlay; Vice-President, H. G. Finlay; secretary-treasurer, E. L. Young. G. W. Paul is the manager of the Hamilton branch.

* * *

You know what you've really got—sometime after you've paid over the money.—*Tree to Trade.*

NEW ENGLAND MARKETS ARE FIRMER

Talk of Impending Lockout in Norway Is Heard

CHEMICAL pulp markets in New England strengthened materially during the week and prices maintained a firm level. Talk of an impending lockout in Norway was heard, which helped the market despite failure of such a thing to materialize. The agreement among Swedish sulphite makers on export figures also had a stabilizing influence although good kraft pulp has been bringing a figure in excess of the 2.50 minimum established.

Higher prices are also being talked among American and Canadian pulp manufacturers. Standard sulphite and kraft pulps from Northern New Hampshire and Maine have been bringing 4.25 to 4.50 f. o. b. mill for bleached sulphite and 3.25 to 3.50 f. o. b. mill for kraft. German sulphite of writing paper quality brought 3.85 Boston docks while as high as 4.10 is asked for the choicest foreign lots.

Ground wood is weak. Some manufacturers have purchased at $28 to $30 per ton ex-docks but asking prices are about $32 and up. New England grinders are asking $35 to $38 mill.

Waste papers in mixed and news, are stronger but in book stock prices are easier. Sales of mixed at $15 and $15.50 on cars Boston are reported and news at $19 with a few at $19.50. Sales of book to Fitchburg have been made at $1.70 and $1.75 with a few ranging as high as $1.85 and $1.90. Mixed books range from $1.25 to $1.35.

Imports of waste, sulphite, kraft, etc., at Boston during the week are much heavier than for some weeks. Imports would indicate an improved condition in New England paper manufacturing.

* * *

Getting Data Together

The Dominion Government is procuring data on all the pulpwood exported through the various ports in Canada. Instructions have been received at Bridgeburg, Ont., from Ottawa, asking that figures be forwarded covering that port. It would appear as if the export of pulpwood shows a constant increase, comparing each month of the present year with the corresponding months of last year.

* * *

Hempstead Gives Talk

Frank Hempstead of the Eaton, Crane & Pike Company, Pittsfield, Mass., was a speaker before the Credit Grantors of the New England States in annual convention at the Copley Plaza, Boston, Feb. 14, his topic being "The credit sense—what it is—how developed—how useful in skillful credit management."

* * *

Plant Nearly Done

The new power plant of the American Tissue Mills at Holyoke, Mass., is rapidly nearing completion and it is expected that by another month it will be in operation. The structure is from plans by engineers McClintock & Craig of Springfield, Mass., and the Casper Ranger Construction Co., of Holyoke, have the general contract. The powerhouse is of brick and will cost, exclusive of equipment, about $35,000.

* * *

A BUSINESS GROWS because it is needed—it is usually successful in proportion to its effort to serve.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

SECRETARY WALLACE'S VIEWPOINT ON PAPER MANUFACTURE

Tries To Stimulate Paper Manufacturers To Conserve Pulpwood As Insurance For The Future—More Facts Given

ON the occasion of the conference at Washington, D. C., when Secretary of Agriculture Wallace called together the leading pulp and paper manufacturers for advice on a research program and for solution of forestry problems in pulp and paper manufacture, he embraced the opportunity to present his viewpoint on the general condition of the industry in America. A portion of what the Secretary had to say has gone out to the press under a caption which reminds us that the problem confronting the pulp and paper industry is serious. Mr. Wallace, however, did not call the pulp and paper men together merely to emphasize the seriousness of a situation, but rather to stimulate the paper man's powers at problem solution. It was intelligent curiosity, he says, that made paper and the paper machine; and this same intelligent curiosity must be ever more expertly directed to lead us through the complex maze of modern industrial civilization. That seems to be the subtle but very practical viewpoint contained in the Secretary's address, a portion of which we quote below:

Perhaps the pulp and paper industry is the first that has been brought face to face with the uncompromising truth. It can no longer leave to chance the supplying of its raw material. It can not easily follow, as the sawmill can follow, the retreating fringe of virgin forest. It cannot extract pulpwood from denuded and abandoned forests. It cannot rely on any known or probable substitute for the bulk of our paper. It cannot depend indefinitely on imports from foreign forests that are likewise dwindling under neglect and fierce competition. The supplying of pulpwood has become one of the outstanding problems of the industry.

Let us remember that the paper industry is only one of the many keen competitors for our diminishing supply of wood. We have less than one-third of our original timber stand left. For timber below saw timber size the drain on our forests exceeds by about three times renewal through growth. In saw timber the drain exceeds the renewal by 5½ times. This means not only heavily overdrawing our supply, but it means an ever sharper competition for the smaller timber on which we must rely after our old-growth forests are gone.

These outstanding facts—the enormous growth of our paper consumption, the dwindling of our raw material, and our dependence on foreign countries for pulpwood, pulp, and paper—these facts constitute at once a problem and an opportunity.

Serious as is the problem that confronts your industry, it has a decidedly promising side. In its raw material problem the paper industry is, in spite of present difficulties, peculiarly fortunate. In the first place; unlike coal or iron or oil or copper, wood grows from the soil. In the second place, the paper industry can use small, quickly grown, and therefore relatively cheap timber. Indeed, it will ultimately come to rely chiefly on thinnings and waste, the mere by-products of intensive timber growing and utilization. Once we fully abandon the old psychology of timber mining; once we renounce the doctrine of an ever-fiercer competition for an ever-diminishing raw material; once we pin our faith to the never-ending productivity of the soil, the paper industry can meet its needs and its opportunity.

I believe we shall ultimately conclude that we ought to be independent of foreign countries for paper. We have the land and the forest resources and the capital to develop an industry adequate to our needs. But besides growing timber and using without waste what we have, we shall, before we become self-supporting, have to spread the industry over a larger territory and use timber not now tapped for pulpwood.

The Department is urging action on various steps in the direction of forest management and better forest utilization. Most people who have studied the question agree, I believe, in urging the extension of public forests as the backbone of forest policy. An equally important step is good protection of all our forests—public and private—against fire. We have not yet learned to rightly appraise the role of fire as not merely destroying salable wood but, what is vastly more important, as destroying the future productivity of our forests. By removing the menace of fire we shall bring into play at least a part of the teeming power of our forest soil.

Basic to the whole program of future forest management is research—research in timber growing, research in timber utilization, and research in forest economics, including taxation. It is on this basic task of research that we desire to center your attention today. This modern world is impossible without research.

* * *

Lumbermen In Forestry

The appearance last week of O. M. Porter, secretary of the Woodlands Section of the American Paper and Pulp Association before the Noreteastern State Retail Lumberman's Association with a program for the promotion of forestry was one of several occasions on which retail lumbermen took up the forestry question. A similar discussion was a feature of the Michigan retail lumbermen's association, and a New York retailer, of Oneonta, N. Y., is using privately planted forests as advertisements for his business. His plantations are in the neighborhood of the old Cooperstown plantations, where large tracts of land, formerly used for wheat fields, were turned over to forestry, and where a group of Cooperstown business men have planted the Forest of a Dozen Dads. This latter forest is a cooperative planting, intended to grow a timber crop for the children of the planters. No person is eligible to belong to the company which is planting abandoned farms unless he can register as a father of a child under 10 years.

KELLOGG'S DEFINITION IS PLAIN ONE

He Says Trees Can Not Be Grown By Legislative Fiat

R. S. KELLOGG, President of the News Print Service Bureau, and Chairman of the National Forestry Program Committee, defines forestry as "the growing of successive timber crops." Insofar as a practical national forest policy is concerned, he declares, forestry is not a law requiring the planting of a tree for every one cut; (if we did as well as Nature herself, we would plant a thousand trees for every one that goes down); forestry is not a law giving mandatory control over private owners; forestry is not tree planting alone, nor fire prevention alone; neither, says Mr. Kellogg, can trees be grown by legislative fiat.

Of even greater interest, however, was that portion of Mr. Kellogg's address before the annual convention of the New York State Forestry Association which had to do with the history of the forestry movement. Reviews are always useful, and a resume of past experience in forestry will often demonstrate where authority and precedent may be found for the next step forward. Mr. Kellogg spoke without notes, but some of us who were present managed to get down the milestones of American forestry as fast as they were sited, and the following is the result. As we have said before in these columns,—thirty-five years ago forestry was not yet in our dictionary!

1891. Beginning of the National Forests, under President Harrison, and withdrawing of a portion of the timber-bearing lands by the Government. This move had been preceded by the early work of Dr. E. B. Fernow and his publications, including "The Economics of Forestry." Fernow was our first forester.

1897. Resignation of Fernow and coming of Pinchot.

1897-1910. Forestry promoted by Pinchot and by Theodore Roosevelt.

1898. Establishment of a School of Forestry at Cornell.

1900. Establishment of the Yale School of Forestry.

1905. Transfer of forestry from the department of Interior to the department of Agriculture, and establishment of the Forest Service,—an outstanding accomplishment.

1910. The Forest Experiment Station at Madison, Wis., and adoption of the principle that forestry means use.

1911. First appropriation for purchase of lands for public forests. The Weeks law, and co-operation between the National government and the states on a fifty-fifty basis.

1919. Beginning of conferences on a national forestry policy.

1920. The people unite in a common understanding and attempt to develop a national policy. The National Forestry Program Committee was organized at this time.

1921. The Snell bill, which offered a program but did not attempt to present a complete charter for action.

1923. The National Chamber of Commerce referendum. The Harrison resolution and formation of the U. S. Senate Committee on

Reforestation. Introduction of the McNary and Clarke bills in Congress.

There are now, says Mr. Kellogg, four phases of policy in process of development:

1. Prevention of forest fires.
2. Continued development of natural forests.
3. Forest planting and cooperation with individual owners of timberlands.
4. Classification of the remaining public lands.

He adds that we have a strong and reasonable program under way because most of the people concerned have agreed upon the main issues.

* * *

Red Spruce In Northeast

What can we expect from spruce in the Northwest? The answer to this question can at present only be approximated, despite the very great dependence upon red spruce on the part of the pulp and paper industry in New York and New England. So says the Forest Service, United States Department of Agriculture, in announcing the first steps of a comprehensive and exhaustive study of red spruce growth and yields under all the widely varying conditions of development in which it is found in this region.

The work of securing this information so essential for timberland owners, mill operators and the industry generally was started during the past summer by the Northeastern Forest Experiment Station, recently established at Amherst, Mass. Questions as to the cut to be expected from any given piece of land, 20, 30, and 40 years hence, or the land necessary to afford a permanent supply of raw material for a mill of any given capacity, are among those to which the Experiment Station will be in a position to give definite answers as the work progresses.

So far the study has been conducted only in various parts of Maine. During 1924, however, it will be extended to New Hampshire, New York and possibly Vermont, if present expectations materialize. Considerable complication in securing the desired facts and figures is anticipated because of the extensive nature of the study and the many contributing factors. The ravages of the spruce worm bud especially give great difficulty. This pest has not only destroyed tremendous quantities of fir and spruce timber during the past ten years, but has retarded the growth of those trees which have been able to resist the attacks.

Thus far hardly a spruce or fir has been found that has not shown a slowing down in growth as the result of partial defoliation by the bud worm.

* * *

Legislation in New York

Four bills looking toward encouraging the practice of forestry have been introduced in New York state, where forestry affects more paper mill and pulp mill owners than in any other state of the union. One bill proposes to encourage the reforestation of cut over land by exempting from assessment and taxation any forest growth planted after April 1, 1924. A conservation fund to consists of all money received by the Conservation Commission from any source, to be used for conservation purposes is the purpose of another bill. Such funds would strengthen the fire prevention force, and safeguard the forest more effectively than is the case at present.

* * *

Issue New Book

"Lumber And Its Uses" is the title of a book issued this month by the U. P. C. Book Co., New York. The authors, R. S. Kellogg and Franklin H. Smith, have had the co-operation of the Forest Service of the U. S. Department of Agriculture, as well as the expert advice of the leading lumber associations, and the edition has been prepared for the lumber expert as well as for the student.

WORKING PLANS FOR PULP COMPANIES

Forester Speaks on Forestry Directly from the Paper Mill

H. L. CHURCHILL, forester for the Finch, Pruyn Company of Glens Falls, N. Y., presented a valuable paper before the Society of American Forests, New York Section, at the winter meeting of the Society at Albany on February 6th. His subject was "What Constitutes a Practical Working Plan for a Lumber or Pulp Company in the Adirondacks?"

As a fundamental statement, Mr. Churchill says, that any important and successful business is, and must be, conducted along the lines of a carefully thought out and systematically arranged plan; each branch or department in a large organization has its own plan or plans through which it functions, but these are simply a part of the general plan and as such, each must be so arranged and so carried out that altogether the business will move forward on well oiled bearings, without halt and without unnecessary friction between connecting units; plans regulating logging and lumbering are no exception.

His definition of a working plan he quotes from T. S. Woolsey, "The plan under which a given forest property is to be continuously managed." He says that working plans are not a new feature, even in the United States, but that few of them have been followed by timberland owners over a long period of time for the reason that the plans have failed to fit in with those which have been responsible for the success of the other departments of the organization.

A practical working plan, according to Mr. Churchill, is one which will fit into the general working outline of the whole organization continuously, and at the same time leave the forest in the best condition possible at any time in the future; in other words, the plan must be one that will perpetuate both the forest and the industry.

"The field work must first determine boundaries, and then, with considerable accuracy the acreage and stand for each forest type. Areas in agricultural land, other cleared land, waste or barren areas, water areas and burns should all be determined by surveys where of any importance. Areas logged or partially logged, with dates of cutting, present stand and present rate of growth for each area and species that can be profitably logged now or in the near future should be computed with at least reasonable accuracy. When we have determined the quantity of material of various kinds in the present stand and what can be produced annually, that we think can be logged, manufactured and sold at a profit by the owners; when we have studied logging costs and methods and have determined upon necessary recommendations for better forest protection, we have reached the most difficult and important problem of all."

"How can these facts and figures be so presented to the management that they will be really seen and comprehended and be made to fit into and fill their proper place in the general business outline? Upon this point 'hang all the law and the prophets.'"

"Maps and diagrams, together with the summary of figures showing what the total present stand would produce in items now being manufactured or which may be manufactured in the future, together with the annual growth also expressed in these items, will, with a detailed logging schedule, form the essential part of a practical working plan so far as the management is concerned. Both foresters and owners should use every possible means to make the business permanent by getting their holdings on a sustained yield basis."

Forest Bill in Congress

Another forestry bill has been introduced into Congress, but it is devoted entirely to the taxation side of the question. The bill, sponsored by Congressman Keller of Minnesota, provides that a 1 per cent excise tax on bare lands be levied, and it is estimated that it would raise about $325,000,000 annually. The tax would be levied on lands valued in excess of $10,000, after deducting the following items:

1. Capital and labor values—all improvements and man-made structures under, on or over the surface.
2. All standing timber, whether naturally grown or planted.
3. All costs of clearing, draining and preparing the land for crops or other use.
4. All soil fertility which is placed at 50 per cent of the value of the bare land when used for agricultural purposes.

Standing timber is exempted on the ground that the growth of timber crops should be encouraged, and the bill points out that in the past the taxation methods have served the double purpose of prompting the early cutting of standing trees and preventing the planting of new ones.

* * *

Porter Speaks To Dealers

Co-operation of the retail lumber dealers of the northeastern states in the development of forestry was urged by O. M. Porter, secretary of the Woodlands Section of the American Paper and Pulp Association before the Northeastern Retail Lumberman's Association, at its New York City convention the week of Feb. 4. He told of the work done by the paper industry in developing forestry practice on paper company lands, and said that the lumber industry could well afford to participate in this movement. He pointed out that the national forestry legislation now pending at Washington was the developemnt of a Syracuse conference in 1919 at which the retail lumbermen participated with technical foresters and paper manufacturers in launching the campaign for a national forestry policy.

Mr. Porter stated that forestry requires the taking of adequate steps to prevent fires, and artificial reforestation will be necessary only to restock areas so heavily burned that natural reproduction is impossible; that proper forest management means the right application of forestry principles to secure a continuous production of timber, and that the program which the lumbermen might well adopt as their contribution to the forestry movement in the northeastern states includes:

1. Assistance in educational publicity for forestry by the securing of action from local chambers of commerce, and through the local press, public addresses and motion pictures.
2. Distribution of planting stock, now available from the various state forest nurseries.
3. Promotion of communal or town forests.
4. Co-operation with the various forestry associations.
5. Active support to the proponents of federal and state forestry legislation to encourage the growing of new forests to take the place of those that have been cut, and for the protection of the remaining stands of timber.

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Hemlock Getting Scarce

Hemlock logs which were a few years ago only purchased by paper manufacturers are now being sawed into lumber. The lumber is used for interior work in residence buildings. The Hauptman steamer loaded with lumber for New York sailing from St. Helena, Oregon about the middle of February had on about 2,000,000 feet of hemlock lumber. The increasing demand for the hemlock logs may make the paper manufacturers pay higher prices for the hemlock they buy.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Nashville, Tenn.—The Old Hickory Paper Co., recently organized, has commenced the construction of its proposed new paper mill at Old Hickory, near Nashville, to consist of a number of units, with power facilities, estimated to cost in excess of $750,000, including equipment. Orders for a quantity of machinery have been placed and other contracts will be placed at an early date. John I. Beggs, Milwaukee, Wis., heads the company.

Little Falls, Minn.—The Itasca Paper Co., Grand Rapids, Mich., will construct its proposed local mill on a day-labor plan, and will break ground for the initial plant unit at an early date. The company recently acquired a tract of land and has commenced clearing the site. The Jacobson Engineering Co., 1645 Hennepin Avenue, Minneapolis, Minn., is engineer for the project. Robert Meyers is general manager.

Baltimore, Md.—The Oles Envelope Corporation, 514 East Lombard Street, has completed plans and will soon break ground for the erection of a new one-story addition to its plant, to be reinforced concrete, 80x250 ft., estimated to cost about $60,000. It will be located at Ridgely and Ostend Streets.

York, Pa.—The York Paper Mfg. Co., recently organized with a capital of $135-000, will operate a local plant for the manufacture of paper products for roofing and other building service. Charles and Jacob Lefean, York, heads the company.

Philadelphia, Pa.—The Corrugated Container Co., Sepviva and Venango Streets, has awarded a general contract t othe Robbins Contracting Co., 1137 Front Street, for the erection of its proposed new addition, consisting of a two-story structure, totaling about 17,000 sq. ft. of floor space, estimated to cost $30,000. William Lowenthal, 1208 Chestnut Street, is engineer.

Dayton, Ohio—In connection with its proposed new local plant, now under way, the Elam Paper Co., Marion, Ind., plans for the installation of equipment for a daily output of about 20,000 boxes of stationery and 125,000 tablets, as well as miscellaneous paper specialties. S. L. Elam is president, and L. P. Reiger, formerly of the Mead Paper Co., vice-president and treasurer.

Chicago, Ill.—W. H. Freund & Co., care of Burrett H. Stephens, 37 West Van Buren Street, architect, has taken bids on a general contract and will soon break ground for the construction of a new paper refinishing and label-manufacturing plant at 110 North Market Street. It will be one and two-story and basement, estimated to cost $50,000.

Downingtown, Pa.—The Shyrock Paper Co., plans for the immediate rebuilding of the portion of its mill at Dorlan, near Downingtown, destroyed by fire, Feb. 8, with considerable loss, exact amount not announced. The plant has been closed temporarily, since the time of the fire, and plans to resume at an early date.

Pottstown, Pa.—The Pottstown Paper Box Co., has acquired the local mill of the Aurora Knitting Mills, Inc., and will remodel and improve for a new plant. The present works will be removed to the new location and additional equipment installed.

Vancouver, B. C.—The Independent Tar & Asphalt Co., recently organized to manufacture roofing papers, etc., has awarded a general contract to Harrison & Lamond, Pacific Building, for the construction of its proposed new plant on site selected on Granville Island. It will cost close to $70,000.

New Companies

Los Angeles, Cal. The Sunset Paper Mills, Inc., has been incorporated with a capital of $500,000, to operate a local paper mill. The incorporators are Charles Gordon, San Francisco, Cal.; M. C. Cooper, Peter C. and Ralph W. Brown, Los Angeles. The company is represented by L. R. Wharton, 320 A. G. Bartlett Building, Los Angeles.

New York, N. Y.—The Drinihausen & Hollkott Paper Co., has been incorporated with a nominal capital of $5,000, to manufacture and deal in paper products. The incorporators are S. Bacharach, A. B. Brenner and J. H. Keim The company is represented by Van-Vorst, Siegel & Smith, 25 Broad Street, New York.

Plainfield, N. J.—The National Wall Paper Co., 109 Watchung Avenue, organized, to deal in wall paper, etc. Irving Eisenstein, 25 Monmouth Street, Newark, N. J., heads the company.

Wilmington, Del.—The Sisler Paper Co., has been incorporated with a capital of $100,000, to manufacture paper products. The incorporators are Charles T. Harris, George W. Westcott, and Perlee C. Sisler, Wilmington. The last noted is representative.

Providence, R. I—The Narragansett Card & Paper Co., 131 Washington Street, has filed notice of organization to manufacture and deal in cardboard and paper products. Harry L. LeMay heads the company.

Pittsburgh, Pa.—The Iroquois Paper Co., has been incorporated under Delaware laws with capital of $10,000, to manufacture and deal in paper products. The incorporators are David M. Harrison, A. Frederick and Edward Huttinger, Jr., Pittsburgh. The company is represented by the Capital Trust Co. of Delaware, Dover, Del.

New York, N. Y.—The Master Paper Box Co., has been incorporated with a capital of $5,000, to manufacture paper boxes and containers. The incorporators are B. Segal and F. Lipman. The company is represented by C. J. Lipman, 74 Delancey Street, New York.

Wilmington, Del.—The Reinforced Paper Products Corporation has been incorporated with a capital of $1,000,000, to manufacture paper bags and other containers. The company is represented by the Corporation Trust Co. of America, du Pont Building.

Financial

Kalamazoo, Mich.—The Sutherland Paper Co., has voted to retire outstanding bonds to the amount of $60,000 on March 1. The bonds are a portion of an original issue of $300,000, dated 1920, and of which $50,000 prevously has been retired.

Rochester, N. Y.—The Corona Paper Box Co. has filed notice of dissolution under state laws.

Plant Operations

Kalamazoo, Mich.—The Rex Paper Co., is operating at regular capacity at its local mill, giving employment to a full working force. During the past year the company has advanced production at the plant about 20 per cent, with the installation of additional equipment, including a new automatic control drying system.

Tomahawk, Wis.—The Tomahawk Kraft Paper Co., is making ready to commence operations at its new local mill, comprising a former plant used for the production of catalog papers. It will be devoted to kraft stock exclusively in the future, and it is expected to develop maximum output at an early date, with employment of full working force.

Biron, Wis.—The Consolidated Water Power & Paper Co., is running full at its Biron plant, near Wisconsin Rapids, using a new machine for the production of newsprint, recently installed. The unit has been speeded up to a rate of 850 ft. per minute, being only second to the machine at the Wisconsin Rapids plant of the company, which is making newsprint at the rate of about 1,000 ft. per minute. With three machines at the Biron mill, three at the Stevens Point plant and four at the Wisconsin Rapids plant, the company has a rated capacity of approximately 400 tons per day, and plans to maintain operations on this basis for some time to come.

San Francisco, Cal.—The Paraffine Companies, Inc., has adopted a plan to give vacations to all employes at its local mills and branch plants at Emeryville and Antioch, Cal., of three or more years service record with the organization, with full pay during the absence. About 1,000 operatives will be affected, of which approximately 200 are eligible at once for the vacation periods. All workers in the employ of the company for 5 years and over, will be granted a leave of absence for 2 weeks; for 4 years, and less than 5 years, 10 days will be given; and for 3 years standing, 1 week with pay will be granted.

NEWS FROM CANADA

PREDICTS END OF PULPWOOD SOON

G. P. Tweed Claims Wood Resources Are Not as Large as Generally Thought

THE Montreal sittings of the Canadian Pulp Wood Commission were quite interesting. At first witnesses were a bit slow in making an appearance, but gradually they came along in goodly numbers.

G. P. Tweed, a pulp wood dealer of Montreal, testifying said that Canada's pulp wood resources were not nearly as large as had been generally thought, and he believed that they would be exhausted within twenty years. In his opinion it would make very little difference whether an embargo was put into effect, in so far as preserving the forests was concerned; for if wood were not cut for Americans it would be cut for home users, and the result would be the same. Eight years ago the Abitibi district was covered with forests. Today in some counties the wood had gone as far as the eye can reach. Some of this had gone to home mills, but the greater part of it had been sold to those in New York and Pennsylvania. If the settlers had not been able to export it they would not have had anything. At the present time there was an over-production of wood and it could be bought quite cheaply.

E. Martineau, another Montreal business man, said that if the embargo was put into effect the settlers would have to go elsewhere to make a livelihood. This meant that they probably would leave the country. If an embargo were wise it should have been put into effect ten years ago before settlers became so dependent on the sale of pulpwood as they are today.

H. C. Thayer, manager of manufacturing for the Hollingsworth Whitney Company of Boston said that his company had acquired 287,000 acres of freehold timber lands in Nova Scotia and 56,000 acres in New Brunswick. A Canadian embargo would mean that pulpwood would be imported into the United States from northern Europe, where supplies were large.

John Tregget of Finch & Pruyn, Glen's Falls, N. Y., said that the placing of an embargo on exports of pulpwood would mean a loss to his firm of 15,000 cords a year and would mean a hardship to 350 men employed on their holdings in Lotbiniere country.

T. Prefontaine, lumber and pulpwood dealer of Montreal, said that the market had been very unsatisfactory since 1921. An embargo would mean, not only the cessation of wood cutting by farmers, but of long timber as well.

The testimony of both settlers and pulpwood dealers was to the effect that when the demand for pulpwood fell off from the United States the price dropped, and they had no confidence in the opinion that with the United States market closed, the Canadian mills would pay as much for their supplies.

* * *

To Start Work

Hon. T. D. Parullo, Minister of Lands in British Columbia, announces that a start will be made this year on the proposed $10,000,000 pulp and paper plant near Prince George in that province. This, it is said, is due to the fact that an understanding has been arrived at between the provincial government and the promoters. The provincial authorities have been very eager to get this enterprise under way, and with a view to getting differences of opinion straightened out, Mr. Patullo recently spent some time in Montreal. It is understood that the project is strongly backed by Canadian and British capital, and that it controls some thousands of miles of pulpwood along the upper reaches of the Fraser River.

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Season Was Good

A. E. Wicks, of the Hawk Lumber Company, Monteith, Ont., says that the season has been exceptionally good from the standpoint of weather and other operating conditions in Northern Ontario for the production of pulpwood and ties. The output will be about the same as last year. Prices on the whole, he says, are a good deal firmer. The demand is not exactly keen but sales are being made at prices that assure a reasonable profit. The proposed embargo does not seem to have any effect on the demand for wood nor upon those parties it would vitally affect. Mr. Wicks says: "The popular opinion is that the Government will not put such a measure into force as it would have disastrous results on at least a number of localities. If exportation were prohibited off patented lands, especially as regards had-peeles spruce and poplar, it would have a serious effect upon settlers and farmers as there is no market in Canada for poplar except in very small quantities."

* * *

Form New Firm

The G. A. Grier & Herron Lumber Company, Ltd., of Toronto, has been organized with an authorized capital of $500,000 to manufacture and deal in lumber and pulpwood. The organizatoin, which has been granted an Ontario charter, is composed of George W. Grier, of Montreal, and Percy Herron, of Webwood, Ont., and has been formed to conduct an operation on a limit near Brennan Harbor, Ont.

* * *

Mills Closed Down

The mills of the Chicoutimi Pulp and Paper Company in the Saguenay district, Quebec, have been closed down for over a week owing to the lack of water. There are only a few employees which have been kept on the staff. It is stated that operations will not be resumed until early in April. In previous years the company always did keep a few men but this year, due to the present conditions it was thought advisable not to operate. It is practically decided that the Chicoutimi Pulp will reorganize itself since the Price interests have changed their views for the time being. Such is not the case of the Bay Sulphite, which will probably be the object of pour-parlers with Sir William upon his return from Europe.

* * *

A Fine Line

Collett & Sproule, paper box manufacturers, Lombard Street, Toronto, have just turned out a very fine line of papeteries for Warwick Brothers and Rutter, Toronto, who will exhibit them in connection with the paper display to be made by Canadian paper firms at the British Empire Exposition which opens at Wembley Park, England, in April. There are ten different styles out of a total of 250 different styles the company have designed and manufactured.

* * *

Creditors Meet

Creditors of S. L. Davison & Hughes Engraving and Lithographing Company, Limited, Toronto, met in that city a few days ago, following an assignment to N. L. Martin. A number of Toronto paper houses are creditors for considerable amounts. A statement presented showed a nominal surplus of assets over liabilities of over $26,000. It is not known whether or not the firm will continue in business.

* * *

Charles Russ, general superintendent of the Montrose and St. Lawrence Divisions of the Provincial Paper Mills, Limited, and Mrs. Buss, have left for St. Petersburg, Florida, where they will spend the balance of the winter.

McArthur Speaks

At the recent Winnipeg sitting of the Canadian Pulp Wood Commission a representative of J. D. McArthur, the noted railway contractor who is the guiding hand behind the proposed Manitoba Pulp and Paper Co.'s big plant near Fort Alexander, Man., declared that financial interests represented that it would be impossible to put over this industry unless an embargo were placed on exports of pulpwood. It was contended that the mill would take all the pulpwood produced in the province, and that as good or better prices as are being received, would be paid to the settlers. The latter, however, could not see it that way.

* * *

Against Government

It is stated from Ottawa that the great volume of evidence taken before the Royal Commission inquiring into the export of pulpwood from Canada is so far adverse to any Government measure of prohibition. The inquiry is not yet concluded. In order that a report be made Parliament in the coming session the commission is dividing. W. A. Austie, deputy chairman; Commissioner Sutherland and Secretary Finlayson going to the west, and Messrs. Pacard, McLellan and Kerr continuing the investigation in Quebec. The western section will meet in Winnipeg, on February 12 and will afterwards visit Saskatchewan and British Columbia.

* * *

Complete Additions

The Ashwaak Pulp and Paper Company of St. Johns, N. B., of which Howard E. Beedy is vice-president, have completed changes and additions to their plant and during the present month they expect to have the second drying machine in operation which will materially increase their output. The mill is running to capacity at the present time and no difficulty is being experienced in disposing of the production of bleached sulphite. The company is also conducting extensive pulpwood and timber operations in the bush.

* * *

Read Fine Reports

At the annual meeting of the Ratcliffe Paper Company, York Street, Toronto, last week, satisfactory reports were read concerning the operations of the company during the past year. The company had a very successful twelve months and are looking forward to a good record this year. Fred L. Ratcliff was elected president, T. E. Gain, vice-president and Norman J. Ratcliff, secretary.

* * *

Business Progressing

Hinde & Dauch Company of Canda, Limited, which operates a large board mill in Toronto, held their annual meeting in that city a few days ago when satisfactory reports of the years' business were presented. It was shown that despite the vagaries of business during 1923 the company had a good business year. The plant is fairly busy at the present time on wall board, container board and fiber and corrugated boxes. The following officers were elected: president, Sidney Froham, Sandusky, Ohio; vice-president, Ralph King, Toronto; secretary, R. K. Ramsay, Sandusky; treasurer, J. Watt, Toronto; assistant secretary, T. E. Lloyd, Toronto; general manager, O. H. Moore.

* * *

McArthur Resigns

It was announced last week in Toronto that James McArthur, general manager of the British American Wax Paper Company, Limited, Carlaw Avenue, Toronto, had resigned his position with the organization. Mr. McArthur has been connected with the company for some years and is widely known in the paper trade.

Assets Are Sold

All the assets of Clark Brothers, Limited, were sold at Annapolis Royal, N. S., on a Supreme Court order, to the Bear River Pulp Company, Liimted, a new company, representing Chicago, New York and other interests. The purchase price included, according to the order of the court $200,000 in cash and securities in the new company, having a total par value of $1,300,000. C. W. Rantoul, of New York, will be general manager of the new company, and is expected to arrive at Bear River shortly.

* * *

Brompton Adds to Production

Despite the two or three months of poor kraft business which closed the year 1923, the Brompton Paper Company, with mills at East Angus and Brompton, Que., the company added, aided materially by its daily output of 110 tons of newsprint, closed the year with a good showing, with, as near as can be gathered, something over $2,500,000 working capital, and with a showing of about seven per cent on the common stock, after cleaning up arrears on preferred. The turn of the year saw no immediate improvement in the kraft market but about three weeks ago the market for this class of paper underwent a favorable change.

Some European manufacturers who had been dumping goods at profitless prices have had to suspend operations, it is said.

* * *

Price War Raging

While a price war is raging in the sales book industry in Canada, this is not expected to interfere with the earnings of F. N. Burt, Limited. The chief business of F. N. Burt, Limited, is the manufacture of paper boxes, and the three big buffalo plants are entirely devoted to paper box manufacturing. In Canada, the Dominion Paper Box subsidiary is the most important unit, and, while merchants' counter check books are manufactured for the Canadian trade by the Burt Company, the total sales of this product represent only about five per cent of the company's total production. An idea of the extent of the competition in sales books in Canada is given in the announcement of one of the companies that it has reduced its price by about sixty-six and two-third per cent. and that prices may be still further reduced.

* * *

Granted a Charter

The Temagami Timber Company, Limited, with head office in Toronto, has been granted an Ontario charter, with an authorized capital of $100,000. The charter empowers the company to engage in business as timber and pulpwood operators.

* * *

Get Good Contract

The Thunder Bay Pulp and Paper Company, operating a pulp mill on the North Port Arthur waterfront, has given a contract for the construction of a dock of 252 feet frontage, with 500 feet of trestle work, to the Thunder Bay Harbor Improvement Company. The work will be proceeded with in the spring.

* * *

Winlow in the Harness

Following several weeks in hospital as a result of injuries received in a railway wreck at Belleville, Ont., George C. Winlow, Toronto, sales manager for the Lincoln Paper Mills Company, Limited, has resumed his duties and his many friends in the paper trade were pleased to greet him in Toronto last week.

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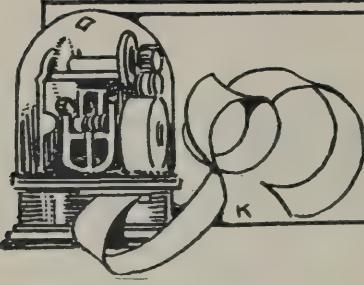

LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS

FINE	
Bond	8.00 @ 40.00
NEWS	
Contract Basis	3.75
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.75 @ .80
Manila No. 1	.70 @ .75
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	9.00 @ 9.50
No. 1 Wood	5.25 @ 5.50
Butchers	4.00 @ 4.25
BOARD	
News	45.00 @ 50.00
Chip	42.50 @ 45.00

Paper and Board

New York, February 19.—Reports almost without exception tell of a steadier tone in the paper market—steadier as regards the level of quoted prices and steadier as concerns the develop-result of the limited call for supplies from consumers and the paper which for a time showed a weakening price trend as a result of the limited call for supplied from consumers and the pressure of manufacturers to market their product appear to have become better stabilized at the lower price levels reached during the declining movement, and the market as a whole seems characterized by a healthier condition and by at least gradually broadening activity.

The situation in coarse papers especially presents this improvement. The decline in wrapping paper prices appears to have been definitely checked, and the market for this class of paper is steadier than it has been in several months or ever since the downtrend set in around the outset of the year. Producers seem bent on securing the prices quoted on wrapping papers and are not exerting the pressure on the market that they were, with the result buyers are finding it necessary to meet the prices named to cover their needs. This condition is due largely to the fact that prices of wrapping paper were permitted to work down to levels where very little or no profit was afforded manufacturers in producing such paper, and, as is usually the case in such a market, a reaction has set in and the tendency of prices now is upward instead of downward.

No. 1 domestic all-sulphate wrapping is quoted in most quarters at 6.25 cents per pound f.o.b. New York. In some cases sales down to 6 cents are recorded, but most mills are insisting on this latter price f.o.b. shipping points, thereby bringing the f.o.b. New York basis around 6.25 cents. Manufacturers in the South are reported selling kraft wrapping at as low as 5 cents f.o.b. mills but it is contended that this paper does not compare in quality with other No. 1 domestic kraft.

No. 1 jute is quoted at around 9.25 cents a pound f.o.b. New York, and No. 1 manila wrapping at 5.25 to 5.50 cents New York. Various quotations on these papers are named, depending, of course, on the quality and tonnage, but prices of coarse papers, on the whole, display a great deal more steadiness. Demand is developing in fair volume though jobbers and mill agents still complain of the rather small lots individual buyers are interested in.

Tissue papers are out of season at present and there is not much activity in this branch of the industry. No. 1 white tissue is quoted at 75 to 80 cents a ream f.o.b. New York, and No. 1 manila and No. 2 white at 70 to 75 cents a ream. Toilet tissue

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in jumbo rolls is priced at about 7 cents per pound f.o.b. New York.

Newsprint continues firm in price and in good movement from mills to publishing centres. Newspapers in New York are printing unusually large issues almost every day, and the Sunday issues are running close to the record in size. Publishers throughout the country are using newsprint in heavy tonnage. As an example, a copy of a Sunday issue of a newspaper in a comparatively small Southern town—a town having a population of only about 40,000—was received several days ago and was found to have 84 pages, which is illustrative of the big consumption of print paper all over the country.

Book paper manufacturers report fair activity in their market though this class of paper is still lagging behind in demand somewhat in comparison with others. Prices are fairly steady but it is no secret that some concessions are still being allowed printers and publishers, particularly when large tonnage is involved.

Boards are in limited demand and rather irregular and unsettled in price. Mills are vying with one another in an attempt to catch all the business they can, and prices are being shaved in cases. Chip board is quoted at $42.50 per ton f.o.b. New York, and news board at $45 New York.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	9.00	@	9.50
No. 2 Jute	8.00	@	8.50
No. 1 Wood	5.25	@	5.50
No. 2 Wood	4.75	@	5.00
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50

Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.75	@	.80
Manila No. 1	.70	@	.75
White No. 2	.70	@	.75
Colored	.80	@	2.00
Kraft	1.00	@	1.25
Jumbo rolls	7.00	@	7.25
Toilet tissue, sheets	.70	@	.75
Fiber Papers—			
No. 1 Fiber	5.50	@	6.00
No. 2 Fiber	4.50	@	5.00
Card Middles	3.75	@	4.00
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	42.50	@	45.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

Quotations on mechanical pulp are maintained and the tone seems somewhat steadier than it was. Domestic manufacturers are quoting between $35 and $40 a ton f.o.b. pulp mills for ground wood for prompt shipment, and indications point to most of them finding an outlet for the bulk of supply they have to dispose of while unfavorable weather conditions in some localities have reduced production which tends to strengthen the statistical position of the market. Demand is reported developing in fair volume. Consumers are buying in a cautious manner, chiefly against direct requirements, but this is the time of the year when output is partially curtailed at least, and this has a sustaining influence on the market. Canadian producers are quoting on a relative level with domestic ground wood prices, quotations depending largely on the freight to consuming points.

Foreign and Domestic Chemical Pulp

Probably the most important development in chemical pulp is the firmer tone in prices of kraft pulp. Importers in general are asking a minimum of 2.50 cents a pound ex dock New York for No. 1 Swedish kraft, and quotations frequently are a dollar or two per ton above this level. It is asserted that manufacturers in Sweden have reorganized their association, taking in only the producers of sulphate, and have fixed minimum prices which figure out at 2.50 cents on the dock at New York or other American Atlantic ports, thus accounting for the increased firmness in prices of kraft.

Sulphite is irregularly quoted, and prices are on a wide range. Bleached sulphite is selling anywheres from 3.50 cents a pound ex dock New York to 4.25 cents, depending on the quality, while domestic bleached sulphite is quoted from 4 to 4.50 cents per pound f.o.b. pulp mills, with some secondary grades available down to 3.75 cents. Importers mostly ask 2.60 and 2.65 cents ex dock for strong foreign unbleached sulphite. Bleached soda pulp is quoted at 3.50 to 3.75 cents per pound at pulp plants. Quotations ex dock New York and f.o.b. pulp mills are as follows:

Sulphite foreign—			
Bleached No. 1	3.75	@	4.25
Unbleached No. 1	2.60	@	2.80
Unbleached No. 2	2.40	@	2.60
Easy Bleaching	2.75	@	3.00
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.60	@	3.00

Unbleached news grade	2.50	@	2.75
Easy Bleachnig	2.75	@	3.00
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.60	@	2.90
Sulphite screenings, refined	1.50	@	1.75

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Domestic Rags

Prices of papermaking rags are still advancing at a rapid clip, and market levels of many grades are now higher than have been reached since the war period. Low grades are especially strong in price and are actively sought by mills, and the medium grades also are moving in comparatively large amounts and have scored additional advancement. No. 1 roofing stock is quoted at close to 3 cents a pound f.o.b. New York. Sales at 2.90 cents have been recorded and dealers as a rule are intent on receiving prices above this, while No. 2 sacking is selling at 2.60 to 2.75 cents per pound f.o.b. New York. Thirds and blues have risen rapidly in price until most dealers quote 3.50 to 3.75 cents a pound New York for repacked and 3 to 3.25 cents for miscellaneous packing. Old white rags are firm and advancing, and new cuttings also are moving upward in value. What actually constitutes a boom exists in rags, and as yet there has been no evidence of any reaction in a downward direction. Quotations f.o.b. New York are:

New Shirt Cuttings, No. 1	14.00	@	14.50	Overall Cuttings, Blue	9.25	@	9.50
No. 2	6.75	@	7.00	Washables	5.50	@	5.75
Fancy Shirt Cuttings	7.50	@	7.75	New Black Mixed	5.00	@	5.25
No. 1 Whites, repacked	7.50	@	8.50	Soiled Whites, house	3.50	@	3.75
No. 2 Whites, repacked	4.50	@	5.00	Soiled Whites, street	3.25	@	3.50
White Lawns	11.75	@	12.00	Thirds & Blues, repacked	3.50	@	3.75
New Muslins, unbleached	12.25	@	12.50	Thirds & Blues, misc.	3.00	@	3.25
Light Silesias	9.00	@	9.50	Black Cotton Stockings	3.75	@	4.00
Black Silesias	5.50	@	5.75	Roofing Rags, No. 1	2.85	@	3.00
				Roofing Rags, No. 2	2.60	@	2.75

Imported Rags

Foreign papermaking rags are strong in price and in brisk demand. Dark colored cottons have sold at 2.60 cents per pound ex dock New York to roofing paper mills, while blue cottons are fetching 4 cents a pound and higher on the dock. All grades are sharing in the activity and in the upward price movement, and importers put much stress on the small volume of offerings from abroad and the high prices primary shippers demand. Prices ex dock New York are as follows:

Lins., White, No. 1	13.50	@	14.00	German Linen, blue	5.00	@	5.50
Ger. Blue Cottons	3.50	@	3.75	German Linen, grey	6.50	@	7.00
French Light Blues	3.75	@	4.00	German S. P. F.'s	6.00	@	9.00
New Light Prints	6.50	@	7.00	German Light Prints	4.25	@	4.50
New Unbleached	10.50	@	11.00	Dk. Colored Cottons	2.60	@	2.75

Bagging, Rope, Etc.

The feature in bagging is the sharp advance in the value of roofing bagging. Sales of this material at 1.70 to 1.80 cents a pound f.o.b. New York have been reported, and dealers are not grading No. 1 scrap bagging but are disposing of such stock to roofing paper mills. Old rope is firm and moving in a steady way. Domestic manila rope quotations range between 6.50 and 6.75 cents a pound at shipping points, and foreign manila rope from 6.25 to 6.50 cents ex dock New York.,Quotations on a f.o.b. New York basis are:

Gunny No. 1	1.50	@	1.60	Roofing Bagging	1.60	@	1.70
Foreign	1.40	@	1.50	For. Manila Rope	6.25	@	6.50
Wool Tares, light	1.50	@	1.60	Domestic Rope	6.50	@	6.75
Wool Tares, heavy	1.60	@	1.75	Mixed Strings	1.15	@	1.30
Scrap Bagg. No. 1	1.65	@	1.75				

Old Paper

Old paper prices seem to be holding their own without developing any broad changes. The low grades are in proportionately better demand than the high qualities though the call for supplies from mills does not seem of heavy enough volume to materially disturb values. Folded newspapers are selling at 95 cents to $1 a hundred pounds f.o.b. New York, and No. 1 mixed papers at 75 to 80 cents New York. Old kraft paper is firm at 2.25 cents per pound f.o.b. this city, and flat magazine stock is bringing 1.60 to 1.75 cents a pound New York. Shavings are quiet with some little movement of No. 1 soft white at about a price level of 2.90 to 3 cents a pound New York. F.o.b. New York prices are:

No. 1 Hard White Shavings	3.65	@	3.85	Ledger Stock	1.85	@	2.00
No. 2 Hard White Shavings	3.20	@	3.40	Kraft, No. 1	2.25	@	2.35
No. 1 Soft White Shavings	2.90	@	3.10	New Manila Cuttings	2.00	@	2.25
Box Board Chips	.80	@	.85	New Manila Env, Cuttings	2.75	@	3.00
No. 1 Colored Shavings	1.60	@	1.75	Bogus & Mill Wrappers	.90	@	1.00
Magazine flat stock	1.60	@	1.75	News, strictly overissue	1.10	@	1.20
No. 1 Crumpled	1.30	@	1.40	Folded News	.95	@	1.00
Solid Ledger Books	2.00	@	2.10	No. 1 Mixed Papers	.75	@	.80
				White Blank News	2.25	@	2.35
				Common Paper	.55	@	.60

Twines

The twine market is moderatively active. Consumers and dealers alike are purchasing in a careful manner principally to cover immediate needs, and manufacturers generaly are operating on a curtailed scale. Strength in raw material makes for firmness in prices, and twine quotations are well maintained at the following levels:

Sisal Hay, pure	12.25	@	13.25	Jute Wrapping twine, A grade	20.00	@	
Manila Hay, pure	16.25	@	17.25	Papermakers Twine	11.50	@	
Sisal Lath Yarn	12.25	@	13.25	B. C. Hemp, 18	.39	@	.40
Manila Rope, pure, ¾ inch diameter	14.25	@	15.25	B. C. Hemp, 24	.38	@	.39
Hardware Rope	11.25	@	12.25	B. C. Hemp, 36	.37	@	.38
Jute rope, ¼ diam. and over, coils	14.00	@	15.00	America Light India— No. 6	14.50	@	
Sail twine, A grade	20.00	@		No. 7	13.50	@	

Chemicals

No changes of importance are reported in prices of paper-making chemicals. There is a fair movement of most commodities though the bulk of it is against contracts, with new business developing rather slowly.

IMPORTS AT NEW YORK

Week of February 11-16

Paper

Str. Doreian, Antwerp—F. C. Strype, 14 cs. parchment; C. W. Williams & Co., 11 cs.; P. C. Zuhlke, 232 cs.

Str. Masaniello, Marseilles—P. J. Schweitzer, 26 cs cigarette; from Barcelona—J. V. Lago, 4 cs. cigarette.

Str. Zeeland, Antwerp—P. C. Zuhlke, 83 cs.; P. Puttmann, 12 cs. printing; Borden & Riley Paper Company, 16 cs.

Str. Alaska, Bordeaux—A. Gigse & Son, 31 bls. filter.

Str. Andania, Hamburg—Bernard, Judae & Co., 14 bls. hanging and 5 cs. filter; Birn & Wachenheim, 19 bls.; F. J. Emmerich & Co., 3 bls. hanging; International Acceptance Bank, 158 rolls newsprint; Chemical National Bank, 40 rolls newsprint; Traders Paper Company, 75 cs. printing; J. P. Heffernan Paper Company, 79 bls. wrapping; Bowater Paper Company, 78 rolls newsprint; from Southampton—F. J. Emmerich & Co., 20 bls. hanging; A. C. Dodman Jr. & Co., 5 cs. hanging.

Str. Georgia, Trieste—Michel & Williams, Inc., 68 rolls newsprint; Order, 120 rolls newsprint.

Str. Pytheas, Genoa—J. B. Mast & Co., 4 cs. tissue.

Str. Cedric, Liverpool—A. C. Dodman Jr. & Co., 39 bls. hanging; F. C. Strype, 19 cs. tissue; F. J. Emmerich & Co., 3 bls. hanging; W. J. Byrnes & Co., 2 cs. tissue; B. F. Drakenfeld & Co., 8 cs. printing; Oxford University Press, 5 cs. printing.

Str. Westfalen, Bremen—Globe Shipping Company, 52 cs. photo; C. Steiner, 55 bls. wrapping and 1 cs. printing; Perkins-Goodwin Company, 23 cs. printing; Irving Bank-Columbia Trust Company, 83 bls. wrapping; Martin & Bechtold, 10 cs.; Order, 269 rolls newsprint.

Str. Albert Ballin, Hamburg—Keuffel & Esser Company, 44 cs. and 57 rolls drawing; Happel & McAvoy, 21 cs. pasteboard; P. H. Petry & Co., 1 cse and 1 cse. pasteboard; Friedman & Co., 5 cs. pasteboard; Metropolitan Import & Mfg. Company, 37 cs. pasteboard; F. G. Prager & Co., 6 cs. hanging; F. J. Emmerich & Co., 8 bls. hanging; Young Publishing Company, 180 rolls newsprint; New York & Hauseatic Corporation, 76 rolls newsprint; W. Hartman & Co., 1,252 rolls and 78 bls. wrapping and 57 rolls newsprint; Wilkinson Bros. & Co., 18 rolls wrapping; Corn Exchange Bank, 45 cs.; Falsing Paper Company, 52 cs. printing; Irving Bank-Columbia Trust Company, 8 cs.; International Acceptance Bank, 84 rolls newsprint; Order, 207 rolls wrapping.

Str. Drottningholm, Gothenburg—C. K. MacAlpine & Co., 97 rolls and 55 bls. wrapping; American Express Company 2,146 rolls wrapping; Wilkinson Bros. & Co., 151 bls. and 36 rolls wrapping; Maurice O'Meara Company, 6 bls. fiber board; National City Bank, 153 bls. and 20 rolls wrapping; D. S. Walton & Co., 1,153 rolls and 262 bls. wrapping; Arkell Safety Bag Company, 32 bls. wrapping; U. S. Steel Products Company, 37 rolls wrapping; Borregaard Company, 2,833 rolls and 179 bls. wrapping; Whiting-Patterson Company, 39 rolls wrapping; Order, 129 rolls wrapping.

Str. Maine, London—Gallagher & Ascher, 2 cs.; W. H. S. Lloyd & Co., 19 bls. hanging; R. F. Downing & Co., 23 bls. hanging; H. Reeve Angel & Co., 10 bls. filter, 2 cs. printing and 1 cse. drawing; Devoe Reynolds Company, 3 cs. drawing.

Str. Rochambeau, Havre—Happel &McAvoy, 4 cs. cardboard; Independent Forwarding Company, 11 cs.; Standard Products Company, 18 cs. cigarette; C. H. Boulin, 36 cs.

Str. Berengaria, Southampton—Whiting-Patterson Company, 28 cs. hanging; Hamnel, Riglander & Co., 2 cs. Dupont Cellophane Company, 18 cs. wrapping; Thomas & Pierson, 2 cs. writing; A. C. Dodman Jr. & Co., 10 bls. hanging; F. J. Emmerich & Co., 4 bls. hanging; Order, 11 bls. hanging.

Str. Asia, Lisbon—Torro Tobacco Company, 12 cs. cigarette.

Str. Bergensfjord, Christiania—Order, 521 rolls newsprint.

Str. City of Corinth, Canton—B. C. Ritchie, 25 cs. litho.

Str. President Van Buren, London—W. H. S. Lloyd & Co., 47 bls. hanging.

Str. Tuscania, Glasgow—Blauvelt-Wiley Paper Mfg. Company, 96 bls.

Wood Pulp

Str. Polarhavet, Sundsvall—R. F. Hammond, 2,400 bls. sulphite; from Harnosand—E. M. Sergeant & Co., 2,550 bls. sulphite; J. Anderson & Co., 600 bls. sulphite.

Str. Georgia, Trieste—E. Naumberg & Co., 300 bls.

Str. Westfalen, Bremen—Castle & Overton, 62 bls.; Order, 2,656 bls.

Str. Drottningholm, Gothenburg—Castle & Overton, 600 bls. Parsons & Whittemore, 500 bls. sulphite; Nilsen, Lyon & Co., 2 bls. sulphite; Scandinavian Pulp Agency, 762 bls. sulphite.

Str. Bergensfjord, Christiania—R. F. Hammond, 1,000 bls.

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Str. Pytheas, Genoa—International Acceptance Bank, 49 bls.

Str. Maine, London—Ellerman-Wilson S. S. Line, 108 coils.

Str. Orizaba, Havana—N. E. Berzen, 9 bls.

Str. President Van Buren, London—Ellerman-Wilson S. S. Line, 137 bls.

Old Bagging

Str. Alaska, Havre—Kidder Peabody Acceptance Corporation, 120 bls.

Str. Balsan, Dublin—C. R. Spence & Co., 158 bls.

Rags

Str. Mansaniello, Marseilles—New York Trust Company, 39 bls.; from Barcelona—Bank of New York & Trust Company, 83 bls.

Str. Andania, Hamburg—American Exchange National Bank, 199 bls.

Str. Balsam, Dublin—Coal & Iron National Bank, 468 bls.

Str. Georgia, Venice—R. Wolf, 61 bs.; Mechanics & Metals National Bank, 32 bls.; Union National Bank, 112 bls.

Str. Pytheas, Marseilles—Waste Material Trading Corporation. 261 bls.; Mechanics & Metals National Bank, 60 bls.

Str. Cedric, Liverpool—Albion Trading Company, 27 bls.; Order, 573 bls.

Str. Toloa, Havana—M. Wolfer & Co., 30 bls.

Str. Albert Ballin, Hamburg—Order, 33 bls.

Str. Falls City, Liverpool--G. P. Lotterhand, 6 bls.

Str. Maine, London—Chase National Bank, 125 bls.; Guaranty Trust Company, 27 bls.; Order 83 bls.

Str. Orizaba, Havana—E. Jonofski, 24 bls.

Str. Rhode Island, Leith—State Bank, 222 bls.

Str. Rochambeau, Havre—New York Trust Company, 40 bls.; Equitable Trust Company, 19 bls.; International Acceptance Bank, 20 bls.; Mechanics & Metals National Bank, 163 bls.; Coal & Iron National Bank, 57 bls.; Chemical National Bank, 72 bls.; Chase National Bank, 58 bls.; First National Bank of Boston, 105 bls.; Order, 151 bls.

Str. Korean Prince, Alexandria—Brown Bros. & Co., 657 bls.; Order, 68 bls.

Str. Tuscania, Glasgow—Coal & Iron National Bank, 56 bls. Order, 175 bls.

Paper Stock

Str. Balsam, Dublin—Brown Bros. & Co., 193 bls.; from Belfast—Maurice O'Meara Company, 55 bls.

Str. Pytheas, Genoa—Guaranty Trust Company, 48 bls.; from Leghorn—Order, 170 bls.; from Palermo—Order, 134 bls.

Str. Falls City, Liverpool—Equitable Trust Company, 72 bls. from Leith—International Acceptance Bank, 67 bls.; Guaranty Trust Company, 252 bls.; Order, 191 bls.

Casein

Str. Voltaire, Buenos Aires—Mechanics & Metals National Bank, 834 bags.

Woodpulp and Forestry Problems

(Continued from page 19)

Mr. Kellogg declares it is a paper age in which we live, and he asks us to stop and reflect what it would mean to our civilization if every printed or other record were to be obliterated. Paper is a manufactured product consisting wholly of wood, and, as he says in another part of the volume, "we can no more conceive of a state of society on this continent with wood totally eliminated than we can of one in which iron has no part." The moral is, grow more wood!

Kellogg's *Pulpwood and Wood Pulp in North America* will undoubtedly take its place without loss of time as a standard authority and reference on woodpulp and timber production. A copy of it should find a place in every public library in the United States and means should be provided to put one in the hands of every Congressman and every Senator who represents the people at Washington.

In addition to carefully executed graphs and curves, the book abounds in engravings from photographs, there being some fifty-seven of them interspersed among the text. The aggressive figure of the author can be seen in a picture on page 109, where two massive logs of Douglas fir are shown, the scene being somewhere in the State of Washington.

It remains to state that the volume is published by McGraw-Hill Book Company, Inc., at $4.00 a copy and orders will be filled on receipt of price by the Hughes Publishing Company, 1478 Broadway, New York.

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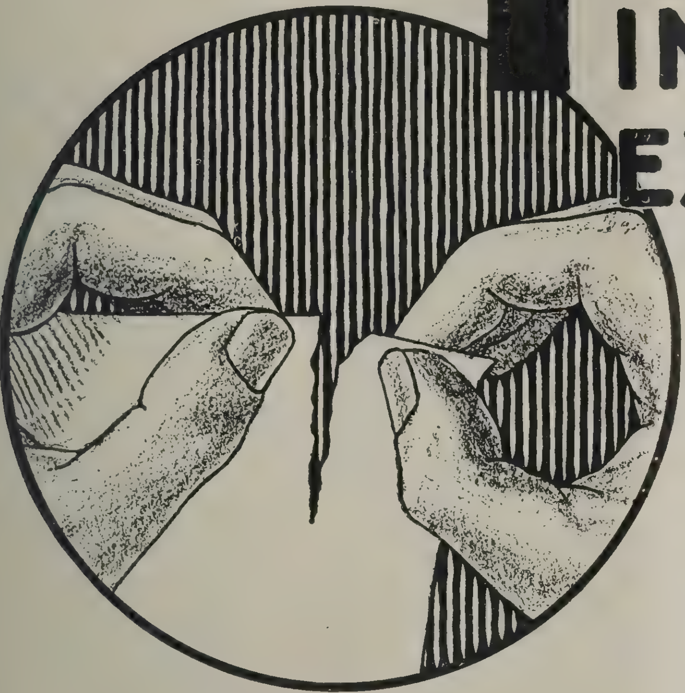

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Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Hommel, O. Co., 211 4th Ave., Pittsburgh, Pa.
Williams & Co., C. K., Easton, Pa.
Wilhelm Co., A., Reading, Pa.

CLASSIFIED DIRECTORY—Continued

Keystone Color & Mica Co., (Wall Paper, Coated Paper & Scenic), York, Pa.

Pulp

Du Pont, E. I. de Nemours & Co., Inc., Wilmington, Del.
Hampden Paint & Chemical Co., Springfield, Mass.
Kohnstamm, H. & Co., 83-93 Park Pl., New York City.
National Aniline & Chemical Co., Inc., 40 Rector St., New York City.

CONSISTENCY REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

CONVEYORS AND ELEVATORS

LINK-BELT Co., Chicago, Ill.

COUPLINGS (Shaft)

LINK-BELT Co., Chicago, Ill.
Hudson-Sharp Machine Co., Green Bay, Wis.

DANDY ROLL MAKERS

Smith, C. H., Corp., Sylvan St., West Springfield, Mass.

DIGESTERS

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Watson, Frye Co., Ltd., (paper & pulp mill, soda & sulphate), Bath, Me.
PORTLAND Co., (copper, paper & pulp mill), Portland, Me.
McNamara Bros. Co., Westport, Baltimore, Md.
Dillon Steam Boiler Wks., D. M., (paper & pulp mill, rotary), Fitchburg, Mass.
EASTWOOD Wire Mfg. Co., (papermaking), Belleville, N. J.
Reeves Bros. Co., 338 Rush Street, (pulp & paper mill), Alliance, O.
Tudor Boiler Mfg. Co., 715 E. 3rd St., (pulp), Cincinnati, Ohio.
Riter-Conley Co., 318 Oliver Bldg., (papermaking), Pittsburgh, Pa.
McAleenan Bros. Co., 25th & Railroad Sts., (pulp paper mill), Pittsburgh, Pa.
West Point Boiler & Tank Works, 23rd & Smallman, (paper making), Pittsburgh, Pa.
Petroleum Iron Works Co., Drawer 539 (pulp), Sharon, Pa.
Manitowoc Shipbuilding Corp., (paper mill, sulphate, rotary & soda), Manitowoc, Wis.

DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

DRIVES

Smidth & Co., F. L., 50 Church St., (Beater-Belt-Lenix), New York City.

DRYERS

Paper & Pulp Makers

Mintin, Ogden, Greenwich, Conn.
Smith & Winchester Mfg. Co., So. Windham, Conn.
Gordon, Robert, Inc., 1355 W. Washington Blvd., Chicago, Ill.
Rice Barton & Fales Machine & Iron Co., Worcester, Mass.
St. Louis Ventilating & Sheet Metal Co., 1306 Ann Avenue, St. Louis, Mo.
Carrier Eng. Corp., 39 Cortlandt, New York City.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Bartlett & Snow Co., C. OO French & Columbus, Cleveland, Ohio.
French & Columbus, Cleveland, O.
Cummer, F. D. & Son Co., Hanna Bldg., Cleveland, Ohio.
Kilby Mfg. Co., 4623 Lakeside Ave., Cleveland, Ohio.
Proctor & Schwartz, Inc., 7th St. & Tabor Road, Philadelphia, Pa.
Gordon Dryer Corporation, 275 W. Exchange, Providence, R. I.

EQUIPMENT

Crandon Mfg. Co., (special electrical, for pulp & paper mills), Portland, Me.

EVAPORATORS

Soda Pulp

Buffalo Foundry & Machine Co., 43 Winchester Avenue, Buffalo, N. Y.
Devine, J. P., Co., 1380 Clinton, Buffalo, N. Y.
Zaremba Co., 508 Niagara Life Bldg., Buffafflo, N. Y.
Angus Engineering Co., 10 Hanover, New York City.
International Process Co., 5 Beekman, New York City.
Odrway, Chales, 25 Church, New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Kestner Evaporator Co., North Philadelphia, Pa.

FELTS

Dryer, Jackets

FITCHBURG Duck Mills, Fitchburg, Mass.
F. C. HUYCK & Sons, (Kenwood Mills), Albany, N. Y.
Albany Felt Co., Albany, N. Y.
Appleton Woolen Mills, Appleton, Wis.
ORR Felt & Blanket Co., Piqua, Ohio.
WATERBURY Felt Co., Skaneateles Falls, N. Y.
Lockport Felt Co., Lockport, N. Y.
SHULER & Benninghofen, Hamilton, Ohio.

FILLERS

Papermakers

U. S Gypsum Co., 205 W. Monroe, (Terra Alba & Select), Chicago, Ill.
Macneal's Varnish & Color Works, 1600 Block Warner, Baltimore, Md.
Western Paper Makers Chemical Co., (Pearl), Kalamazoo, Mich.
American Chemical & Mfg. Corp., Kenilworth, N. J.
Carbola Chemical Co.. Inc., 229 Ely Avenue, (Fillers for every purpose), Long Island City, N. Y.
INTERNATIONAL Pulp Co., 41 Park Row, New York City.
Talc Products Co., 120 B'way, New York City.
Solvay Process Co., Syracuse, N. Y.
Lookout Paint Mfg. Co., Chattanooga, Tenn.

FILTERS

Pulp and Paper

Oliver Continuous Filter Co., 503 Market, San Francisco, Calif.
Redlich Mfg. Co., 637 W. Oak, Chicago, Ill.
Ordway, Charles, 25 Church, New York City.
Permutit Co., The, 4th Ave. & 30th, New York City.
Kiefer, Kary Machine Mahcine Co., 919 Martin, Cincinnati, Ohio.
Loew Mfg. Co., 9100 Madison Ave., Cleveland, Ohio.

GRINDERS

Wood Pulp

Pusey & Jones Co., Wilmington, Del.
Stroud, E. H. & Co, 928-934 Fullerton Ave,, Chicago, Ill.
Holyoke Machine Co., Holyoke, Mass.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis. Mo.
Carthage Machine Co., Carthage, N. Y.
Dilts Machine Co., Inc., Fulton, N. Y.
Glens Falls Machine Wks., Glens Falls, N. Y.
Sandy Hill Iron & Brass Wks., Hudson Falls, N. Y.
Brown Co., A. & F., 79 Barclay, New York City.
Bagley & Sewall Co., Watertown, N. Y.
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Branch Saw Co., 3000 N. B'way, St. Louis, Mo.
Dilts Machine Co., Inc., Fulton, N. Y.
Lancaster Machine & Knife Wks., Lancaster, N. Y.
Cocker Mfg. Co., Lockport, N. Y.
Haring, Ellsworth, 116 Liberty, New York City.
Cleveland Knife & Forge Co., Cleveland, Ohio.
Worden Tool Co., (1854 Scranton Rd.), Cleveland, Ohio.
Simonds & Sons Co., A. A., Dayton, Ohio.

KRAFT PAPER

BROWN Company, Portland, Me.

LATHES

Truing, Pulpstone

Fulton Mach. & Vise Co., Lowville, N. Y.

MACHINERY

Barking

Fibre Making Processes, Inc., 6 N. Michigan Ave., Chicago, Ill.
Union Iron Works (Improved), Bangor, Me.
Portland Co., Portland, Me.
Waterville Iron Wks., (for paper mills), Waterville, Me.
Holyoke Mach. Co., Holyoke, Mass.
Carthage Machine Co., Carthage, N. Y.
Sandy Hill Iron & Brass Wks., (pulp mill), Hudson Falls, N. Y.
Trevor Mfg. Co., (168 Market), Lockport, N. Y.
Fulton Mach. & Vise Co., (slabs & edgings), Lowville, N. Y.
TOMPKINS-HAWLEY-FULLER Co., (Paper Creping), Valatie, N. Y.
Scott, Olin, Est. of, Bennington, Vt.
Valley Iron Works Co., (wood), Appleton, Wis.
Green Bay Barker Co., Green Bay, Wis.

Paper Combining

Jagenberg Machine Co., Inc., 133 W. 24th, New York City.

Paper Goods

Aicher Machine Works, 1634 Stockton (Slitting & Printing), San Francisco, Calif.
Specialty Automatic Machine Co., Chelsea, Mass.
Rice, Barton & Fales Machine & Iron Co., (Pasting, waxing, trimming, etc.), Worcester, Mass.
Paper Working Machine Co., Ave. U & 56th, (Corrugated), Brooklyn, N. Y.
Vierengel, M., Machine Co., Inc., 370 Troutman St., (special), Brooklyn, N. Y.
KNOWLTON Co., M. D., 26 Industrial, (corrugated), Rochester, N. Y.

PAPER KNIFE GRINDERS

Bridgeport Safety Emery Wheel Co., 106 Knowlton Street, Bridgeport, Conn.

Paper Laboratory

McKim Foundry & Machine Co., Lockport, N. Y.

Paper Cup

Ludington Machine Co., Waterbury, Conn.

Paper Cutting

Smith & Winchester Mfg. Co., So. Windham, Conn.
Child Acme Cutter & Press Co., 250 Devonshire, Boston, Mass.
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Hamblett Mach. Co., Lawrence, Mass.
Dillon Mach. Co., Lawrence, Mass.
Challenge Machinery Co., The, (Hand & Power), Grand Haven, Mich.
Swift, Geo. W., Jr., Inc., Bordentown, N. J.
Langston, Samuel M., Co., Camden, N. J.
American Type Founders, 4-6 Communipaw Ave., (lever & power), Jersey City, N. J.
CAMERON Machine Co., 57-61 Poplar, Brooklyn, N. Y.
Morgans & Wilcox Mfg. Co., (printers), Middletown, N. Y.
Fuller, E. C. Co., 28 Reade St., New York City.
Hoffman Type & Engraving Co., 112 East 13th St., (mnfrs., reps. & imptrs.), New York City.
KNOWLTON, M. D. Co., 26 Industrial, Rochester, N. Y.
Seybold Machine Co., Dayton, Ohio.
Sheridan, T. W. & C. B., 434 B'way, New York City.
Grammes & Sons, L. F., 1922 T. Union St., Allentown, Pa.
Beck, Chas., Machine Co., 605 Chestnut, (Sheet, Card, Film), Philadelphia, Pa.
Beloit Iron Works, (Board & Paper), Beloit, Wis.

Paper and Pulp Mill

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PICKLES—W. F., Buckland, Conn.
Pusey & Jonse Co., (paper stock cutting), Wilmnigton, Del.
Dellenberger, E. C. & Son, 1945 Fulton Street, Chicago, Ill.
Haberkamp, Wm. Machine Works, 442 Wells, Chicago, Ill.
LINK-BELT, Co., Chcago, Ill.
Swenson Evaporator Co., 53 W. Jackson Blvd., Chicago, Ill.
Williams-Gray Co., 30 N. LaSalle, Chicago, Ill.
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Horne, J. H. & Sons, Co., Lawrence, Mass.
MILLS Machine Co., Lawrence, Mass.
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Jones, E. D. & Sons Co., Pittsfield, Mass.
Bird Machine Co., So. Walpole, Mass.
Montague Machine Co., (power transmission), turners Falls, Mass.
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Waterville Iron Wks., Waterville, Me.
Davis, Frank H., Co., 175 Richdale Ave., Boston, Mass.
Meisel Press Mfg. Co., 949 Dorchester Ave. 25, Boston, Mass.
Union Machine Co., Fitchburg, Mass.
Norwood Engineering Co., (paper finishing, calendering, rag thrashing, platers), Florence, Mass.
Golding Mfg. Co., Franklin, Mass.
Holyoke Mach. Co., Holyoke, Mass.
Jolly, Inc., J. & W., Holyoke, Mass.
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Standard Machinery Co., Owosso, Mich.
Mitts & Merrill, 67 McCroskry, Saginaw, Mich.
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PERKINS-GOODWIN Co., New York City.
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Standard Paper Co., Kalamazoo, Mich.
ST. REGIS Paper Co., New York. Mich.
West Virginia Pulp & Paper Co., New York City.

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CASTLE & OVERTON, New York City.
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PLUGS

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ATHENS Implement & Mfg. Co., Athens, Wis.

GRINDERS

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PULLEYS, SHAFT

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New Haven Pulp & Board Co., (mechanically ground), New Haven, Conn.
du Pont, E. I. de Nemours & Co., (explosives dept.), Wilmington, Del.
Hercules Power Co., Wilmington, Del.
Grass Fibre Pulp Paper Corp., Leesburg, Fla.
Pynetree Paper Co., (Soda Pulp), Gordon, Ga.
Atlantic Paper & Pulp Corp., (wet), Savannah, Ga.
Cushnoc Paper Co., (Wood, Grd. & Sulphite fibre), Augusta, Maine.
Day Lumber Co., (Spruce & Fir Pulpwood), Bangor, Maine.
Orono Pulp & Paper Co., (unbleached sulphite fibre), Bangor, Maine.
Eastern Mfg. Co., (sulphite fibre), Bangor, Maine.
Eastern Pulp Wood Co., Calais, Me.
Cherryfield Lumber Co., (Wood), Cherryfield, Me.
Howland Pulp Corp., The, (Sulphite Fibre), Howland, Maine.
Pejepscot Paper Co., (Br.), (Sulphite Fibre), Lisbon Falls, Me.
Nekonegan Paper Co., (Ground Wood), Oldtown, Me.
BROWN Company, (Sulphate Fibre), Portland, Maine.
Riverside Pulp Co., (groundwood), Skowhegan, Maine.
Skowhegan Pulp Co., (groundwood), Skowhegan, Maine.
Forest Paper Co., (soda fibre), Yarmouthville, Me.
Advance Bag & Paper Co., Inc., 301 Congress St., Boston, Mass.
Hollingsworth & Whitney Co., 185 Devonshire (sulphite fibre & groundwood), Boston, Mass.
Mount Tom Sulphite Pulp Co., 50 State (bleached sulphite pulp), Boston, Mass.
Penobscot Chemical Fibre Co., 49 Federal (wood pulp), Boston, Mass.
St. Croix Paper Co., 244 Wash'n, (sulphite fibre & ground wood pulp), Boston, Mass.
Train-Smith Co., Co., 294 Washington (wood), Boston, Mass.
Champion-International Co., (for own use), Lawrence, Mass.
Ramage Paper Co., James, (wood), Monroe Bridge, Mass.
Fletcher Paper Co., (groundwood & sulphite fibre), Alpena, Mich.
Cheboygan Paper Co., (groundwood), Cheboygan, Mich.
Detroit Sulphite Pulp & Paper Co., 9131 W. Jefferson Ave., (sulphite fibre), Detroit, Mich.
Johnston, W. J., (wood), De Tour, Mich.
Escanaba Paper Co., (Duplicate), Escanaba, Mich.
Filer Fibre Co., (Kraft Sulphate Pulp), Filer City, Mich.
Itaska Paper Co., (Ground Wood Pulp), Grand Rapids, Mich.
Central Paper Co., (sulphite fibre also paper), Muskegon, Mich.
French Paper Co., (ground wood pulp), Niles, Mich.
Port Huron Sulphite & Paper Co., (Mitscherlich Process), Port Huron, Mich.
Northern Cedar & Lumber Co., (wood), Blackduck, Minn.
Northwest Paper Co., (ground wood, sulphite pulp), Cloquet, Minn.
Hennepin Paper Co., (ground wood), 401 E. Main, Minneapolis, Minn.
Minnesota & Ontario Paper Co., 1100 Builders' Exch., (ground wood Pulp & Sulphite Fibre). Minneapolis, Minn.
Mason-Perkins Paper Co., (wood), Bristol, N. H.
Groveton Paper Co., Inc., (sulphite), Groveton, N. H.
Veazie, Geo. A., Littleton, N. H.
Livermore Falls Pulp Co., (air dried ground wood pulp), Plymouth, N. H.
Crabtree & Sons, Edwin, (Ground Wood Pulp), Wendell, N. H.
Rogers & Co., J. & J., (ground wood & sulphite), Ausable Fork, N. Y.
Lewis Co., The J. P., (ground wood), Beaver Falls, N. Y.
Lewis, Slocum & Lefevre, (ground wood), Beaver Falls, N. Y.
Bayless Pulp & Paper Co., (Paper), Binghamton, N. Y.
National Sawdust Co., 99 No. 1st St., (hardwood, softwood), Brooklyn, N. Y.

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Taylor, Stiles & Co., (paper stock, rag cutters), Riegelsville, N. J.
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Sowers Mfg. Co., (coaters), Black Rock, N. Y.
Bliss, E. W., Co., (Adams & Plymouth Sts.), Brooklyn, N. Y.
Farnham Mfg. Co., 39 Indiana, (paper coating), Buffalo, N. Y.
Carthage Machine Co., Carthage, N. Y.
Ryther & Pringle Co., (shredders for ground wood, chemical fibre laps boards, sheets & rolls), Carthage, N. Y.
Dilts Machine Co., Inc., (cylinder paper making, wet, wood pulp), Fulton, N. Y.
Glens Falls Machine Works, (wet machines, washers, savealls, thickeners, deckers, etc.), Glens Falls, N. Y.
TRIMBEY Machine Works, (automatic consistency Regulator, Metering Systems), Glens Falls, N. Y.
Noble & Wood Machine Co., (rag cutting & threshing), Hoosick Falls, N. Y.
Sandy Hill Iron & Brass Works, (fourdrinier), Hudson Falls, N. Y.
Trevor Mfg. Co., 168 Market (wood pulp splitting, wood pulp, wet), Lockport, N. Y.
Beach-Russ Co., 54 Church St., (positive pressure blowers & vacuum pumps), New York City.
Smith & Co., F. L., 50 Church St., (Power Transmission), New York City.
Jaqenberg Machne Co., Inc., 133 W. 24th Street, (hot air dryers, gas heated; for coated paper, either in sheets or rolls), New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Knowlton Co., M. D., 26 Industrial (rolling & saturating corrugated & creasers), Rochester, N. Y.
Mayer Coating Machines, Inc., (coating for carbon paper, waxed & oil paper, etc.), Rochester, N. Y.
Baker Mfg. Corp., Saratoga Springs, N. Y.
Ticonderoga Machine Wks., (wire carrying rolls stock, thickening winders, felt spreaders, calender doctors valves, etc.), Ticonderoga, N. Y.
Bagley & Sewall Co., (cylinder tubes, for all classes of Paper), Watertown, N. Y.
Stebbins Engineering & Mfg. Co., Watertown, N. Y.
Baker, Joseph, Sons, & Perkins Co., Inc., (pulpers, dissolvers), White Plains, N. Y.
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Dayton Globe Iron Works Co., Dayton, Ohio.
Shartle & Bevis Mach. Co., Dayton, Ohio.
BLACK-CLAWSON Co., (cylinder, fourdrinier plating paper, mill & rag cutting, board), Hamilton, O.
Enterprise Machine Co., The, Middletown, Ohio.
Perkins, B. F. & Son, (size pumps, rag cutters), Middletown, Ohio.
Shartle Bros. Machine Co., Middletown, Ohio.
Sandusky Foundry & Machine Co., Sandusky, Ohio.
Phoenix Iron Works, 360 Hawthorne Ave., Portland, Ore.
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Erie Lay-Boy Co., Ltd., Erie, Pa.
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Moore & White Co., 15th & Lehigh Ave., (fourdrinier & cylinder paper, roofing paper, saturating,) Philadelphia, Pa.
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Textile Finishing Machy. Co., 83 Exchange Pl., (finishing machy. for writing, ledger, coated & glazed papers), Providence, R. I.
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Hooker Mfg. Corp., St. Johnsbury, Vt.
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Beloit Iron Works, (tissue news, bookboard), Beloit, Wis.
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Moloch Co., (paper, wall paper & sulphite), Kaukauna, Wis.
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Slitters and Rewinders

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Horne, J. H. & Sons, Co., Lawrence, Mass.
Clark-Aiken Co., Lee, Mass.
Fales, L. F., Walpole, Mass.
Hobbs, Mfg. Co., Worcester, Mass.
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Perkins, B. F. & Sons, Inc., Holyoke, Mass.
Kidder Press Co., Dover, N. H.
Langston Co., Samuel M., Camden, N. J.
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Hewitt, J. W. Mach. Co., (Rolls), Neenah, Wis.

Waxing

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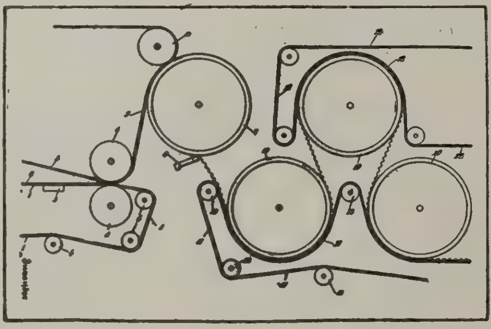

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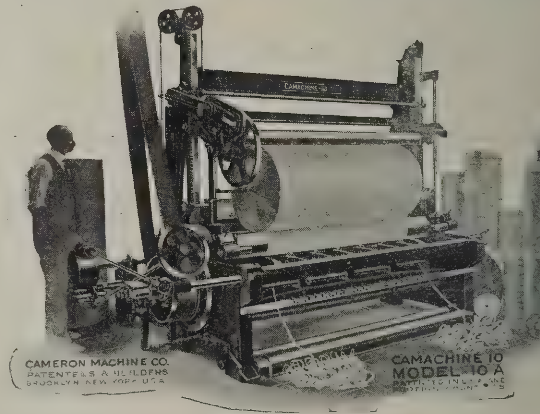

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Bread and Candy

WOLVERINE Paper Co., Otseg Mich.

Volume XXXIII, No. 19

PAPER

February 28, 1924

The Magazine of the Paper Industry

RUSSELL C. HUGHES, Publisher

THOMAS J. KEENAN, F.C.S., Technical Editor

ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

THE proposed Canadian embargo on pulpwood continues to be the topic of the hour in the paper industry, as February—even with its 29th —fades into nothingness.

The Royal Commission on Pulpwood is gathering all kinds of evidence in Montreal, both for and against the embargo and the unbiased observer is still left all at sea. It is impossible to forecast which way the cat will jump and just to what extent it will jump, if it does jump.

It seems best to stop, look and listen and pray to God for the best.

* * *

Don't skip the article by Warren B. Bullock on "Imports and Exports" in this issue. Mr. Bullock handles the subject in a cold, dispassionate manner that kills argument at its birth. There is much to be said on this subject. We will be glad for some of our readers to say some of it. With the trade balance steadily growing worse, despite the fact that the United States Industry is doing a fair business, it is high time to look the facts in the face and upon them to base the action for the future.

The clear cut statistics in both Mr. Bullock's article and the summary of imports and exports, warrant a careful analysis. They are figures, but they can be made warm, palpitating, life-like things if they are studied and give the real message. That message is in the comparison of 1923 and 1922. Then you wonder what 1924 will bring.

* * *

Read also the profound discussion of Thomas J. Keenan on cellulose in this issue. He handles a tricky, peculiar subject in a masterly fashion.

Can't you yet feel that little easing up in the paper situation? Can you feel a greater firmness in the market? It is there. The conditions ARE improving. Almost everybody is saying so and we feel compelled to take their word. It isn't going to be a bad year, despite the prices of paper brought in from abroad. So cheer up and get busy.

* * *

The paper industry is like unto no other in the world. Here we offer $5 each for good jokes on men in the paper industry and the response—instead of being overwhelming as it should be—is poor. The industry is crowded with little human interest stories that sparkle forth from the humdrum of work and yet it seems impossible to secure them. Isn't $5 for a few lines a sufficient inducement?

* * *

The same condition applies to the Salesmen's Forum. This is little save free advertising and yet it appears that nobody wants to take advantage of it. There are responses but the responses are slow. They should come pouring in like a flood.

But then, there is only one paper industry.

* * *

The death of David G. Garabrant removes a splendid figure from the paper industry. A huge throng of friends in the industry will mourn his passing. He saw things in a big, constructive way, and brought progress to the entire industry. He was in the business from 1864 to his death a few days ago. His death removes another well known and well liked face from ranks of the trade.

* * *

The best way to end a page at this season of the year is to again remind the industry that the annual convention of the American Paper and Pulp Association will take place in the week beginning April 7, with headquarters at the Waldorf. The annual Paper Industries Exposition will be at the Grand Central Palace. And the page is ended.

RUSSELL C. HUGHES.

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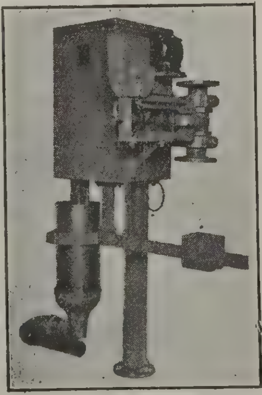

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PAPER

The Magazine of the Paper Industry

Imports and Exports

Under the above caption, PAPER will conduct a discussion of the basic troubles of the paper industry in America. The opening article is a conservative statement of facts by Warren B. Bullock, of the American Paper and Pulp Association. He of course looks at the matter from the Association viewpoint, and in his measured words he presents a picture of the entire import and export situation that is comprehensive. There are many more phases and facts than those presented in this article. Paper wants to go to the bottom of the matter and throw light everywhere, whether it exposes an amazing situation or only what can be expected. It will, moreover, present both sides impartially. It will be glad for any expression of opinion from its readers.

By WARREN B. BULLOCK

American Paper & Pulp Association

GOVERNMENTAL figures on imports of paper for 1923, just made public, are an explanation f one reason why the paper industry f the United States, despite almost ecord production, ended the twelve ionths with an uncomfortable nar- ow margin of profit for the year's perations.

Total imports for the year, meas- red in value, and given in detail at ie close of this article, were the ighest in the nation's history, reach- ig a total of $16,137,795 as against ie previous year's import total of 35,854,357. Even eliminating the early $26,000,000 increase in news- rint imports, there is still a margin f increase of over $5,000,000 in the olume of imports of other grades, hile total exports increased only a illion and a half dollars. An actual ecrease in exports of fine, bag and ewsprint was reported, as compared ith 1922.

In other words, the competition om abroad has been largely respon- ble for the unsatisfactory state of e industry as the year ended, de- ite the volume of domestic produc- n.

In November, the American Paper d Pulp Association held a special nference to discuss this situation, d since that time, as a result of the eeting, there has been an especial ort made to stop the abuses of the stoms lays in the importation of per.

As the year advanced, the import- , encouraged by the tendency of the importers to seek new methods of evading the customs requirements, increased the volume of their offerings. And the customs officials, anxious to prevent improper classification of paper, or other improper practices, have been unable to secure specific rulings in favor of the domestic manufacturers, even when the evidence was clear as to the existence of unfair competition.

From a statistical standpoint, the situation is shown by the accompanying figures, indicating the value of the imports and exports for 1922 and 1923.

That much of the difficulty arises from improper practices has long been evident to the industry, and to the government authorities. These practices fall into three groups, undervaluation, improper classification and dumping.

A few instances of the methods used may be mentioned.

Quantities of paper, chiefly wrapping, were offered for entry under a value lower than the true invoice price, thereby lowering the amount of duty charged. Extra duties tentatively assessed totaled about half a million dollars, but nothing was collected, for the importers brought before the customs authorities made the defense that the undervaluation was not intentional fraud, but due to a change of prices in the country of origin between the time of shipment and the date of the invoice.

Improper classification is a widespread evil, and the customs authorities have been diligent in their efforts to check this abuse. Paper of even such grades as low grade bible, printing and wrapping have been offered for entry as standard newsprint, and heavy offerings of hanging paper have been made at prices so low that it seems certain that it has come in without paying duty. Numberless cases of such efforts to bring in paper under a false classification are constantly being referred to the American Paper and Pulp Association.

A noteworthy case is the importation of partially parchmentized paper as wrapping paper, paying a duty of 30 percent, and then its sale to the American trade as parchment, when,

Grade	IMPORTS 1923	IMPORTS 1922	EXPORTS 1923	EXPORTS 1922
Newsprint	$98,021,045	$72,313,567	$1,636,937	$2,337,591
Book Paper	1,140,332	551,947	3,606,783	3,394,337
Paper Board	2,961,618	1,714,766	2,839,356	2,278,306
Wrapping	4,202,594	2,783,766	3,276,445	3,364,162
Fine	650,623	175,980	1,752,217	1,780,219
Tissue	4,127,912	4,233,982	1,791,620	1,672,071
Hanging	558,831	589,013	579,922	407,443
All Other Grades ...	4,474,840	3,491,336	10,194,405	8,904,935
Total	$116,137,795	$85,854,357	$25,677,685	$24,139,064

f properly entered, it would have been ssessed 3 cents per pound and 15 ercent ad valorem.

The violation of the anti-dumping aw has been difficult to prove, chiefly ecause the customs authorities insist on specific proof of injury to paricular paper manufacturers, even when it has been proved by governmental authorities that paper is offered in this country at prices below hose in the country of origin. It hould be understood that to prove lumping, it must not only be shown hat prices of the paper as offered in his country are below the prices in he country of origin, but also that lefinite injury is suffered by the domestic producers by such importaions. Norwegian kraft was proved by governmental investigation to have een sold here for 17 percent under he prices for the same paper in Norway. Canadian kraft has been sold on a basis of 1½ cents a pound less than the price for the same paper in Canada.

The American Paper and Pulp Association, which began its fight against such improper marketing of foreign paper long before the situation became acute, has been continuing its war on dishonest practices, hrough continuous investigations and repeated protests of specific cases to the customs authorities. In a recent letter to members, Dr. Hugh P. Baker, the association's executive, made this statement:

"At Philadelphia it has been found that three invoices were being held by the customs authorities for investigation, and samples of paper were submitted to the association for an opinion as to classification. Two samples, which importers were trying to have admitted as standard newsprint, were found to be printing paper and bible paper, though of low grade. Another sample, which was classified by the importers as wrapping paper, was a sheet nearly as thick as bristol board, with a high machine finish. The paper in fact was such as is used for special art work. The association has recently called the attention of the customs authorities to an offer of hanging paper, delivered in the Middle West at 4 cents. It appears that this paper, to be offered at such a price, must have been classified by the importers, as standard newsprint. The paper industry is being injured every time paper is brought in wrongly classified and undervalued."

This has been followed by explanation of the nature of evidence required by the customs authorities, before they will give a ruling finding dumping:

"To prove dumping it is absolutely necessary to show specific injury to the American manufacturers. It is not sufficient to secure a ruling that this paper is being dumped to show that the prices are below those at which the American mills can manufacture a similar grade of paper. It is necessary to provide the customs authorities with evidence to show that domestic markets have been taken away from the home mills by the importers, and that the domestic mills have thereby suffered definite injury.

"In other words, general injury is not the required evidence, but specific examples of loss of markets or of orders must be provided, with definite statements as to the manner and to what extent such injury exists or may exist.

"Cases now pending seem to be conclusive if such evidence can be provided."

The surprising feature of the association's investigations have been that the governmental authorities refuse to recognize that offerings of even a small quantity of foreign paper at an abnormally low price may entirely upset the domestic market, and work general havoc to the domestic producer, thereby constituting injury to the docestic producer, but that they require a domestic manufacturer to prove specific injury in his own marketing.

This procedure places the burden of proof upon the domestic manufacturers giving the foreigner, instead of the American, the benefit of any doubt that may exist.

* * *

Schools Study Papermaking

There is a marked increase this year in the number of calls being received by the American Paper and Pulp Association for assistance to public schools in teaching pupils about paper. The Information Service has distributed considerable literature as aid to teachers and has two sets of stereopticon slides almost constantly on the road from school to school. A Jackson, Mich., school used the slides in a unique way. The descriptive material accompaning the various slides was distributed among the pupils in the fifth grades and instead of being read by the teacher, were recited by the individual pupils as the various pictures were shown.

* * *

Change Personnel

The American Writing Paper Company, Holyoke, Mass., has made several changes in the personnel at their mills. Thomas Duff, superintendent of the Beebe & Holbrook Division has resigned to except a position in Tennessee and William Mathieson has been chosen to succeed him. Mr. Mathieson formerly served in the capacity of superintendent of the Parsons' Division, which position will be filled by George Robinson. Harry Grassett, office manager, will succeed Mr. Robinson at the Riverside No. 1 and 3 Mills.

Value of Paper Imports—1923

Grades	January	February	March	April	May	June	July	August	September	October	November	Decem
ws	$7,805,696	$6,713,684	$8,334,836	$8,369,650	$8,610,203	$8,090,355	$7,734,707	$8,545,200	$8,288.882	$8,580,090	$8,157,923	$8,784
ok	63,524	80,033	64,364	82,724	136,269	115,487	84,317	96,476	108,480	107,214	94,364	83
ard	189,809	243,512	271,333	291,177	269,668	264,592	247,697	334,333	255,528	198,282	164,514	231
rapping	413,221	284,282	296,621	329,856	433,437	343,044	414,452	347,886	285,065	430,757	303,956	308
ne	23,307	45,310	51,860	54,771	83,962	62,605	43,245	48,164	54,405	52,508	43,543	42
ssue	72,232	84,056	72,946	41,577	114,732	79,528	84,201	64,529	74,478	54,429	201,950	597
nging	70,819	53,621	43,887	91,306	34,235	30,309	26,181	30,531	45,283	40,889	61,255	80
others	269,718	206,014	304,876	302,851	900,227	724,973	531,107	673,312	552,708	662,027	383,237	396

Value of Paper Exports—1923

Grades	January	February	March	April	May	June	July	August	September	October	November	Decem
ws	$119,569	$121,405	$189,827	$144,861	$158,056	$167,336	$102,561	$109,275	$112,953	$109,884	$129,383	$176
ok	227,378	271,270	284,504	308,290	340,667	369,963	381,597	316,589	262,095	257,459	249,376	245
per Board ..	166,857	192,589	242,392	202,085	301,414	321,123	240,138	301,973	236,015	217,936	153,665	262
rapping.....	188,002	193,124	219,651	201,010	171,856	246,269	176.826	195,489	189,417	163,124	190,245	232
g	58,445	102,283	68,656	85,875	184,866	75,700	46,213	66,772	72,682	93,910	62,246	73
ne	104,225	86,906	89,182	98,973	177,036	194,618	144,065	164,763	148,519	122,027	151,627	171
ssue	85,331	114,107	743,045	125,604	48,372	121,695	157,373	167,710	175,249	158,084	135,870	164
nging.......	47,465	58,583	74,054	79,002	925,723	30,642	25.402	35,301	29,200	52,030	35,162	64
1 others	373,090	342,745	455,178	452,762		906,967	805,092	814,968	788,704	944,387	819,033	794

Paper Exports Exceed 25 Millions

Decrease in Shipments to South America Offset by Gains in Export to Far East and in Book Paper

ACCORDING to the preliminary figures, compiled by the Department of Commerce, exports of paper and paper products from ie United States during 1923 were valued at :5,677,685, or slightly more than one and one-alf million dollars in excess of those for 1922. he difference was due, however, to an increase ı the average price obtained rather than in uantity. Radical changes occurred not only ı the relative importance of foreign markets ut in the comparative demand for the vari-us items. Owing probably to low prices uoted by European competitors, a substantial ecrease is to be noted in exports from the 'nited States to South America, as well as the totals of such classes as newsprint, wrap-ing (other than kraft), paper bags, and the ıeaper grades of writing. These decreases, owever, were more than offset by increased ıipments to the Far East and by gains in ook paper and kraft and such specialties as oxes and cartons, paper and straw board, ease and water proof papers, tissue and crepe apers, hanging paper, carbon paper and wall oard.

Newsprint shipments decrease from 51,528,-18 pounds in 1922 to 32,714,732 pounds in 23, and values from $2,337,591 to $1,636,937 ıt the value of book paper exports increased pproximately $200,000. Cuba was the chief arket with more than seven million pounds, ılued at $752,729, about $175,000 more than . 1922. The total for Mexico, $232,317, rep-sented a loss of more than $10,000, com-ıred with the preceding year. Exports of ook paper to South America also decreased, ıough not to the extent indicated for news-int, total shipments for 1923 being valued at 46,728, or $88,000 less than the value in 22. The Brazilian market accounted for the eater part of this loss, the total value for ıis class declining from $158,000 in 1922 to 2,130 in 1923. A slight increase was re-orted in shipments to Peru which were valued $42,664. In the Far East, which received ook paper to the total value of more than 00,000 gains made in the markets of China ıd British India offset, with a negligible dif-rence, decreases in the Philippines and Japan.

Though sales of wrapping paper (other than aft) in foreign markets decreased nearly 20 r cent in volume, better prices brought the ılue up to substantially the 1922 level. The ıief losses occurred in Latin American mar-ts, particularly in Cuba where the total ılue reached only $321,741, compared with 97,738 in 1922. Exports to England, Canada, ıd Central America, however, increased as ell as those to Japan and the Philippine lands but not sufficiently to offset entirely e decreases in other markets.

Nearly 50 per cent of the paper and straw ard exports, which increased in both quan-y and value during 1923, were shipped to anada. Notwithstanding the fact that this arket received nearly two million pounds less an in the preceding year the total value was creased by more than 100,000. Exports to uba valued at $288,510 during 1923 practi-lly doubled the 1922 total and a moderate lvance is also indicated in the Mexican mar-t. Excepting Columbia, the year 1923 ıowed a decline for this item throughout outh America. Exports to China showed an ıportant increase in qauntity and advanced value to $650,885 a gain of nearly $300,-0 while Japan gained approximately ten ıousand dollars in value. Shipments to Aus-alia and New Zealand decreased both in ıantity and value.

It will be noted that total exports of photographic paper during 1923 very slightly exceeded those for 1922. More important changes occurred in the distribution, however. The value of exports to the most important market, Japan, were $455,922 or over $200,000 dollars less than for the preceding year and shipments to China decreased from $126,530 in 1922 to $35,822 in 1923. Sales to the Philippines improved slightly. South America, the second market in importance with Argentina leading increased from $274,000 in 1922 to $365,485 in 1923 and shipments to Mexico, valued at $135,000, represented a gain of more than $40,000. Improvement is likewise shown in sales to Cuba, England and Sweden.

About 70 per cent of the total exports of boxes and cartons from the United States was absorbed by Canada, which imported 8,790,508 pounds, valued at $778,765 in 1923, an increase of 16 per cent in quantity and 33 per cent in value, compared with the previous year. Following Canada, the next markets of importance were Cuba, Mexico and South America, all of which increased their imports of this product during 1923. Shipments to England decreased slightly in both quantity and value.

The United States nearly doubled its exports of playing cards during the past year both in quantity and value, this item accounting for $1,121,986. Of this more than one half was absorbed by the Far East and sales to England amounted to $121,647. British South Africa ranked third with shipments amounting in value to slightly more than fifty thousand dollars.

A decline of 16 per cent in quantity and 9 per cent in value occurred in exports of writing paper.

Canada's Pulp and Paper Exports in January

THE regular reports of the Canadian Pulp and Paper Association states that exports of pulp and paper in January were valued at $10,900,050. This was a decline of $774,138 from the total for December, but was greater than the total for January 1923 by $601,807.

Details for the various grades of pulp and paper are given below for January 1923 and 1924.

	January 1923		January 1924	
PAPER:	**Cwts.**	**Value**	**Cwts.**	**Value**
Newsprint	1,655,783	$6,134,827	1,874,167	$7,089,061
Book Paper	4,162	26,077	1,986	13,633
Wrapping	18,723	146,762	36,181	266,490
Bond & Writing	739	8,720	1,776	20,377
All Other	——	288,589	——	431,678
		$6,604,975		$7,821,239
PULP:				
Mechanical	597,848	$ 994,917	275,027	$ 500,817
Sulphite Bleached	273,766	1,201,330	233,726	903,410
Sulphite Unbleached	313,847	811,262	386,314	1,026,563
Sulphate	212,031	585,759	218,989	648,021
	1;397,492	$3,693,268	114,056	$3,078,811

The exports of pulpwood in January amounted to 79,405 cords valued at $765,089 compared with 53,416 cords valued at $614,925 exported in December 1923.

Figures for the twelve months ending January 31st, 1924, show a considerable increase in the quantities and value of pulp and paper exports over those for the previous twelve months as will be seen from the following tables:

	12 Months ending January 1923		12 Months ending January 1924	
PAPER:	**Cwts.**	**Value**	**Cwts.**	**Value**
Newsprint	19,492,050	$69,531,292	22,977,629	$86,565,492
Book Paper	35,739	251,003	47,142	353,512
Wrapping	357,148	2,676,966	424,717	3,207,685
Bond & Writing	12,717	138,747	24,259	252,192
All Other	——	3,455,395	——	4,608,340
		$76,053,403		$94,987,221
PULP:				
Mechanical	6,320,879	$ 9,264,929	6,499,319	11,105,223
Sulhpite Bleached	2,958,446	12,122,441	3,157,426	13,276,300
Sulphite Unbleached	4,260,372	10,657,098	4,633,132	12,621,396
Sulphate	2,982,607	9,242,634	2,933,864	9,416,020
	16,522,304	$41,287,102	17,223,741	$46,418,939

The quantity of pulpwood exported in the twelve months ending January, 1924 was 1,330,406 cords valued at $13,094,207 compared with 1,078,566 cords valued at $10,858,705 in the preceding twelve months.

The Riddle of Cellulose

By **THOMAS J. KEENAN**

IN AN ARTICLE published in the preceding issue of PAPER, Prof. Louis E. Wise, of the New York State College of Forestry at Syracuse University, traversed some highly debatable ground in the field of cellulose chemistry.

It has for a long time been accepted by chemists that celluloses of different origin, whether from cotton, wood or straw, are identical in chemical properties. This was the case for many years even before a sufficiently pure cellulose had been obtained to permit of settling on an empirical formula for it. The true constitution of cellulose is yet a debatable point—and the discussion still rages in scientific circles.

The many difficulties encountered in purifying, dissolving and identifying the cellulose molecule are factors which have hindered chemists in reaching a definite conclusion as to its chemical constitution. Cellulose is an inert colloid and does not lend itself to any of the ordinary methods of analysis. It can not be crystallized or melted, and being colloid in character it absorbs and retains a great many foreign substances, which essentially influence its properties. Indifferent or neutral solvents have no action upon it and it dissolves only in acid, alkaline or oxidizing mediums, all of which are prone to change the substance chemically, so that any determinations of molecular weights or purification by such agents are open to the suspicion of causing decomposition of the molecule itself. This suspicion grows to conviction when it is known that under the action of certain chemicals or solvents, cellulose becomes soluble in alkalis or becomes endowed with reducing properties.

The interest which chemistry takes in cellulose is justified by its widespread distribution in nature and by its great technical importance. Nearly all forms of vegetable growth, even seaweeds, can be made to yield cellulose in an organized condition as fibers of definite form. Apart from the use of these fibers in papermaking, the derivatives of cellulose, particularly the esters produced by acetylation or nitration, and the viscose and cuprammonium solution, have become of great importance and industrial value, being extensively employed in the manufacture of photographic films, especially in the motion picture industry, and for the production of artificial silk.

In the endeavor to determine definitely the chemical constitution of cellulose, researches were conducted with the esters referred to, but, as cellulose acetate and cellulose nitrate vary greatly according to their mode of preparation, the results were unsatisfactory. Indeed, chemical pessimists are to be found who aver that the comparatively mild process of acetylation is more than a simple esterification and is one that involves a breaking down and rearrangement of the molecules of the substance which make it impossible to reach a direct conclusion as to the nature of the original cellulose molecule.

For many years chemists of great eminence in their profession have debated before learned societies or have discussed in the more philosophical types of chemical journals—in our own country, as well as in England and Europe—the identity of the cellulose molecule. Out of the welter of debate and argument "about it and about" there have emerged a few facts concerning which a majority of chemists appear to be in agreement. One is that wherever cellulose occurs it is chemically the same, the empirical formula for cellulose from all sources being $C_6H_{10}O_5$. Another is that the molecule of cellulose is very large as indicated by its insolubility, high melting point, colloidal nature, and the molecular weight of colloidal solutions. The third fact which has been determined is one of great importance—namely, that the structure of cellulose consists of glucose molecules, or an isomeric compound of glucose, seeing that cellulose yields with acids 100 percent *d*-glucose.

To penetrate much farther into the fastness of chemical experimentation and speculation might lead the reader astray; it would necessitate an explanation of the constitutional relation between glucose and the cellulose element which would be out of place in a trade journal. However, an outline may be supplied.

It is debatable whether the primary cellulose substance is cellobiose or cellobiose anhydride. The formula of cellobiose is $C_{12}H_{22}O_{11}$, cellobiose anhydride being $C_{12}H_{20}O_{10}$. In the first named two molecules of glucose are combined by the glucoside bond. The aldehyde (acetyl) hydroxyl of one glucose molecule splits off water with the fifth carbon atom of the second glucose molecule. In the case of cellobiose anhydride one molecule of water is eliminated between the aldehyde hydroxyl of the second glucose molecule with the fine-hydroxyl of the first glucose molecule.

An important recent contribution to this much discussed question is to be found in one of the most responsible of the German chemical journals, *Justus Liebigs Annalen der Chemie* (Band 435, Heft 1 u. 2). I am indebted for a summary of this article to Dr. Mary Jacobson, the scholarly librarian of the Lehn & Fink Laboratories, Bloomfield, N. J. The authors, Hess, Messmer and Weltzien favor the glucose anhydride formula as the result of an investigation of the behavior of cellulose and its derivatives in cuprammonium solution. On dissolving cellulose in Schweitzer's reagent, wihch is a solution of copper hydroxide in ammonia water, they found that a copper cellulose compound of high rotary power was formed to which they gave the formula $CuC_6H_{10}O_5$, having proved it to be an individual compound and not a mixture of various compounds.

A radiograph of the cellulose precipitated from its cuprammonium solution showed it to be very similar to a radiograph of fiber cellulose. The fact that cellulose is not hydrolyzed when dissolved in Schweitzer's reagent is deemed proof sufficient that both kinds of cellulose are identical and that $C_6H_{10}O_5$ is the original cellulose molecule.

Cellobiose, which is regarded by other investigators as the basic substance of cellulose does not

(Continued on page 29)

Electrical Supercalender Drive

Description of the System of Dual Frequency Apparatus

By O. C. CORDES

Paper Mill Section, General Engineering Department,
Westinghouse Electric & Manufacturing Company

THE supercalendering of paper is one of the important operations in the finishing of many kinds of paper. This operation is an art rather than a science and much depends upon the calender operator to produce the particular finish required. According to the kind of calender rolls and the weight applied, the required finish is given to the surface of the paper. The operator of the calender is entirely responsible for the finish. The amount of weighting and the speed of calendering is all determined by rule of thumb and experience.

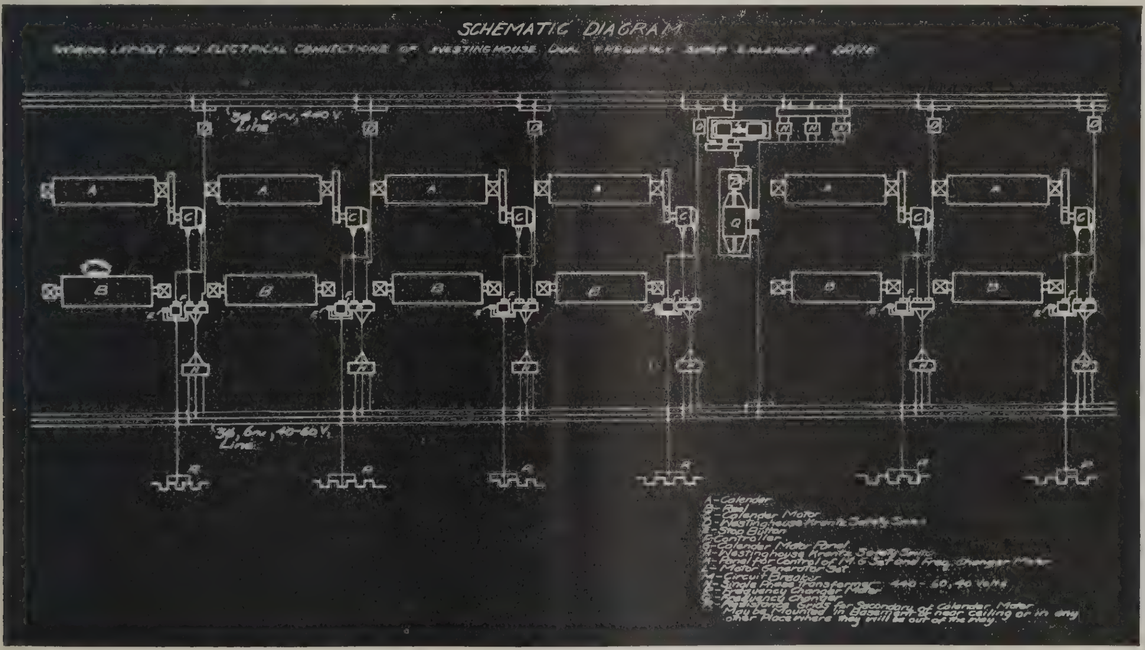
There are usually but two speeds required in connection with the calendering of paper, these are known as "Threading-in" and "Running." However, at times it is quite desirable to have intermediate speeds so that the calender can be slowed down for bad or weak spots in the sheet. The "Threading-in" speed is normally about one-tenth the full running speed. The method of supercalender motor drive most prevalent at the present time, and up to the time of the conception of the Westinghouse Dual Frequency Drive involves either a single or two-motor equipment.

The single motor drive obtains its "Threading-in" and "Running" speeds by means of suitable gear reductions and clutches. The two-motor drive utilizes two motors, the larger of which drives the calender at "Running" speeds through a spur gear reduction. The small motor drives the calender at "Threading-in" speeds, through the larger motor by means of an additional gear reduction and an over running clutch.

The Westinghouse Dual Frequency Drive was designed primarily to eliminate the necessity of a larger reduction, or a separate motor with its gear reduction and over running clutch for obtaining the "Threading-in" speed. For this drive both the "Threading-in" and "Running" speeds are obtained from one motor through a single gear or chain reduction to the lower calender roll. It is self-evident that from a mechanical standpoint this is a less complicated drive and requires less space than either of the other two principal systems of drive.

The Westinghouse Dual Frequency Drive consists of a single motor which drives the lower calender roll through one chain or gear reduction, a control panel, a controller, stop push button stations, necessary safety switches and a frequency changer set together with the required transformers. The frequency changer set reduces the primary voltage and frequency to approximately 10% of its normal value. This reduced frequency and voltage when impressed upon the motor causes it to rotate at approximately 10% normal speed, which in turn produces the desired "Threading-in" speed on the calender. From the standpoint of first cost, a type of drive such as this, is of course, most economical where two or more calenders are installed.

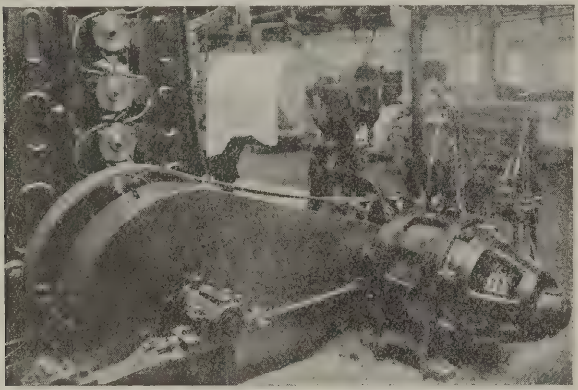
The motor is of the wound rotor type and is designed to have a high starting torque at the low frequency, so that it will be able to start the supercalender stack under the most extreme load conditions. The controller operates in conjunction with the control panel as follows.


SCHEMATIC DIAGRAM
3φ, 60~, 440 V. Line
3φ, 6~, 40-60 V. Line
A
B
A-Calender
B-Reel
C-Calender Motor
D-Westinghouse Kremtz Safety Switch
E-Stop Button
F-Controller
G-Calender Motor Panel
H-Westinghouse Kremtz Safety Switch
K-Panel for Control of M.G. Set and Freq. Changer Motor
L-Motor Generator Set
M-Circuit Breaker
N-Single Phase Transformers 440-60, 40 Volts
P-Frequency Changer Motor
Q-Frequency Changer
R-Resistance Grids for Secondary of Calender Motor
May be Mounted in Basement or near ceiling or in any other Place where they will be out of the way.

Schematic Diagram

The first step of the controller connects the motor to the low frequency source with all secondary resistance cut out. The second step disconnects the motor from the low frequency source and connects it to the high frequency source, and inserts resistance into the rotor circuit. The subsequent steps serve to cut out the secondary resistance in the rotor circuit until full speed on the motor has been obtained. The secondary resistance is so designed and adjusted as to give smooth acceleration from "Threading-in" to production speeds, thus avoiding paper breakage. "Stop" push buttons are provided for mounting in desirable places, so that the calender can be stopped without having to touch the controller. However, in order to again start it is necessary to return the controller handle to the "Off" position and come up through the low frequency point to the running speed.

The frequency changer is of the commutator type and is a specially designed machine for frequency conversion. The armature of this machine is similar to that used in rotary converters. The commutator brush gear however, is arranged for three phase current, and requires three equally spaced brush arms per pair of poles. The stationary part consists of a laminated core built up in a cast iron frame similar to that of an induction motor. Excellent commutating conditions are obtained over its entire load range due to its rotary converter action and special design features.



Typical view of motor and enclosed chain drive to calender stack, also showing rear of control panel. The small space requirements are evident.

The action of the machine in changing the frequency is somewhat similar to a rotary converter, but instead of operating at synchronous speed and producing direct current, it is operated at a speed a few per cent below or above synchronous speed and therefore delivers a current having a frequency proportional to the percentage which the armature speed is above or below synchronous speed. The machine is usually designed to operate at such a percentage below synchronous speed as to give the desired "Threading-in" speed on the calenders.

Frequency changer set, of sufficient capacity for 9 calender stacks, together with its transformers; also drum controller with contactor panel for one calender. 6 cycle and 60 cycle cables are shown back of frequency changer

The frequency changer itself may be driven by a small direct current motor of sufficient size to overcome the mechanical friction of the set or by an induction motor of similar size and suitable speed characteristics, and in some cases may be designed to operate at the required s without the use of a driving motor at all. The loa the small driving motor is not affected by the load or frequency changer.

The commutator type of frequency changer is muc be preferred to the induction type for obtaining a frequency as it is a much smaller machine and has r higher efficiency and better voltage regulation. An ir tion type frequency changer would be about 20 time large as the commutator type and would have losses five or ten times greater.

The schematic wiring diagram and layout shows a cal installation of the Westinghouse Dual Frequency percalender drive, together with the wiring arrange between the frequency changer, the motors and the cor It will be noted that the control and wiring is extre simple and that each supercalender operates entirely i pendent of the other. The capacity of the freqency cha is such that all of the supercalenders can operate a "Threading-in" speed at the same time. It will be r from this diagram that a small motor generator set of than 10 KW capacity is shown supplying direct cu to the motor driving the frequency changer. In a having direct current available this set is not require would it be in cases where an A. C. driving motor is

View in calender room showing seven or nine calender stacks together with motor and chain drives. Observe small amount of space taken by the driving equipment. The leather link belt which drives the calender reel is also shown

Side view of calender stack showing motor, chain drive, control panel and type "S" controller

The first of these installations was recently made i plant of the Kalamazoo Paper Company, at Kalam Mich., where there are now nine supercalenders oper with this system, totally enclosed chain drives being for speed reduction between motor and calender. T calenders were originally steam engine driven from a line shaft to which they were belted.

Some of the advantages derived from this system of drive are:

- (a) Greatly increased production and flexibility.
- (b) Elimination of noise.
- (c) Decreased lighting cost.
- (d) Reduced physical exertion on operators.
- (e) Increased cleanliness.
- (f) Saving in oil and floor space.
- (g) Reduced personal hazzard and fire risk.

The satisfactory performance and marked economies in the operation of this installation is gratifying and much appreciated by the management.

The increase in production was effected by three major means *i.e*: N

- (a) Increased speed of calenders.
- (b) Greater flexibility of operation.
- (c) Reduced physical wear and tear on the operator.

The old belt drive together with the gearing and clutch mechanism on the calenders was exceedingly noisy, very dirty, greasy, and a pronounced fire hazard. Furthermore the numerous belts required, cut off a considerable portion of daylight from the room and made it necessary to resort to artificial illumination. The continual shifting of clutches required by the old method of drive tired the operators physically, so that during the latter part of the day production fell down very materially. This condition was noted particularly in the specific case where two light weight men were operating a calender stack. There the production was increased some 20 per cent due entirely to the more flexible and easy operation of the dual frequency system of drive.

According to figures obtained from the management of the Kalamazoo Paper Company, the production has been increased 25 per cent by the installation of this new type of supercalender drive.

The space requirement for this type of drive is very much less than that required by the old method, and besides it has the further advantage in that the control can be located where it is deemed most convenient for operation. Therefore, the only piece of apparatus which is truly fixed is the motor and the drive. In the old type of drive all parts are fixed permanently so that they cannot be shifted to suit the space into which they are to fit.

Through the able handling of the installation work by W. H. Scott, chief engineer for the Kalamazoo Paper Company, and his assistant, the change over work from the old belt drive to the new Westinghouse Dual Frequency drive was effected without loss in production.

Waste in Pulp and Paper Industry

WHY?

By **B. T. McBAIN**

Director of Mfg., Nekoosa-Edwards Paper Co.

Why is it the Laws are such that a man growing peaches or prunes may join an association of like growers and pool his crop to the best advantage as to sale, while a man growing spruce trees cannot do likewise?

Why is it that a man producing apples may combine to secure a living price for his product but the man producing bricks cannot do so? Yhy is it that one American citizen producing what each and every other American citizen needs for food can under the law produce an article in combination with other like producers and charge the whole consuming public a price that will allow of a living wage to be paid his employees and have a decent return on his investment, while people in other lines of endeavor dealing with only a few, comparatively speaking, must submit to ruinous competition and be forced to shut down his plant to the end that he cannot pay his employees a living wage and cannot have a decent return on his investment.

Why? Politics, is the answer in my opinion.

I believe it is right that the food producer should be protected and should be allowed to co-operate with his competitors. I believe further that all other legitimate producers should be protected and should be allowed under proper supervision to cooperate with his competitors in exactly the same way.

Our American constitution guarantees equal rights to our citizens, but in this particular case our laws are not allowing equal rights.

I cannot see why, when cut-throat competition is on, one of the producers cannot be allowed to go to all the others and say "Gentlemen, we cannot live under this kind of competition. We should agree not to cut prices further and get this market back onto its feet, to encourage the buyers and get them to have confidence to the end that we can all of us, at least, live." Then say further that we should each one send to our customers a letter that we will not cut prices further for the next quarter.

But as the law now stands we are not allowed to do this. We are not allowed to talk prices or to combine in restraint of trade; while an agreement of this kind, while the market is all upset, would not be in restraint of trade, but a help, a life belt when things are sinking and some are about to drown in the sea of cut-throat competition, that is not and cannot ever be considered legitimate.

Why not put up our case in the strongest possible way and apply to the powers that be, for a hearing to the end that we may all live?

As it is, when unfair competition comes, who gains? No one. Who loses? Everyone, but particularly that important part of our citizenship the so called common people, the workingman.

A shut down, though he may be paid a living wage when working, soon brings the wolf to the door of many homes. Ruinous competition brings nothing short of shut down and loss.

Why? Politics and WASTE.

* * *

Offer Bonds to Public

The Parker-Young Company has offered $2,500,000 first mortgage, 6½ sinking fund gold bonds to the public. They are dated January 1, 1924 and are due February 1, 1944.

The Parker-Young Company, incorporated in 1917 under the laws of Maine, is the successor of Parker-Young Company, the business of which was founded in 1843. In 1917 the Company acquired the business and assets of the Henry Paper Company at Lincoln, New Hampshire, and also owns all or nearly all of the capital stocks of a number of subsidiaries.

The properties of the Company include a pulp and paper mill at Lincoln, New Hampshire, with a capacity of 25,000 tons of paper per year; a ground wood mill at Livermore Falls, New Hampshire, operated in connection with the Lincoln mill; approximately 70,000 acres of timber land in the Pemigiwassett Valley, about twenty miles of logging railroad connecting the greater part of this timber area directly with the Lincoln mill; developed water powers at Lincoln and Livermore Falls; practically the entire village of Lincoln, and other incidental properties, constituting all the elements of a complete manufacturing enterprise. Other properties of the Company and its subsidiaries include further extensive areas of timber lands in New Hampshire, Vermont and Florida; two modern and efficient saw mills, and three mills manufacturing piano sounding boards, one or more of which also produce boxes, shooks, tables, piano backs and other parts, interior finish and veneer. The diversity of these products enables the Company to use its timber resources to the best advantage.

The Editorial Page

The Story of the Year

A DOLEFUL tale is told in the figures just made public by the American Paper and Pulp Association regarding paper imports and exports for the year 1923. It is, indeed, a sad story, mates.

Combined in those columns of figures is the tale of a tragedy, the tragedy of a government that is not watching out for the interests of an important industry. It is poignant, aching tragedy when almost a hundred million dollars worth of newsprint paper is imported into this country and only a million and a half exported. It is sheer tragedy when the value of imports on all kinds of papers increases approximately one quarter from 1922 to 1923, while exports scarcely maintain the same level in 1923 that they had in 1922.

The single glow of brightness in those figures is the fact that domestic consumption is splendid. There was a total production of paper in this country of 7,200,000 tons during the year 1923. This is some 200,000 tons over that of 1922 and slightly less than the production in 1920, the extraordinary boom year.

But unless the tariff schedules are changed so that they are favorable instead of adverse to the American paper industry, there can only be a passing, sporadic prosperity in the mills of this country. Increased efficiency in production helps, the more modern machinery of America helps, the better calibre of men in America helps, better merchandising systems help, but as long as the government of the United States permits most countries on the face of the globe to send paper here at ridiculous tariff rates, it is impossible to forecast a permanent, sound prosperity for the industry.

It is, of course, the old, hoary story of the standard of living and rate of pay. It seems to have been dinned in the ears of Congress fairly successfully by other industries, that the American rate of wages is far, far above the rates in other lands. But the American paper industry has been grotesquely remiss in this. No speed, or skill, or machinery, or systems will make it possible for workmen getting almost as many dollars as foreign workmen get pennies to produce paper as cheaply as the latter.

It can't be done in the steel industry. It can't be done in the textile industry. It can't be done in the paper industry or any other industry. And yet the government must think that the paper industry is superhuman and can do the impossible.

While, of course, newsprint has by far the largest ratio of difference, in some degrees the same situation occurs in all branches of the industry. It is particularly noticeable in the paper board, wrapping paper and tissue paper branches. A total of $4,127,912 worth of tissue paper was imported in 1923, while only $1,791,620 in tissue was exported. Just about twice as much, in value, of wrapping paper was imported as was exported, without burdening you with figures. The difference is not so great in paper board.

The statistics bring down on paper what is, of course, generally known throughout the industry. It is in truth, thrusting in the knife just a little deeper. It makes the injury hurt more.

Despite the fact that it has now been a long standing ill, it doesn't seem reasonable to suppose that the paper industry of the nation is going to sit down, hope for the best and twiddle its thumbs. The tariff situation is wound about with miles and miles of cloying, entangling, tripping red tape, it is burdened with precedents, and the commission clogged with more cases than the leaves of the forest in June, but nevertheless, a fighting, fact-showing campaign eternally sustained is bound to bring results. Certainly nothing is gained by supine submission to the will of present law. Surely, it is discrimination against the paper industry to protect other industries far better than this one. Surely, the representatives of other industries are not better diplomats than those in the paper industry. Then, the battle should be renewed.

For in the newsboy's parlance, "Taint right."

The Future of the Paper Industry

Editor Paper:

The contribution by Norman W. Wilson to the above important subject is admirable and illuminating, and causes thought and investigation.

Since the paper industry is one of the sixth largest in the U. S. A. as he informs us in the *Paper Mills & Wood Pulp News*, published February 16th, it is certainly one that affects our entire population from the cradle to the grave. It is one of prime importance to all and of greatest service to all and should interest us all to facilitate, economize and propagate for its paramount importance all over that of other industries. Most of us, however, can but plead greatest ignorance to its essential necessities, and how we can best meet foreign competition and husband the industry at home.

But it seems to me, that the actions of those engaged in the industry, should make some of the greatest reforms for their own profit and to economize the cost of paper products to consumers, which is to facilitate the sales of such products and effectually meet the worlds' competition. The errors I see manufacturers making is their clustering together until the habit has become extreme, illogical and suicidal. To explain what I mean, I will relate, that I have read in the organs of the industry that 81% of all the papermaking plants in New York state, all of the New England states and all of the Lake states are entirely dependent on purchase of pulpwood to employ their plants, which means to incur long expensive freight hauls, and which at least partially explains why we are importing 40% or more, of the pulp wood made into paper in the United States. Billions of cords of such wood are going to decay following saw mill operations or being consumed by fires to the destruction of a promising young growth over most of the Southern states.

I have also observed from the same source of information, that the four states of North and South Carolina, Georgia and Tennessee, in their entire aggregate of manufactured paper in different years have run far below one per cent of the paper manufactured the same year in New York State alone. While the four Southern states just named are large consumers of paper, like other states surrounding same which are also large consumers of paper, are making very little. According to the public press, North Carolina alone has 22,000,000 acres of wooded lands, and the South is full of decaying wood following saw milling operations with a fairly good per cent of virgin timber remaining untouched. I have read from time to time in the organs of the pulp and paper industry, that the delivered price of pulpwood at the plants was close around $23.75 per cord. We will most gladly contract the price of anywhere from one million to two million cords of pulpwood standing, so as for the delivered cost to not exceed $3.75 per cord, saving mill men $20 per cord on our pulpwood or a saving of $40,000,000, if they should want two million cords. We have an undeveloped water power in practical distance, and we will grant the free use of same. Not only for the development of the one million or two million cords, but will grant the continuous use of the power, free of any cost except its development by parties who buy our wood.' We will also give the free use of lasting streams of clear fresh water for washing pulp and free factory sites on deep water fronts. Where the paper products can be loaded onto largest ocean ships at the plant. Which plant location is below the confluence of several navigable rivers and many floating tributaries, all heavily wooded throughout their length to perpetuate the pulpwood supply indefinitely. Handled by navigable water to this good old port city this challenges comparison for economy of cost, where climatic conditions, cheap living and many other favorable conditions which lead to larger profits and lower prices for the products than any known in the dozen or more Northern states, where 81% of their plants are purchasing wood at high prices and paying long expensive freight hauls.

As the above pulpwood referred to is removed, we will perpetuate the supply by the growth of mulberry trees. The rapidity of which growth is so remarkable that a good crop can be harvested every ten years. In the meantime there is a good annual income from the fruit of the red and black mulberry for raising pigs and poultry and for edible and canning uses, besides an annual crop of silk from the leaves of the white mulberry free of any cost by the use of cocoons.

We have read that the mulberry makes a fine strong and tough paper, while ten varieties rank among the most rapid growth known. The same like the cotton plant is peculiar to the South, and will not grow as far north as New York State.

The one hundred and four cotton textile mills located in Gaston County, N. C., we understand have sufficiently demonstrated that the cotton textile can be more economically manufactured locally than the same textile cost to manufacture north. Hence paper can be manufactured south much cheaper than north since 90% of all the paper made in the United States is now being made from wood.

The merits of paper made from mulberry points the future source of our paper supply. Its matchless rapidity of growth, its luxury and money merit meaning such an annual income must make it an argument settler which when studied and understood sufficiently will not require a prophet to tell us the future of the pulp and paper supply.

W. Crawford Smith.

Box 1128, Wilmington, S. C.

* * *

Forestry Briefs

The Japanese Financial Commission in the United States has announced that the budget for restoration purposes following the earthquake includes $295,000,000 for reforestation. This is to be met by loan flotations from 1924 to 1928, much of which will be raised in Japan.

Capt. Harry Quigly, prominent in Quebec aerial fire prevention, has gone to England to buy some new planes, with equipment particularly suitable for fire prevention work. The aeroplane today is not only used in Quebec for spotting the fires, but also to rush teams of men to the field for the actual fighting of the flames.

The importance of forestry to solve the fuel and moisture problems of the farmer, as well as for the production of a timber crop is being emphasized to Canadian farmers, and a speaker before the Dominion Grange advised his hearers to pay more attention to the effectiveness of the forest in preventing the too rapid dissipation of moisture collected in the fall and winter months.

Spruce to socks is the latest campaign involving forestry to be discussed by Canada. In Mr. Fieldings budget speech he proposes a heavy duty on artificial silk yarns and fabrics, to aid in the development of this type of forest products. The United States produces nine million pounds a year of the world's product of forty-four million pounds. It is pointed out in Canada that the success of the artificial silk industry is largely dependent on the production of a high grade pure white sulphite pulp.

* * *

Also for Girls Only

If there happens to be any of you who have been going with the same "steady" ever since the last leap year and the young man is still backward, kindly advise us and maybe we can dope up some sort of a formula to use on him directly after January 1st.

LIFE OF ACTIVITY ENDS FOR D. G. GARABRANT

Paper Manufacturer of Prominence Dies at Bloomfield Home

DAVID G. GARABRANT, paper manufacturer, banker, college executive, nationally known Baptist layman and one of the oldest and most prominent residents of Bloomfield died Monday evening, February 18, at his home, 76 Williamson Avenue, that town.

He was born in New York City seventy-seven years and went to Bloomfield when he was four years old. He had lived there ever since.

Mr. Garabrant was senior partner of the firm of Bulkley, Dunton & Co., of New York, paper manufacturers, and was active in the affairs of the company until he was taken ill a week ago. He was also president of the Union Paper Mill of Middlefield, Mass.; a director of the Ryegate Paper Company of Ryegate, Vt.; a member of the board of directors of the New York Manufacturers' Real Estate Company and Wednesday night was elected president of the Bloomfield Savings Bank, of which he had been vice president and manager for three years. He succeeded in the presidency of the institution the late Theodore H. Ward. He was also a director in the Bloomfield National Bank.

In addition to having served on numerous boards controlling policies of the Baptist Church in this country, Mr. Garabrant was, at the time of his death, chairman of the executive committee, National Baptist Memorial Church, Washington; chairman of the board of directors of the American Baptist Home Mission Society and a member of the finance committee of the society; a member of the board of directors of the New Jersey Baptist Convention, a member of the advisory board of the Baptist Home for the Aged and a member of the board of directors of the missionary co-operation committee of the New Jersey convention.

Activity in Colleges

He had served for several years as president of the board of directors of Peddie Institute, Hightstown; Virginia Union University, Spellman Seminary, Atlanta, Ga. endowed and named for Mrs. John D. Rockefeller, and Leland College, Baker, La., and was a trustee of Shaw University, Raleigh, N. C.; Benedict College, Columbia, S. C., and Morehouse College, Atlanta, Ga. He was a member of the New Jersey State Committee of the Y .M. C. A. and president of the Latin-American Improvement Association.

During the war he was a member of the executive committees of the Liberty Loan, Y. M. C. A. and Red Cross drives and recently was a member of the executive committee of the building fund drive of the Mountainside Hospital.

Mr. Garabrant's wife, who was Miss Annie Fairbanks, died twenty-three years ago.

He leaves a son, Joseph E. Garabrant, and two daughters, Mrs. F. A. Stone and Mrs. J. L. Burdett, all of Bloomfield. Funeral services were conducted Thursday afternoon at 3:15 o'clock in the First Baptist Church of Bloomfield by Rev. James A. Monk, pastor. Burial was in Bloomfield Cemetery.

* * *

Fear Spruce Bud Worm

Timberland owners in Washington County, Maine, are much concerned at the spread of the ravages of the spruce bud worm and it is reported that vast areas of timber in that section are rapidly reaching a point at which they will not be worth salvaging. In order that the owners may know how soon they must cut in these areas in order to save the spruce James A. Beal, assistant forest entomologist, is making a survey in Washington County to ascertain the rate of speed of the spruce bud worm increase and also the rate at which the killed timber deteriorates.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Chattanooga, Tenn.—The Tennessee Paper Mills, Inc., has plans under way for enlargements in its plant and will provide facilities for an increase from 50 to 60 tons of paper box stock per day. Work is now in progress on the installation of a steam-operated power plant at the mill, estimated to cost approximately $80,000. It is expected to have the unit ready for service at an early date.

Corning, N. Y.—The Corning Wood Fibre Products Co., affiliated with the Corning Glass Works, Walnut Street, has preliminary plans under way for the construction of a new local plant, to be one-story, brick and reinforced concrete, 100x300 ft., estimated to cost about $55-000, including equipment. A. M. Tietzel is company engineer.

New York, N. Y.—Morris Katzenbogen, 176 Wooster Street, manufacturer of paper boxes, has leased a floor in the building at 142-44 Greene Street, and will use it for expansion. It is understood that the present works will be removed to this location.

Marion, Ind.—The Elam Paper Co., has abandoned plans for the removal of its plant to Dayton, Ohio, recently announced, due, it is stated, to the fact that citizens of the last noted community have failed to subscribe in necessary measure for the erection of the proposed new mill. The company will remove its present works at Third and Nebraska Streets to the building at Second and Nebraska Streets, Marion, where increased facilities will be available. It is proposed to develop a larger output in the near future. S. L. Elam is president and general manager; J. H. Schaumleffel, vice-president; and W. H. Willy, secretary.

Lebanon, Pa.—The Lebanon Paper Box Co., is perfecting plans for the construction of a brick and steel addition to its plant for considerable increase in capacity, with reported cost in excess of $65,-000, including equipment.

Holyoke, Mass.—The American Tissue Mills, Inc., has work well under way on a new power plant at its works, and plans to have the structure ready for service at an early date. It is estimated to cost close to $37,000. The Casper Ranger Construction Co., Holyoke, has the general contract for the structure. McClintock & Craig, 33 Lyman Street, Springfield, Mass., are engineers.

Newark, N. J.—The Newark Box Board Co., Blanchard Street, has tentative plans under advisement for the rebuilding of the portion of its plant, destroyed by fire, Feb. 14, with loss unestimated. The fire was confined, for the most part, to a one-story structure, 50x100 ft.

Dallas, Tex.—The Crown Paper Box & Label Co., recently organized, will operate a local plant for the manufacture of a line of paper products, including cardboard boxes, etc. Leo Singer is president.

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

MISS MYRIE H. CONNET
Lebanon, Oregon

Possibly a Joke

A reader of PAPER magazine after perusing the short article which said that the German marks were being purchased by foreign paper manufacturers and used in the manufacture of various kinds of paper called up by telephone, H. A. Swafford, mill manager of the Crown-Willamette Paper Company's plant at Lebanon, Ore., and inquired if his mill was buying German marks.

"No," Mr. Swafford shouted over the telephone, "we are not buying them or any other waste paper for use in our mill. We use nothing but white fir to make paper."

Rumford, Me.—The Continental Paper & Bag Mills Corporation, recently formed under Delaware laws, has taken over the local mills of the company of the same name, and plans for extensive operations, developing full capacity. It is said that the Rumford plant of the International Paper Co., with which the new organization is affiliated, will also be taken over at an early date.

New York, N. Y.—The General Paper Novelties Co., 43 Mercer Street, has leased a floor in the building at 457-61 West Broadway, for enlarged space for increased capacity.

Watertown, Wis.—The Rock River Paper Co., care of William C. Stone, Bank of Watertown Building, has acquired a local site for a new mill and plans to commence construction in the spring. It is said that an engineer will soon be selected to prepare plans. The estimated cost has not been announced.

Richmond, Va.—A new local plant will be operated for the manufacture of paper raincoats, located in the East End section of the city. The company is known as the Emergency Raincoat Corporation and is operating in a smaller mill, with capacity of about 500 coats per day. It is purposed to develop a production of close to 5,000 paper raincoats daily in the new works. W. C. Carpenter heads the organization.

West Hopkinton, N. H.—The Davis Pa
Co., has tentative plans under advi
ment for the rebuilding of the port
of its local plant, destroyed by fire, F
12, with loss estimated at $11,000, c
fined, for the most part to the sto
house division.

* * *

New Companies

New York, N. Y.—The Dependable Pa
Box Co., has been incorporated with
capital of $10,000, to manufacture pa
boxes and containers. The incorporat
are I. Fisberg, and I. Knobe. The co
pany is represented by Samuel Mand
baum, 277 Broadway, New York.

Port Huron, Mich.—The Dunn Sulph
Paper Co., has been incorporated with
capital of 10,000 shares of stock, no
value, and $25,000, to manufacture pa
and paper products. The incorporat
are Charles F. Clippert, R. G. La
brecht and Charles F. Bornman,
Delaware Avenue, Detroit.

Ithaca, N. Y.—The Fall Creek Paper
has been incorporated with a nomi
capital of $3,000, to manufacture pa
products. The incorporators are L.
and A. G. Brown, and H. Blostein.
company is represented by R. T. Bak
attorney, Ithaca.

* * *

Financial

New Haven, Conn.—The H. S. Hershm
Waste Paper Co., has arranged for
change of name to the Sachs Wa
Paper Co.

Fitchburg, Mass.—The Fallulah Paper
Joseph A. Lowe, treasurer, has recen
filed its annual statement, showing to
assets of $603,519. Of this amou
$125,000 represents real estate, and $1
000, machinery.

Springfield, Mass.—The Becker Paper
Edward M. Miller, treasurer, has rece
ly filed its annual statement, showi
total assets of $190,026.

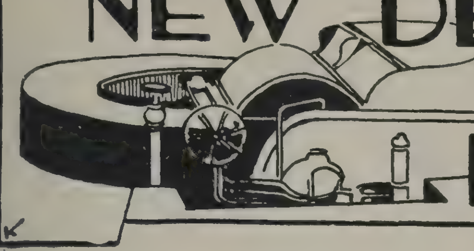
* * *

Trade Opportunities

The Bureau of Foreign and Domes
Commerce, Washington, D. C., has inf
mation regarding a concern at Consta
tinople, Turkey, in the market for a qua
tity of paper of different kinds, includi
newsprint, letter, wrapping, packing a
adhesive, as set forth in Reference
9110. Also, from a company at Rajk
India, in the market for cardboard a
other paper products, Reference No. 90
Full information on application.

The Crystal Springs Bleachery
Chickamauga, Ga., has inquiries out to
in touch with manufacturers of machine
for the production of paper bags, for p
posed equipment installation in a lo
plant.

NEW DEVELOPMENTS IN PAPERMAKING



Beating Paper Pulp

German Patent No. 381,632, which is assigned to Plauson's Forschungs institute G.m.b.H., is concerned with a process of beating, sizing, coloring and filling paper pulp and other fibrous materials. The paper pulp is mixed with the requisite materials, and beating, sizing, coloring and loading are effected in a single operation in a colloid mill. Only small quantities of alkali and the usual flocculating materials such as aluminum sulphate need be added. As a result a variety of dyestuffs which could not be employed in the presence of large quantities of these reagents can be utilized. If, desired, the bleaching of the product can also be carried out in the mill. These favorable results can also be applied to the production of pasteboard and the like from substances such as finely divided straw, peat, heather and other fibrous materials.

* * *

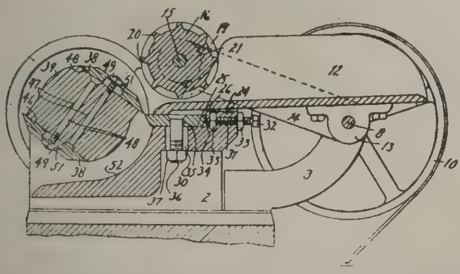
Removing Ink from Paper

Ink and other stains on paper are removed by treating the same with an addition compound of a hydrosulphite and an aldehyde, or a mixture containing such a compound, moistening with an equeous solution of acetic acid or derivatives of acetic acid or its homologues, and then rubbing and heating. The process is patented in German Patent No. 380,316.

* * *

Waste Paper Shredder

The figure shows a shredding machine which contains a revoluble knife-head, a bed-knife, a bed-knife support having an open-top and an open-end integral trough with its bottom underneath the head. A part of the trough is approximately concentric with the head and a part is straight and unbroken and has a downward pitch. For further details see United States Patent No. 1,481,058.



* * *

Dense, Strong Paper

In the process of manufacturing dense, strong papers which is patented in German Patent No. 379,996, assigned to Dr. C. G. Schwalbe, the treatment of the material with acids, acid salts, or substances which yield acids, is continued only to such an extent that there is a maximum swelling but no decomposition of the fibrous material, and during or after the treatment the material is worked up mechanically. Organic acids, such as, formic acid, acetic acid, oxalic acid, lactic acid and tartaric acid are preferred as swelling agents.

* * *

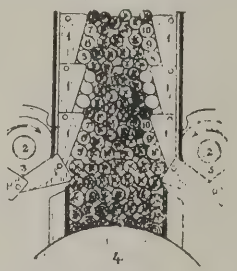
Waterproofing Paper

An apparatus is described in British Patent No. 184,462, for waterproofing and hardening cellulosic materials, particularly paper. In this process gaseous thionyl chloride or sulphur chloride is used as the waterproofing agent A gaseous medium like air is charged with the finely divided reagent by means of an atomizer in a closed chamber and is then displaced into a second chamber through which the material is to be treated, for example the web of paper, is drawn. The rate of travel of the paper web through this chamber is such that the duration of the treatment is from one to ten seconds. The air subsequently returns to the charging chamber through successively a drying apparatus, an apparatus for removing hydrochloric acid, and sulphur dioxide, and a blower.

* * *

Feeding Device for Wood Grinders

German Patent No. 386,501 is concerned with a feeding device on mechanical pulpwood grinders as is seen in the accompanying illustration. The feeding device consists of a chain which is provided with cone shaped parts. These press up against the column of wood and slowly move it against the stones. The coneshaped parts are seen at 1 in the figure. The geared wheels which cause the chain device to move are shown at 2. The grinding stone is seen at 4. It is clear that the pressure of the cone shaped parts against the logs of wood increases as the logs near the stone.



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Cooling and Absorbing System for Sulphur Dioxide

The Brown Company has secured a patent on a system of cooling and absorbing towers for sulphur dioxide. (See United States Patent No. 1,469,959.)

The gases from a sulphur burner are led through a combustion chamber into a cooling tower which is packed with inert material, down which cooling water flows. The cooled and washed gases are then treated with cold water on the counter-current principle in two absorption towers that are packed with limestone, dolomite and the like, so that a solution of calcium bisulphite suitable for the manufacture of sulphite cellulose is obtained. The weak acid liquor from the second absorption tower is pumped to the top of the first to wash the strongest gas, and the liquor flowing from the first tower is delivered to a storage tank.

The hot water which flows from the cooling tower contains some sulphur dioxide. This is recovered by passing the liquid down a tower which is packed with inert material. Up this tower a portion of the washed gas from the second absorption tower is passed. This removes all the sulphur dioxide in the liquor, and is mixed with the gases passing into the second absorption tower to be rewashed. In this way nearly complete recovery of the sulphur dioxide is obtained and the preliminary cooling and washing simplifies the operation considerably.

* * *

Variegated Colored Paper

German Patent No. 387,181 is concerned with a process of manufacturing a colored paper with designs. Any sort of paper is glued to the edges of a sheet of ordinary newsprint and then itself covered with an adhesive. Then the sheet is placed on a thin felt and worked with blunt wooden tools, or implements made of thick cardboard until the desired design is reproduced on the paper. After drying the high spots in the paper may be colored or treated in various other ways.

Paper Recovery System

An ingenious system of removing ink from paper and recovering the fibers to make pulp fit for conversion into new paper, is provided by certain improvements to apparatus for which John Stevens, 3d, has been granted a patent (U. S. Patent 1,482,825, February 5, 1924). The patent which has been assigned to Arthur D. Little, Inc., provides a new apparatus quite different in construction from prior inventions of its kind.

It is customary in recovering waste paper to first produce a pulp of the desired consistency and thereafter treat the pulp with a suitable form of detergent to loosen the ink and other foreign matter which it is desired to remove, thereafter the detergent together with the loosened ink being washed out to thoroughly cleanse the fibers and convert the pulp into a condition suitable for further use. The several operations incident to this conversion of the waste print paper have been heretofore carried on separately and intermittently, the process as a whole consuming considerable time and involving substantial labor costs in addition to the space occupied by the necessary machines and storage chests for the pulp.

It is the object of the present invention to provide a new process and accompanying apparatus which overcomes the foregoing disadvantages incident to prior methods of deinking waste paper.

Accordingly one feature of the present invention contemplates a continuous advancing movement of a pulpy mass of waste paper between the pulping and washing points while subjecting the pulp to the several operations essential to the complete removal of the ink and other foreign material therefrom.

Still further features of the invention will be apparent to those skilled in the art from the following complete description of the process and apparatus for practicing it.

The accompanying drawing illustrates diagrammatically an apparatus embodying the novel features of the invention.

According to the present invention the waste print paper is first beaten or otherwise formed into a pulpy mass in the presence of hot water which may range in temperature from 140° to 180° F. depending upon the character of the waste paper under treatment, this operation being designed to produce a substantially continuous flow of paper pulp.

After suitably regulating the consistency of the pulp it is mixed with a detergent such as soda ash solution and maintained in contact with the detergent for a sufficient period of time to effectually free the fiber from the ink sizing and other foreign materials. This treatment with the detergent takes place during a continuous advancing movement of the pulp toward the washing point at which all of the foreign matter including the detergent is completely separated and removed from the fiber.

In the illustrated embodiment of the invention the pulp, after impregnation with the soda ash solution, advances along a series of troughs or rifflers which are so designed that the movement of the pulp thereover occupies a sufficient period of time to permit the desired action of the detergent in emulsifying or otherwise effecting the separation of the ink, sizing, etc., from the waste paper. It is preferred to arrange the surface of the troughs over which the pulp flows at a slight inclination to cause the movement of the pulp thereover to be produced by gravity although this may also be accomplished through the provision of a riffler provided with a series of transverse partitions of diminishing height over which the pulp successively passes.

The washing machine in which the pulp is freed from the ink provides for a continuous movement of the pulp therethrough until discharged into suitable storage chests. According to this process it will be observed that the movement of the pulp from the point of its formation to the final washing point is
tinuous, the several intermediate operat
taking place during this movement.

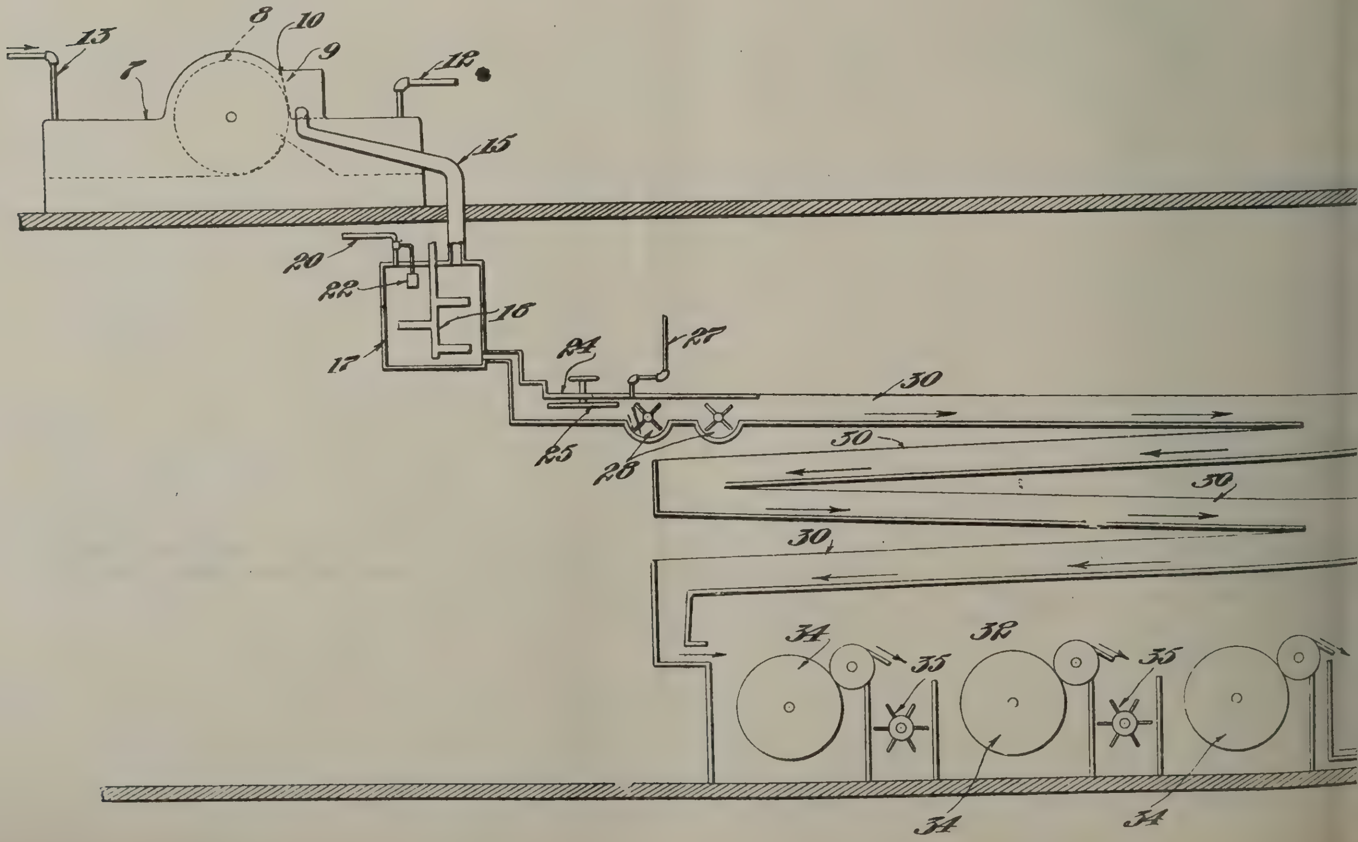
Upon referring to the drawing it wil
observed that the waste paper first pa
through a beater of the usual form indic
at 7 and comprising a beating cylinder 8
signed to discharge the pulp through a s
of holes or perforations 9 formed in a p
tion 10. From this point the pulp flow
gravity into a conveyer pipe 15 communica
with a mixing vat or tank 17. The beat
is provided with intake pipes 12 and 13
hot water and steam respectively and du
the beating operation the pulpy mass is he
to a temperature ranging from 120° to
F. depending upon the character of the w
print paper. The mixing vat is provided
an agitator indicated at 16 and serves to a
matically regulate the temperature of the
For this purpose the vat may be provided
a steam line indicated at 20, which is
trolled by a suitable form of thermostat a

From the mixing vat the hot pulp flow
gravity to a consistency regulator indicat
24 which may be of the usual form consi
of a channel having an adjustable gat
therein to regulate the cross section of
discharge passage.

The pulp thus regulated as to temper
and consistency is next mixed with soda
solution entering through a pipe 27 and
oughly mixed with the pulp by suitable a
tors 28.

After being thus impregnated with the
line detergent the hot pulp is discharged
one or more inclined troughs 30 along
it flows by gravity to be finally disch
into a cylinder washing achine, indicat
32, the washing machine as is usual in
class of apparatus comprising cylinders 3
agitator beaters 35 arranged alternately.

As will be observed from the drawin



nclined trough along which the pulp flows to convey it to the washing mechanism is preferably made in a zigzag form to cause the pulp to traverse back and forth while constantly descending. With this arrangement the mechanism for initially forming the pulp may be located upon an upper floor and the washing mechanism upon a lower floor, the ntermediate operations taking place during the movement by gravity of the pulp from the beating mechanism to the washing mechanisms. Furthermore owing to the configuration of the troughs in the form of a zigzag these may be supported adjacent the wall of the building in such a manner as to occupy a relatively small space.

The detailed claims of the inventor follow:

1. An apparatus for the treatment of waste printed paper comprising means for forming a hot pulp solution, means for thereafter mixing the solution with an alkaline detergent, a trough to remove ink and dirt therefrom. treatment with the detergent and of sufficient length to cause the detergent to remain in contact with the pulp during a substantial period of time, and means for receiving and washing the pulp after its discharge from the trough to remove ink and dirt therefrom.

2. An apparatus for the treatment of waste paper which comprises mechanism for beating the paper to form a pulp, means for heating the pulp thus formed, means for regulating the consistency of the pulp, means for mixing a detergent with the pulp, a series of connected troughs into which the pulp discharges after treatment with the detergent, and washing mechanism to receive the pulp discharged from the troughs and remove the ink and dirt with which the pulp is impregnated.

3. An apparatus for the treatment of waste printed paper comprising pulping mechanism, means for impregnating the pulp thus formed with an alkaline detergent, washing mechanism for removing the detergent and ink from the pulp, and connections between the mixing and washing mechanisms for causing a continuous and relatively slow movement of the pulp therebetween.

4. An apparatus for the treatment of waste printed paper comprising means for forming a pulp and mixing the pulp thus formed with an alkaline detergent, washing mechanism to free the pulp from the ink and other foreign matter located below the pulping mechanism, and a zigzag trough connecting the pulping and mixing mechanism with the washing mechanism and adapted to cause a continuous movement of the pulp therebetween.

* * *

January Newsprint Statistics

The 45 United States companies reporting produced 128,772 tons and shipped 123,253 tons, the 20 Canadian companies produced 109,875 tons and shipped 107,966 tons, making a total production of 238,647 tons and shipments of 231,219 tons in both countries. These companies also produced 1,750 tons of hanging, of which 532 tons, were made in Canada. Production exceeded shipments in United States by 5,519 tons and in Canada by 1,909 tons. Stocks at the end of January totaled 28,417 tons in the United States and 16,493 tons in Canada, a combined total of 44,910 tons which is equivalent to 4.5 days' average production, says the News Print Service Bureau Monthly Bulletin.

Comparing production of 55 identical companies during January 1924 with that of January 1923 the United States companies show an increase of 2,324 tons or 2 per cent., the Canadian companies an increase of 10,538 tons or 11 per cent, and the total of all these companies shows an increase of 12,862 tons or 6 per cent.

The average daily production of news print paper by these 55 companies reporting for January amounted to 91.9 per cent of the average daily output during the three months of greatest production in 1923, with allowances for changes in machines.

SALESMEN SEE FUTURE WITH CONFIDENCE

Success of Mid-Winter Conference Causes Other Meetings In Country

THE enthusiasm for the Salesmen's Association of the Paper Industry developed at the New York Mid-Winter conference of the Association with the executives will result in similar meetings being held in three other sections of the country before the annual convention in April.

John E. A. Hussey of Boston at once planned for a get-together at Boston within a a week. W. E. Perry, vice-president for the New England district announced plans for a meeting in the Springfield district, while Robert T. Houk, Jr., vice-president for the Miami Valley began plans for a general conference in the Ohio region.

Over sixty salesmen and executives attended the New York conference at the Yale Club, Wednesday, February 20, and an executive committee meeting of the Association held following the luncheon took up plans for general advancement of the Salesmen's Association for the entire country. Those in attendance were: G. G. Abernethy, International Paper Co.; Bertram Blake, Marquardt, Blake & Decher, Inc.; Martin Cantine, Martin Cantine Co.; Howard A. Casey, Chemical Paper Mfg. Co.; Edwin C. Chadwick, L. L. Brown Paper Co.; J. D. Coffin, Tidewater Paper Mills; F. N. Countiss, Martin Cantine Co.; Allan Curtis, International Paper Co.; L. M. Davis, International Paper Co.; Philip T. Dodge, president, International Paper Co.; Fred Enders, Bulkley-Dunton & Co.; R. D. W. Ewing, American Writing Paper Co.; J. L. Fearing, president, Salesmen's Association, International Paper Co.; Charles F. Gordon, Oxford Paper Co.; Harold Hopkins, Bulkley-Dunton & Co.; Nathan R. Hopkins, Bulkley-Dunton & Co.; Robert T. Houk, Jr., G. H. Mead Co.; J. H. Howe, general manager, Arrowhead Mills, Inc.; G. A. Keeney, Jr., Arrowhead Mills, Inc.; Edward G. Lloyd, Bulkley-Dunton & Co.; A. George Lutz, Invincible Pulp & Paper Corporation; J. V. McNamara, International Paper Co.; O. F. Marquardt, Marquardt, Blake & Decher, Inc.; H. W. Mason, Marquardt, Blake & Decher, Inc.; C. W. Nickenig, Canadian Export Paper Co., Ltd.; H. J. Northcott, Pejebscot Paper Co.; Edwin D. Peck, Reading Paper Mills: Walter E. Perry, Chemical Paper Mfg. Co.: J. W. Quimby, Allied Paper Mills; Ira S. Reynolds, Mead, Patton & Co.: Chester M. Robbins, St. Regis Paper Co.; D. W. Sherman, Canadian Export Paper Co., Ltd.; F. B. Smidt, International Paper Co.; Henry W. Stokes, Fork Haven Paper Co.; Roger Brooks Taft, Hammermill Paper Co.; R. C. Tilden, International Paper Co.: D. Page Wheelwright, G. W. Wheelwright Paper Co.; G. M. Wetmore, Groveton Paper Co., Inc.; Dr. Hugh P. Baker, Ex-Officio.

A feature of the New York conference was the round table discussion of business conditions by representatives of the various grades, showing that there has been a gratifying resumption of business since the holidays. H. V. Kaltenborn of the Brooklyn Eagle discussed current events, and was followed by Henry W. Stokes, President of the American Paper & Pulp Association. Mr. Stokes devoted his talk to the discussion of the work of the American Paper and Pulp Association and its accomplishments in behalf of the entire paper industry of the United States. Philip T. Dodge, president of the International Paper Company was the next speaker with a strong statement of his belief in the work of the Association.

"The world has been rapidly learning of the value of co-operation," said Mr. Dodge, "and today's meeting is a fine evidence of the possibilities of this Association along co-operative lines. Great progress has been made of late by the paper industry in standardization, as well as in simplification of paper sizes, and the standardization of sales methods by co-operative study of sales science by the Salesmen's Association is just such a forward step. The interests of a whole industry are greater than the individual problems, and by co-operation the salesmen can help each other solve their mutual problems."

* * *

NEW KRAFT MILL TO BE STARTED

Two Machine Mill to Be Erected at Old Hickory, Tenn.

PLANS have been perfected for the building of a two machine Kraft paper mill at Old Hickory, Tennessee. The pulp mill is already completed and has a capacity of 150 tons per day. The paper mill will be equipped with two large, high speed 184" Beloit Fourdrinier machines each capable of producing 75 tons of Kraft paper per day.

The pulp mill was built by the old Nashville Pulp and Paper Company which has been reorganized and refinanced and provided with adequate capital. The new company will be known as Old Hickory Paper Company, Old Hickory, Tenn. John I. Beggs of Milwaukee, President and R. J. Cullen, Vice-president and Manager. Mr. Beggs is prominently identified with large banking institutions and also with large public utility interests, while Mr. Cullen is well known throughout the trade as a very capable and successful paper mill executive, having many years' experience in building and operating Kraft paper mills. One of his most recent achievements being the construction and starting up of the now famous Bastrop, Louisiana mill of the Bastrop Pulp and Paper Company.

Contracts have already been awarded to the Beloit Iron Works for these large, high speed, paper making machines, embodying all the latest improvements, such as the Beloit Removable Fourdrinier, the Beloit Rope Drive and many other important features. Orders have also been placed for beaters, Jordons and power equipment. Contract has been awarded for the steel for the paper mill building, a construction force has already been organized and started work clearing off the site and preparing for the rapid construction of the new paper mill. The first unit is expected to be ready for production in the fall of 1924.

It is understood that this new mill will be ideally located with respect to the Kraft markets and will enjoy an abundant supply of suitable pulp wood and good water.

The officers of this new mill have determined to make this the finest Kraft mill in the South and it will be equipped with all the latest labor saving devices which will contribute to a low cost of paper. The building will be of re-enforced concrete and brick and nothing will be spared to produce a thoroughly high class modern Kraft paper mill.

* * *

H. T. Maynard Dies

Henry T. Maynard, South Sudbury, Mass., organizer of the Converters' Paper Company and a prominent figure in the paper trade, died at his home February 16 following an illness of two days. Mr. Maynard was 51 years of age and is survived by his widow, a daughter and a son.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

NATIONAL FORESTRY POLICY NEAR IS THE OPINION EXPRESSED

National Forestry Program Committee Brings History of Movement Up-to-Date

TO the end that there might be available a complete but concise record of the progress of the forestry movement in the United States, PAPER submitted in last week's issue a resume by R. S. Kellogg, President of the News Print Service Bureau, covering the progress made up to the present year. There has appeared within the week a statement by the secretary of the National Forestry Program Committee, W. B. Bullock, giving the detail of the work accomplished, particularly by the pulp and paper industry, during the years 1919 to 1923. In presenting a review of Mr. Bullock's statement we are moved to suggest that there are grounds for satisfaction on the part of all who have taken an active part in the solution of one of the Nation's outstanding problems. While the statement is doubtless true that the rapid spread of the forestry movement dates from a conference held in the State of New York on the first anniversary of Armistice Day, November 11, 1920, it must be kept in mind that Col. Graves, at that time national forester, had just come into the East after conferring with Western lumbermen and pulp men, and that adequate preparation for the big forward movement was quite as important in its way as the series of advances that is now bringing victory to all crusaders in forestry. Once again it is team work all along the line that has won the day.

Approaching the Definition of Federal Policy

The nation today is nearer to the definition of a federal forest policy than ever before in its history, and there is legislation in sight now formulating a reasonable policy which would ensure the continuous production of the timber needed by the nation's industries.

In November, 1919, the problem of a national forestry policy was definitely broached, as a national issue that must be met, at a conference of the New York State Forestry Association, New York Section of the Society of American Foresters and other New York state organizations in a Forest Policy Conference at Syracuse, at which Col. H. S. Graves appeared after a series of regional conferences with lumbermen in the West. From that time on the movement spread rapidly. Some of the high spots were as follows:

Paper Industry Leads Campaign

Winter of 1919-20—American Paper and Pulp Association named a Forestry Committee to begin study of possibilities of a national forestry policy.

Spring of 1920—Definite campaign for such a policy sponsored at annual meeting of the American Paper and Pulp Association, which further indicated its sincere approval of this movement by securing Dr. Hugh P. Baker, a forester then in educational work, as its executive secretary. Specific recommendations for national and state forest policies made by Forestry Committee of this Association.

December, 1920—National Forestry Program Committee formed, with representatives of the publishers, forestry, lumber and paper associations prominent in the personnel of the committee.

December 22, 1920—Snell forestry bill, sponsored by National Forestry Program Committee, introduced in House of Representatives, followed by the introduction of the McCormick bill, in essence the Snell bill, and the Capper bill in the Senate.

Spring, 1921—Extensive hearings before House Committee on Agriculture.

National Chamber Interested

Spring, 1921—Forestry Comittee named by United States Chamber of Commerce, which traveled 10,000 miles that summer, studying local conditions in the various forest regions. This committee after long discussion finally filed its report in 1922. The paper industry was represented on this committee by Dr. Hugh P. Baker, who served as its vice-chairman.

Feb. 7, 1923—Clarke forestry bill introduced in House of Representatives to secure early action on immediate questions needing settlement.

March 7, 1923—Select Senate Committee on Reforestation named, and 9,000 miles traveled on investigation of conditions during the Summer and Fall.

Nov. 17, 1923—Referendum on forestry report of the National Chamber of Commerce Committee resulted in a ballot overwhelmingly in favor of all but one proposition, and a majority vote recorded for that one provision. This empowers the National Chamber to work for the enactment into law of the proposition given a two-thirds vote. This referendum brought a larger popular vote from Chamber members than any referendum in the previous four years.

Dec. 15, 1923—Senate Committee reported a bill embodying the result of the special committee's survey.

Jan. 7, 1924—Companion to the so-called McNary bill introduced in the House of Representatives by John D. Clarke.

Present Status—Senate bill is in the hands of the Senate Committee on Agriculture, and the Clarke bill is before the similar committee of the House of Representatives.

Movement Is Nearing Success

The American Paper and Pulp Association can well be proud of the leadership it took from the start in the efforts to secure legislation formulating a national forestry policy. Its forestry committee included R. S. Kellogg as a member, and he was, as the representative of the paper industry, made chairman of the National Forestry Committee which from that time forward assumed with other wood using industries and forestry associations, leadership in the demand for federal legislation.

Antagonism on the part of some extremists both among the technical foresters, and the industries to any legislation which did not meet their particular views has no doubt prevented definite action before this, but the McNary bill now seems to be so fair a solution of the problem as to be accepted by the extremists among the private rights industrialists, and to be sufficiently a step forward to be accepted in general by the professional foresters as a step in the right direction.

1924 PULPWOOD SUPPLY

Stocks Relatively Low and This Will Cause Increase in Price

CONTRACT prices for pulpwood in 1924 are generally higher than the prices in 1923, according to the December pulpwood report of the Woodlands Section of the American Paper and Pulp Association, while stocks are relatively low in most of the regions reporting. The figures given are more representative than in any previous compilation, a larger number of companies reporting from nearly every region than in most of the preceding quarters.

Ninety-two companies, with an annual consumption of 3,388,860 cords, have contracted for 1,950,757 cords for 1924, but the relationship of contracts to annual consumption varies widely by districts. New York state mills have contracted for only 37 per cent of the annual consumption, while New England has contracted for 86 per cent of the total needs. The lake states contracts are 68 per cent of the annual needs, and in the middle Atlantic states, 44 per cent, while the percentage in the South is 45 per cent.

The range of prices is widely different in the various regions. Some examples, however, are as follows: New England rough wood contracts for 1924 are reported as averaging $14.86, and $17.08 for peeled wood, as against December 1 prices at $13.75 and $16.96, respectively. New York peeled wood for 1924 is on a $20.77 basis, as against $19.33 as of December 1, but the Lake States show a slight increase only. It is to be noted that the higher prices in New England are for a large proportion of the year's requirements, and the mills will not be in the market for any large quantity of wood from now on for 1924.

An interesting feature of the detailed report is the amount of jack pine under contract in the lake states. With a consumption of 143,750 cords annually, jack pine has passed balsam in quantity consumed, and ranks next to spruce, hemlock leading the list in those states with 452,800 cords out of a total of 1,123,860 cords.

* * *

Spruce Reproduction

In connection with studies of growth and yield of red spruce in the Northeast the Forest Service, United States Department of Agriculture, notes that the severe cutting to which the stands of spruce and fir have been subjected in this region, where these species are in constant demand for pulpwood, is tending to change the composition of these stands radically.

Recent examination of such areas by the Northeastern Forest Experiment Station shows that although reproduction is generally abundant over the cut-over tracts little or no spruce or fir has come in since cutting. This is mainly because of the fact that in cutting very few trees over five inches have been left, and, consequently, no seed of these species is available. The one, two, and three-year-old seedlings are mainly white pine, of which some seed-bearing trees have been left, and hardwoods, which are not now being utilized but are producing immense quantities of seed, and are therefore tending to dominate the stands.

Out of 10,180 seedlings counted on an average acre, 58 per cent were conifers of which few had come in since cutting, and 42 per cent were hardwoods, nearly all of which had come in in the last three years.

Canadian News

VAST QUANTITIES OF PULPWOOD CUT

Nashwaak Pulp and Paper Company Breaking Record This Year

MORE pulpwood is being cut by the Nashwaak Pulp and Paper Company on the lands owned by the company in central New Brunswick, than for any previous winter season. This concern owns vast tracts of pulpwood lands along the Nashwaak River. It was on this cite that the company was contemplating the erection of a pulp mill and a paper mill, some time ago. This project has not been abandoned, being merely the subject of deferred consideration. On the Nashwaak River, the company maintains booms, besides logging operations. Woods crews are continually at work in this territory for the Nashwaak Pulp and Paper Company. On the river, the company also operates rafting and driving crews in the spring and summer. The operations last summer were somewhat handicapped by a strike of employes for more wages.

The Nashwaak Pulp and Paper Company is adding to the lands owned by the company, and practically all of the pulpwood areas in control of this concern are located along the Nashwaak and Miramichi Rivers. The Nashwaak Pulp and Paper Company is controlled by the Oxford Paper Company of New York City, which operates paper mills in Maine. The Oxford Paper Company shares the control of the Nashwaak Pulp and Paper Company, with the Standard Paper Company of Kalamazoo, Mich. The pulp mill of the Nashwaak Pulp and Paper Company in St. John, N. B., is one of the largest in eastern Canada, the capacity having been increased one-third recently.

The Fraser Companies, operating pulp mills in Edmundston and Chatham, are cutting pulpwood very heavily this winter. The Fraser interests own pulpwood lands in New Brunswick and Quebec. Their holdings in both provinces are immense, and they are adding to these holdings. Although, this combination of companies was caught in the post-war slump, indications are that the losses encountered in the past few years will be replaced by profits.

Donald Fraser, son of Donald Fraser, Sr., the founder of the Fraser interests was recently re-elected president of the New Brunswick Temperance Alliance, a prohibitionist organization of long standing, and in which he has maintained a lifelong interest. Mr. Fraser is vice president of Fraser Companies, his brother, Archibald Fraser, being president.

* * *

Gave Valentine Dance

The Beloit Iron Works club, composed of employes in the plant making paper mill machinery gave a valentine dinner dance at Messer Hall, Saturday night. There were more than 100 present. An orchestra furnished music during the four course dinner. Valentine decorations were carried out on the tables and in the hall. Charles Anderson was social chairman. Employes of the Beloit Iron Works also have a bowling league consisting of four teams, the Dryers, Collenders, Winders and Reels.

* * *

Assets Are Sold

The assets of the Clarke Brothers, Limited, of Bear River, Nova Scotia, were sold recently through a court order to New York and Chicago interests, the purchase price being $200,000 in cash and securities of the new company, having a total par value of $1,300,000. The new manager will be C. W. Rancoul of New York. This plant has been idle for some time; it is one of the most complete of its kind in Nova Scotia.

SAYS EMBARGO WOULD WORK HARDSHIPS

Paper Manufacturers of Maine Hold an Informal Meeting

AT an informal gathering of pulp and paper manufacturers of Maine at Portland last week, the Canadian embargo was discussed. The embargo is now under consideration by a royal commission in Montreal.

George F. Teed, pulpwood dealer of Montreal, said that the supposed unlimited supply of pulpwood in Canada was a myth and that there is only a strip about three hundred miles wide, running from coast to coast, which is suitable for pulp. Further north, he said, is only a scrub growth. He estimated that within a period of twenty years the supply of pulpwood in Canada would be exhausted.

Mr. Teed said that at present there is overproduction and wood can be purchased cheaply. He said that while Canadian mills were paying but $17 for pulpwood, mills in the United States were paying $21 and the freight was but about 70 cents. The largest part of the export wood goes to New York and Pennsylvania. If, however, mills in the United States have to pay much more, they will get their supply from Europe.

E. Martineau, another Montreal dealer, said that while an embargo would have been a good thing years ago, today it would work great hardship and heavy losses, both financially and in population because many farmers now selling wood in the winter season, would be obliged to go elsewhere.

* * *

Forced To Curtail

Paper mills along the Wisconsin River have been obliged to curtail operations because of low water. The river is at low ebb due to a long period of drought. The temperature has continued low throughout the winter and as a result the usual melting of snow has not occurred to increase the flow of water.

Manufacture of paper stopped at the Wisconsin Rapids and Biron plants of the Consolidated Water Power and Paper Company this week and officials say that for the next thirty days it probably will be necessary to shut down the machines for a day or two each week.

Only one of the three Wisconsin River paper mills at Stevens Point has been affected, as the others do not grind their own pulp, a process which consumes much of the water pulp generated. There were no heavy autumnal rains this year and there has been little precipitation since September. The river basin was soon drained of surface water and with the coming of cold weather smaller tributary streams froze, shutting off the only remaining source of additional water for power.

* * *

To Have New Company

Connecticut is to have a new paper manufacturing industry. The Pequonocke Paper Company has been incorporated and will locate at Windsor, Conn. The new company is capitalized at $300,000 and expects to commence operations early in April. William S. Kenyon of Hartford is one of the incorporators and head of the new company.

* * *

File a Petition

Trustees of the Cushnoc Paper Company of Maple street, Augusta, Me., which is now operating under a receivership, have filed a petition with the courts asking permission to issue trustees certificates to the amount of $150,000 for the purchase of pulpwood, the same to constitute a first lien on all pulpwood now or hereafter acquired by the company.

New Kenwood Guard Board

Close study of jacket and couch roll conditions in many mills has enabled the F. C. Huyck Co., felt and jacket manufacturers of Albany, N. Y., to devise a guard board for jackets that is based on sound and logical principles. This guard board has been tried in a number of mills and has proved satisfactory.

The guard board on a jacket is there for the purpose of squeezing as much as possible out of the jacket before it comes in contact with the formed but still very moist sheet of paper. The sheet passes through a press whose top roll is covered by the jacket. The amount of pressure that it is possible to give the sheet in passing through this press must be finely regulated by adjustments, and if the jacket carries only a trifle of additional moisture it will displace the fibers in the formed sheet and make a fault in the paper which spoils it. So the guard board that takes this moisture out of the jacket is a most important part of the machine.

The pressure of the guard board on the jacket has always, up to now, been regulated by several screws at uniform distances apart across the jacket. While it was desirable that the pressure across the entire width be uniform, this adjustment was at best a matter of guess. The manufacturers claim that the Kenwood board insures that the pressure of the guard board on the jackets will be uniform throughout by eliminating the adjustment by guess. It is believed by the designers of this new device that many jacket troubles were caused by the irregular pressure on the jacket by the old guard board, and that the jackets will now go to the end of their usefulness without the need of local adjustments in the width of the board.

* * *

Prices Advance

The Mathieson Alkali Works, Inc., announces a further advance in its prices for Liquid Chlorine and Bleaching Powder, effective February 14th, 1924, to apply on all business for future delivery taken after that date, as follows:

Bleaching Powder for spot sales and contracts for future delivery in carloads.

$1.75 per 100 lbs. in standard (700 lb.) drums f.o.b. Niagara Falls

$2.00 per 100 lbs. in small (300 & 400 lb.) drums f.o.b. Niagara Falls

"Shipments in less-than-carloads, spot or contract, fifteen cents (15c) per 100 pounds above these prices."

Liquid Chlorine for spot sales and contracts for future delivery in tank car lots and in cylinders.

$4.00 per 100 lbs. (Single Units or Multi Units) f.o.b Niagara Falls

$5.00 per 100 lbs. in cylinders, in carload lots, f. o. b. Niagara Falls

$5.50 per 100 lbs. in cylinders, for sales of more than one ton, f.o.b. Niagara Falls

$6.50 per 100 lbs. in cylinders, for sales of one ton and less, f.o.b. Niagara Falls

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Elam Drops Plans

Plans of the Elam Paper Company, of Marion, Ind., to enter into competition with the several score paper mills in the Miami Valley by moving its plant to Dayton, have been dropped, it is learned here on good authority.

The Elam Company will remain in its present location for an indefinite period, thus passing up the opportunity for cutting in on the Miami Valley water supply, which has drawn paper mills of all kinds to this city, Middletown and Franklin.

Removal of the Elam plant was to have been effected through sale of an additional issue of capital stock. Arrangements had been made with a Dayton brokerage firm to put this stock before the public and a promotion scheme was launched.

An option had been taken on a Dayton plant. This was surrendered.

FINANCIAL PAGE

International Paper Gets New Start

Company Again Showing Good Margin of Earnings for Stock—Sound Financial Position

HARD HIT from three quarters at the same time, in 1921, the recovery of the International Paper Company from depression has been slower than that of most companies. Added to the difficulties of the company in 1921 as a result of sharp drops in prices of wood, of which International Paper had a large supply, and in the selling price for the finished material, together with a slump in the demand, was a long drawn out and costly strike. The strike finally was settled in a manner satisfactory to the company by the abolition of unionism, but earnings were adversely affected. Las year, however, the company again hit its stride, and when the final accounts are made up it is believed that a net income of approximately $4,000,000 will be shown. This makes a striking contrast with a deficit last year of $6,216,000 after deducting dividends of $1,500,000, but before inventory adjustment.

Leading Paper Producer

International Paper Company is by far the leading paper producer in the world, with an average annual output of around half a million tons, says Carlton A. Shively in the New York *Evening Post.* The bulk of production has been and still is, though to a less extent, newsprint, of which International manufactures more than three times as much as its nearest competitor. The company's twenty-five paper and pulp mills have a productive capacity of approximately 2100 tons of paper and well over 2000 tons of wood, sulphite and kraft pulp a day. These plants, together with numerous sawmills, are located in Maine, Massachusetts, New Hampshire, Vermont, New York and the Canadian provinces.

In addition to these properties International Paper owns and operates water power plants and owns and leases a large number of valuable water power sites. Woodlands owned in fee or through subsidiaries consist of more than 1,314,000 acres in this country. In Canada the company owns and holds under license from the Government some 2,870,000 additional acres and in addition has 324,300 acres of fee lands.

An Old Concern

International Paper was incorporated in 1898 as a merger of nineteen concerns, many of which had long been in the paper business. Growth since then has been considerable, and subsidiaries of whose capital stock International owns all or a controlling interest number twenty-four. Of these the largest are the Continental Paper and Bag Mills and the Canadian International Paper Company. The latter was organized with a capital stock of $20,000,000 to build and operate a paper mill at Three Rivers, Quebec.

Prior to 1915 International Paper's average yearly surplus was far from impressive for a company of its magnitude. With the advent of the present management, however, and aided by inflated prices and demand during the war, profits increased by leaps and bounds. In the four-year period 1916-1919 earnings on the common stock averaged close to 22 per cent annually. But this was only a starter for the banner year 1920, when net income applicable to the common stock mounted up to over 52 per cent. In that year the price of newsprint on contract had climbed from $75 a ton to $130 a ton.

Does Well Despite Handicap

This sharp price in newsprint followed the end of Government price control in 1919. Just as the upward swing was carried far, so was the reaction violent. Newsprint fell in 1921 to as low as $70 a ton, and the price of wood took perhaps an even greater proportionate drop. International, unfortunately, had large quantities of high-priced wood and woodpulp. Moreover, attempts of the company to hold down wages somewhere in line with commodity prices resulted in a severe strike, which reduced output about 65 per cent and prevented the working up into paper of much of this high-priced wood. Deflation, the strike, and high operating costs combined brought the company an aggregate loss, including inventory write-offs, of $14,650,000 in 1921 and 1922.

Its pulpwood now in stock in the United States exceeds a million cords and is of a value equal to the face value of the outstanding bonds.

Still, even allowing for these severe losses, the company has during the past decade earned an annual average of between 8 and 9 per cent for its common stock, and in the previous ten years earnings was fairly large. Under these circumstances the question naturally has arisen as to why the company has failed to pay dividends on its common shares for over twenty years. The answer is not difficult to find, and the solution of this problem gives a hint as to the solution of the future common dividend problem.

Where the Money Goes

Roughly speaking, the company has had a net operating surplus of twenty millions in the ten years ended with 1922. Increase in plants, in inventories, and greater needs for property extensions, improvements and working capital, meanwhile, have acquired sums in excess of this amount. It is easy to see, therefore, why it was not deemed advisable to distribute dividends to common-stock holders.

And need for a good deal of cash is going to continue for a few years, at least until the company has completely adjusted itself to changing conditions in the industry. Rapidly growing foreign competition, particularly Canadian, the refusal of Congress to put a tariff on newsprint while protecting other grades, increasing costs, and steady exhaustion of supplies of wood in this country are materially altering the aspect of the situation.

Foreign competition has become a real problem for International Paper. The bulk of the newsprint imported into the United States comes from Canada, which is supplying a larger and larger proportion of our consumption each year. Canada is gaining a never increasing advantage, owing to vanishing timber lands in this country. How imports of newsprint have increased in quantity and value is shown in the following table:

Year	Value	Pounds
1923	$98,021,045	2,617,685,620
1922	72,354,266	2,058,535,612
1921	79,123,368	1,584,962,674
1920	68,600,950	1,459,737,288
1919	43,674,094	1,255,468,758
1918	35,023,161	1,192,540,059
1917	30,929,628	1,118,225,912
1916	18,527,748	936,460,899
1915	14,138,651	736,817,721
1914	12,189,792	630,590,295
1913	8,920,390	446,445,685

Consumption of newsprint in this country amounts to about 3,000,000 tons a year. In 1913 domestic output totalled 1,305,000 tons, while that of Canada amounted to only 350,000 tons. In 1920, owing to the high prices, domestic production reached the record total of 1,512,000, but last year it was 1,485,000 tons, which is an increase of only 13.7 per cent over 1913. Canadian output, meanwhile, has steadily expanded, reaching 1,263,000 tons last year, whereas in 1913 Canada produced only slightly more than 20 per cent of the total of the two countries; ten years later her output was 46 per cent of the total.

Facing the Situation

Newsprint manufacture in Canada also is stimulated by an embargo on export of pulpwood from Dominion crown lands, leased to United States manufacturers, and a movement is on foot now to extend the embargo to include wood cut on fee lands. In any event, it would appear to be only a comparatively short time until Canada becomes the principal newsprint manufacturing country in this hemisphere.

International Paper is meeting the situation in four ways: (1) By extending mill operations into Canada; (2) by diverting production from newsprint to fine grades of paper; (3) by converting mills into hydro-electric power plants; (4) by reducing costs.

Forseeing the time when wood would have to be obtained largely in Canada, the International Paper Company secured lumbering permits for large areas from the Canadian Government. Plans went awry, however, when the Provincial Government of Quebec, ignoring existing leases, forbade the exportation of pulpwood cut on crown lands. To overcome this obstacle International Paper constructed at Three Rivers, Quebec, one of the finest paper mills in the world. Capacity, which is now between 300 and 320 tons of newsprint a day, can be increased with a small outlay to 500 tons daily. Unlimited electrical power is at hand and some 3000 square miles of timber lands owned or controlled by the company lie behind the mill, the wood from which can be floated down without difficulty. For mechanical equipment, quality of output, economy, and limitation of labor the plant is said to be unequalled.

Turning to High-Grade Paper

At present about 88 per cent of the company's producing capacity is in the United States, while about 70 per cent of its timber lands are in Canada. Presumably the wood supply in this country will last but a few years. The company can bring in pulpwood from some of its Canadian holdings, but this is rather expensive and, as mentioned above, may yet be stopped by Government action. At any rate, if the company is to maintain its position it will have to add to its Canadian mill facilities, and this is understood to be the policy of the present management.

As a further measure to keep profits up in the face of newsprint competition and other handicaps, the company has been going more and more into production of the better grades of paper. In 1913 newsprint comprised about four-fifth's of the company's total output, whereas in 1922 newsprint output was only about twice that of other grades. The production for 1923, notwithstanding a period of abnormally low water at several of its mills, was 537,927 tons, of which 352,518 tons were newsprint paper.

Water Power Development

A third step taken by the company in readjusting its position is the development of its extensive water powers. At a cost of several million dollars it has erected at Sherman Island on the Hudson River a vast hydro-electric plant from which about 20,000 k. w. of electricity are being sold daily. It has also completed within a few months a large hydro-electric plant on the Saranac River. It has also well advanced two other hydro-electric plants in the State of New York. Plans are also under way for the transformation of six of the company's seventeen mills into hydro-electric plants.

Finally, International Paper is doing much toward reducing expenses by installing better machinery and increasing the efficiency of labor. Its employee housing plan is a model of corporate foresight and should go far toward improving the relations between employer and employee.

Strong Financial Position

In 1917 it was decided to pay up preferred dividend arrears and consoliate funded debt. As the first step a new issue of first and refunding sinking fund 5 per cent bonds were authorized in the amount of 20 millions. This included $7,500,000 of series A. convertible into 6 per cent preferred stock. Of the total over $8,000,000 was set aside for plant extensions and improvements.

To carry out this plan the authorized preferred stock was increased from $25,000,000 to $32,500,000, solely against the convertible feature of the new bonds. Finally, it was voted to pay the 33½ per cent accumulated preferred dividends with 7½ per cent in cash, 14 per cent in 6 per cent cumulative preferred stock, and 12 per cent in common stock. All but a comparatively small proportion of the preferred stockholders accepted these payments, but a small amount is still due on the remainder.

In spite of good earnings and conservative dividend policy the company was compelled to lean rather heavily on the banks, loans at the end of 1921 amounting to $15,000,000. To improve the working capital position and provide funds for plants, as previously mentioned. $12,500,000 of the series B bonds were issued in 1922 bringing the total funded debt slightly above $19,000,000. Ample security lies back of these bonds, and interest charges apparently were covered five times over last year. The working capital position meanwhile has improved, though it is necessray for the company to have around $8,000,000 tied up in raw materials. However, the value of the wood pulp and pulpwood on hand is greatly in excess of present bank loans.

Plant readjustment, of course, takes money, and until it is completed it may be that common shareholders will have to wait for a distribution of profits. One thing is certain, and that is that when the common is placed on a dividend basis the company will be in a position to maintain the payments. Last year the preferred dividend was earned more than twice over, and the balance applicable to the common amounted to approximately $12 a share.

So far as can be judged at this time, the outlook for the paper industry is favorable. The price trend for newsprint apparently is upward, and consumption should be fully as good as last year. International Paper, in short, should be able to maintain its current good earnings.

* * *

EVERY COMPANY WILL BE BACK AGAIN

THAT every paper company which exhibited at the Paper Industries Exposition in 1923 would be represented at the Second Paper Industries Exposition at the Grand Central Palace the week of April 7th, was the interesting announcement when the Advisory Committee of the Exposition held its meeting at the Hotel Belmont. The whole status of the Exposition was discussed, and since the meeting letters approving the program have been received from several of the members of the committee who were unable to attend.

The report as to space taken by the paper manufacturers was made on behalf of the Exposition by Charles F. Roth and Fred W. Payne and in every case, it was stated, the exhibitors were returned with as large or with larger space, because of the direct business which was traced to the showing made at the Exposition last year.

Plans are already actively under way for a special program at the Exposition by the Technical Association of the Pulp and Paper Industry, which is holding its annual convention during Paper Week. A program of particular interest to both technical engineers in the paper industry, and the machinery and supply men is being formulated by W. G. MacNaughton, Secretary of Tappi, which is one of the biggest technical organizations in the country of engineers in a special branch of industry.

A noteworthy feature of the space contracts which are being placed is the number of firms making paper products which will be represented. The space assigned to the makers of paper

(Continued on page 29)

BROWN COMPANY OFFERS NEW STOCK

No Difficulty Expected in Disposing of New Stock of Old Corporations

THE Brown Corporation, manufacturers of pulp and woodpulp, is doing additional financing through the issuance of $2,000,000 worth of seven per cent cumulative preferred stock, the issue being underwritten by Hornblower & Weeks.

The Brown Corporation's stock is all owned by the Brown Company, said to be the largest manufacturer of sulphite pulp and kraft wrapping paper in the United States, with mills at Berlin, N. H., and offices at Portland, Me. The Brown Corporation was incorporated in 1905 and operates sulphite pulp mills of 220 tons daily capacity and a lumber mill at La-Tuque, P. Q. Its entire output of pulp and pulpwood is taken by the Brown Company, founded in 1852.

The Brown Corporation's investment at La-Toque represents a cash investment of $6,000,000. In addition there is a developed hydroelectric power plant of 4400 horsepower and undeveloped water power of approximately 140,000 horsepower; its timber holdings comprise about 5,000 square miles estimated to contain upwards of 12,000,000 cords of pulpwood.

The Brown Company owns the entire $9,000,000 common stock of the Brown Corporation and with the reinvestment of earnings, the two companies have combined assets of over $65,000,000. The balance sheet of Nov. 30 shows net current assets of $3,403,000 and other net tanglible assets of $10,307,000, making net tanglible assets of $13,773,000. Net earnings of the Brown Corporation for the past five years, after taxes and interest charges, averaged $670,000 and for the last ten years $608,000.

The Brown Corporations have about 1,000,000 acres in fee simple, 160,000 acres in stumpage and 2,000,000 acres in timber liimts under perpetual license.

Ahead of this issue of preferred stock is a closed first mortgage bond issue of $1,400,000 and after it the $9,000,000 of common stock. H. J. Brown is president of the company.

* * *

Vote To Sell Assets

On February 13 stockholders of the Continental Paper & Bag mills, operating a large mill at Rumford, at a special meeting voted to sell all the assets in the corporation to a new corporation to be organized under the laws of Delaware and to be known as the Continental Paper & Bag Mills Corporation. This action is understood to presage the sale of the plant of the International Paper Co. of Rumford to the Continental Paper & Bag Mills. Deeds for the transfer are now being drawn and both mill properties will figure in the transfer of assets of the Continental Paper & Bag Mills to the new corporation. The Continental Paper & Bag Mills already handles 60 per cent of the output of the International Paper Co., so that the fusion appears very practicable.

* * *

Negotiations Off

Negotiations for the big pulp and paper merger that was to take in the Laurentide, Belgo, St. Maurice and the St. Lawrence companies are off, for the present at least. The explanation is that the terms offered to Laurentide were not sufficiently attractive. The impression among those who know is that the Laurentide Company is much better off for timber than had been supposed, and it is also pointed out that by the time its standing timber will have been exhausted ,a new supply will be available as the fruits of its reforestation policy.

* * *

Mistress—Why did your last mistress discharge you?

Applicant—Bekase Oi niver washed the children's ears, mum.

Little Jack—Oh, Mamma, please take her for my nursie!

SUIT INVOLVES MILLION IN PAPER STOCK

Stockholder of Eddy Paper Corporation Sues the Company

HEARING of a suit involving $1,000,000 worth of stock in the Eddy Paper Corporation of Illinois was to be started Monday morning before Judge Clayton C. Johnson of Coldwater in circuit court at Centreville, Mich.

The suit is that John C. Maxwell, a stockholder in the Eddy Paper Company at the time the gigantic deal transferring all its assets to the Eddy Paper Corporation of Illinois was consummated. The action, taken at an adjourned meeting of the stockholders, was met with considerable opposition on the part of a minority of the preferred stockholders. The provisions of the transfer converted the entire 700,000 shares of common stock and 177,500 shares of preferred stock in the Michigan corporation into 31,250 shares of no par value stock in the Illinois company and required the latter to assume the entire bonded indebtedness, amounting to $2,250,000, and all other outstanding obligations.

The Maxwell suit, which is merely a test case for scores of others, is based on Section 9050 of the Compiled Laws of the State of Michigan, containing the following provision in effect at the time of the Eddy tranfer:

"If for any reason said corporation shall cease business or become insolvent, then, after the payment of all liabilities and debts, the remainder of the assets of said corporation shall be applied first in payment of all preferred stock in full and then unpaid dividends due thereon, and the balance divided pro rata, share and share alike, among the holders of the common stock."

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Wire Works

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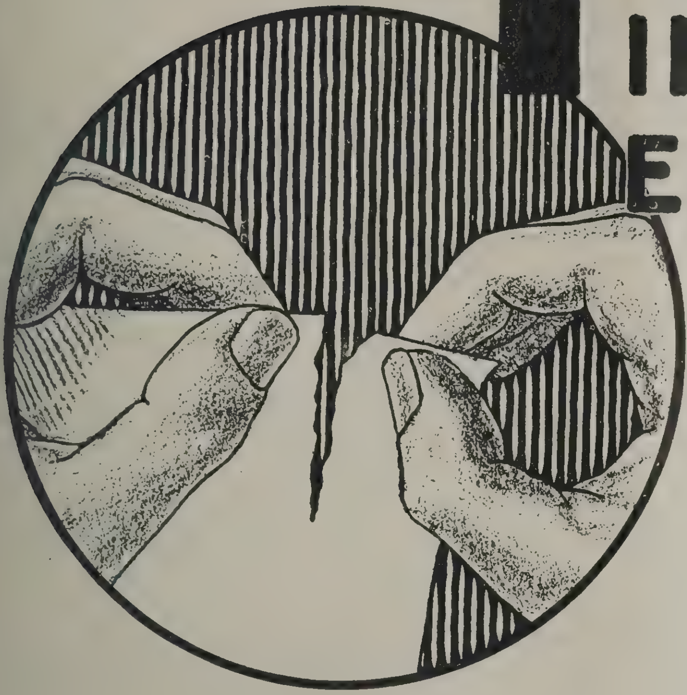
MENASHA, WISCONSIN

The Second Annual PAPER INDUSTRIES EXPOSITION



IF you knew ALL about paper making—your income tax would probably "choke an elephant". But no one man can ever know it all. However, the Paper Exposition projects all the knowledge that has been gained by thousands as on a screen so you may gather quickly the things which will benefit you particularly.

Remember the TIME and the PLACE.

Grand Central Palace
New York City
Week of April 7th

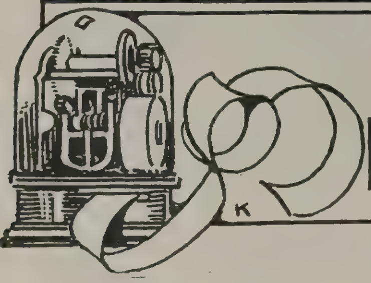
EXHIBIT spaces are being taken rapidly. Has your sales department selected yours yet? If not, write NOW for diagram and costs of spaces.

The Paper Exposition will be on the Main Floor of the Grand Central Palace this year.

One trade paper wrote about last year's Exposition: "The various booths devoted to machinery and apparatus, mill supplies and equipment had a full quota of interested visitors all eager to see or be told about the latest thing in the mechanics of screening, slicing and pumping; the filtration of water, sedimentation and recovery of waste, or perhaps the best method of making rosin size. For the engineer, superintendents or the technical man in a pulp or paper mill some of the exhibitors gave continuous demonstrations of the operations of various modern inventions."

No matter how much you know about paper—or how successful you are—you can get useful and helpful information from the various exhibits and lectures. It will pay you to have all your department heads, as well as yourself, spend one or several days at this Exposition.

Paper Industries Exposition, Grand Central Palace, New York



LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS

FINE			
Bond	8.00	@	40.00
NEWS			
Contract Basis	3.75	@	
BOOK			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Coated and Enameled	8.00	@	12.00
TISSUE			
White	.85	@	.95
Manila No. 1	.80	@	.90
WRAPPING			
No. 1 Domestic Kraft	6.00	@	6.50
No. 1 Jute	8.25	@	8.75
No. 1 Wood	4.75	@	5.25
Butchers	4.00	@	4.25
BOARD			
News	45.00	@	50.00
Chip	42.50	@	45.00

Paper and Board

New York, February 26—Activity in the paper trade continues on a fairly broad scale although manufacturers and jobbers for the most part are disposed to complain of the limited volume in which buyers are operating. There is still a lack of inclination shown by paper users to purchase other than against direct requirements. Demand is developing in a consistent manner, every day witnessing new business of comparatively broad scope, yet it is quite apparent that the supplies consumers are absorbing are going almost immediately into consumption, printers, publishers, converters and other large users of paper preferring to let manufacturers carry the stocks and therefore placing orders only when the need is pressing.

Prices on practically all kinds of paper are marked by considerable steadiness. It is true that manufacturers in some instances are shading prices in an effort to stimulate demand and also to wean away orders from competitors, but the quotations named in the open market indicate that price levels are well maintained. Moreover, the strengthening of most kinds of raw material recently has had pronounced influence on paper prices. Production costs are doubtless higher at present than they have been since the boom following the war, as raw material prices in a majority of cases have scored sharp advances in recent weeks. It would appear as though some drastic upward revisions in prices of the finished product will have to be effected in the near future if manufacturers are to put paper on equitable price levels with the cost of raw material.

Newsprint is very firm and in a lively market position. Publishers are absorbing print paper in close to record tonnage, and a pleasing feature in this branch of the industry is that mills almost as a unit are sold up for sometime to come. In fact, most newsprint manufacturers have little or none of their potential output for the first half of the year to dispose of, having contracted with publishers up to the very hilt of their production. Newsprint is moving straight into consumption. Very little is being stocked as consumption is so heavy that publishers have practically no supply over their contract commitments to place in store. Mills also are shipping out print paper about as rapidly as it comes from machines, and manufacturers' stocks according to latest available figures, are below normal.

Coarse papers are doing fairly well. At any rate the market for wrapping paper seems to have steadied down to a more even keel, with demand developing in a more consistent way and with domestic producers seemingly securing a larger proportion of the current business than they did a short while ago when tremendous quantities of kraft paper came into the United States from Scandinavia and Germany. Prices have steadied at levels where it is declared manufacturers have little or no margin for profit, and it is argued that such prices cannot prevail indefinitely.

Fine papers are tending to advance. This branch of paper manufacturing has felt the rise in raw material costs probably to a keener degree than any other group of mills, and increasing demand for bonds and ledgers also is a factor aiding in the firmer tone of fine paper prices. Mills in New England are reported gradually increasing their production to keep pace with the expansion of demand, and fine paper plants in the Middle West are said to be enjoying favorable market conditions.

Book paper is moving in a steady manner and at maintained quotations, with prices exhibiting a hardening tendency. Tissue papers are rather quiet but no further changes are noted in quoted prices. Building papers are active, and so are bag papers. There is an especially strong demand for roofing felt both from domestic sources and for export, Japan being a heavy buyer, according to reports.

Box boards are in fair demand. It is quite evident that consumers are buying to cover immediate wants but the movement of board is of at least normal volume. Prices are fluctuating up and down rather frequently though the changes are of

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Write for prices and particulars

Athens Implement & Manufacturing Co.
ATHENS, Wis.

narrow dimensions. Plain chip board is quoted in New York at $42.50 per ton f. o. b. this city, and news board at $45 a ton.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.90	@	1.00
Manila No. 1	.80	@	.90
White No. 2	.80	@	.90
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	5.50	@	6.00
No. 2 Fiber	4.50	@	5.00
Card Middles	3.75	@	4.00
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	42.50	@	45.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

Probably the most important development in mechanical pulp is the reported closing down of grinding mills as a result of unfavorable weather conditions. Mill streams in various parts of this country and Canada are frozen tight, and with the water supply greatly reduced, some grinders have been obliged to very nearly discontinue producing temporarily. This, as would be expected, is having a strengthening influence on the market, and ground wood quotations from many quarters show an advancing tendency. Domestic producers are generally securing from $35 a ton upward f. o. b. pulp mills for prime ground wood for prompt shipment, prices of course depending on the air dry test and the freight to consuming points, quotations ranging up to $40 per ton with manufacturers getting this price for pulp for short hauls. Imported ground wood is quoted on the spot at New York at $35 a ton ex dock though most sales are at slightly under this level or between $33 and $34.

Foreign and Domestic Chemical Pulp

Demand for chemical wood pulp continues to develop in a comparatively slow manner, and paper manufacturers with few exceptions are purchasing only when their requirements necessitate the absorption of fresh supplies. Nevertheless the market tone is distinctly steadier than it has been in the recent past, and sentiment is almost univeral in the trade that bottom prices have been seen and that any change from now on will be in an upward direction. As a matter of fact some kinds of pulp display a strengthening tendency. Kraft is unmistakably steadier, due in large part to a firming up of prices at primary sources abroad, and practically no No. 1 Scandinavian kraft pulp is now available at less than 2.50 cents per pound ex dock New York with some importers quoting a dollar or two per ton above this level. Sulphite is moving along in a routine way with offered supplies of a volume having a more or less depressing effect on values. Foreign bleached sulphite is quoted at from 3.75 cents upward per pound on the dock, depending on the grade, and strong foreign unbleached sulphite is quoted at about 2.60 to 2.65 cents ex dock New York. Quotations ex dock at this port and f.o.b. pulp mills are as follows:

Sulphite foreign—			
Bleached No. 1	3.75	@	4.25
Unbleached No. 1	2.60	@	2.80
Unbleached No. 2	2.40	@	2.60
Easy Bleaching	2.90	@	3.15
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.60	@	3.00
Unbleached news grade	2.50	@	2.75
Easy Bleaching	3.00	@	3.25
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.60	@	2.90
Sulphite screenings, refined	1.50	@	1.75

Domestic Rags

After having shown a weakening trend for a matter of several days, prices of the low grades of papermaking rags as chiefly used by roofing paper mills have again adopted a rising tendency, while the medium and high qualities rule very firm under a strong demand from numerous consuming sources. Doubtless the heavy snow storms over a large part of the country have been a factor in firming rag values, since collections have decreased as a result and dealers therefore having less stock to dispose of. Sales of No. 1 roofing rags at around a price basis of 2.60 cents per pound f. o. b. New York have been reported, and No. 2 packing has brought 2.40 cents New York. Old thirds and blues are in active demand and quotably firm. Repacked are selling at 3.50 to 3.75 cents per pound at dealers' shipping points, and miscellaneous blues at 3.25 to 3.50 cents. New cuttings are gradually moving higher in price and some grades are

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CHICAGO
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Manufacturers of
PARCHMENT, WAXED AND BOND PAPERS
KALAMAZOO, MICHIGAN

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Only quality folks make quality merchandise.

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Waxed Papers

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Baco Dependable Dyes for Paper

VATAMINE BLUE R S TRIPLE POWDER

Needed for tinting and bleaching high grade Bond and Blue white papers.

A complete line of Imported and Domestic Dyes for Paper carried in stock for immediate delivery. Send for our monthly Bulletin listing all offerings of colors.

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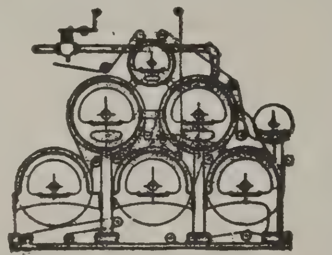

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certainly scarce. No. 1 white shirt cuttings are quoted by New York dealers at a minimum of 14 cents per pound and up to 14.50 cents f. o. b. this city. Prices f. o. b. New York are:

New Shirt Cuttings, No. 1	14.00	@	14.50	Overall Cuttings, Blue	9.25	@	9.50
No. 2	6.75	@	7.00	Washables	5.50	@	5.75
Fancy Shirt Cuttings	7.50	@	7.75	New Black Mixed	5.00	@	5.25
No. 1 Whites, repacked	7.50	@	8.50	Soiled Whites, house	3.25	@	3.50
No. 2 Whites, repacked	4.50	@	5.00	Soiled Whites, street	3.00	@	3.25
White Lawns	11.75	@	12.00	Thirds & Blues, repacked	3.50	@	3.75
New Muslins, unbleached	12.25	@	12.50	Thirds & Blues, misc.	3.25	@	3.50
Light Silesias	9.00	@	9.50	Black Cotton Stockings	4.00	@	4.25
Black Silesias	5.50	@	5.75	Roofing Rags, No. 1	2.50	@	2.65
				Roofing Rags, No. 2	2.40	@	2.50

Imported Rags

Foreign papermaking rags are firm in price and are meeting with a consistently good demand. Importers assert that prices abroad are mounting at a rapid rate and that in frequent cases they are asked to pay higher figures than can be secured from paper mills in this country. Dark colored cottons are selling at about 2.50 cents per pound ex dock New York though most importers ask above this price. No. 1 new white linens are quoted at 15 cents per pound and higher, and old No. 1 white linens at round 11 cents. Quotations ex dock New York follow:

Lins., White, No. 1	15.00	@	16.00	German Linen, blue	4.50	@	5.00
Ger. Blue Cottons	3.50	@	3.75	German Linen, grey	6.00	@	6.50
French Light Blues	3.75	@	4.00	German S. P. F.'s	6.00	@	9.00
New Light Prints	6.50	@	7.00	German Light Prints	4.00	@	4.25
New Unbleached	10.50	@	11.00	Dk. Colored Cottons	2.50	@	2.65

Bagging, Rope, Etc.

Old rope is firm in price and is moving to paper mills in good amounts. Domestic manila rope of No. 1 grade is selling at 6.50 to 6.75 cents per pound at dealers' shipping points, and reports say that most sales are close to the top figure. Strings have firmed up, dealers asking 1.25 to 1.50 cents a pound at shipping points. Old bagging is in little demand excepting from roofing paper manufacturers who are buying in larger than usual volume. Mixed bagging for roofing mills is reported fetching 1.60 cents a pound New York. F. o. b. New York quotations are:

Gunny No. 1	1.50	@	1.60	Roofing Bagging	1.50	@	1.60
Foreign	1.40	@	1.50	For. Manila Rope	6.25	@	6.50
Wool Tares, light	1.40	@	1.60	Domestic Rope	6.50	@	6.75
Wool Tares, heavy	1.50	@	1.70	Mixed Strings	1.25	@	1.50
Scrap, Bagg., No. 1	1.50	@	1.65				

Old Paper

Signs point to a slight easing of prices of most grades of old paper. Demand for the better qualities is decidedly slow, and buyers looking for such grades are generally filling their wants at concessions from the prices asked by dealers, while the movement of the low qualities has decreased sufficiently to effect some sagging of prices. Shavings are little wanted by mills, and No. 1 hard white shavings are reported available at 3.75 cents per pound f. o. b. New York and No. 1 soft white at 2.90 cents New York. Old newspapers are selling at 95 cents to $1 a hundred pounds f. o. b. this city, No. 1 mixed papers at 75 to 80 cents common paper at 55 to 60 cents, and flat magazine stock at 1.60 to 1.75 cents per pound. Old kraft is firm with sellers quoting 2.25 cents a pound New York. Quotations f. o. b. New York are as follows:

No. 1 Hard White Shavings	3.75	@	4.00	Ledger Stock	1.90	@	2.10
No. 2 Hard White Shavings	3.25	@	3.50	Kraft, No. 1	2.25	@	2.35
No. 1 Soft White Shavings	2.90	@	3.15	New Manila Cuttings	2.00	@	2.25
Box Board Chips	.80	@	.90	New Manila Env. Cuttings	2.75	@	3.00
No. 1 Colored Shavings	1.60	@	1.75	Bogus & Mill Wrappers	1.00	@	1.10
Magazine flat stock	1.60	@	1.75	News, strictly overissue	1.15	@	1.20
No. 1 Crumpled	1.35	@	1.45	Folded News	.95	@	1.00
Solid Ledger Books	2.15	@	2.25	No. 1 Mixed Papers	.75	@	.80
				White Blank News	2.25	@	2.35
				Common Paper	.55	@	.60

Twines

Twine prices show very little or no change although the tone is firm and the strong position of raw material makes for an upward tendency. Demand is of routine character and is probably a little less in volume than is usually experienced at this time of the year. All grades, however, are sharing in the movement, with the demand lacking feature. Quotations follow:

Sisal Hay, pure	12.25	@	13.25	Jute Wrapping twine, A grade	20.00	@	
Manila Hay, pure	16.25	@	17.25	Papermakers Twine	11.50	@	
Sisal Lath Yarn	12.25	@	13.25	B. C. Hemp, 18	.39	@	.40
Manila Rope, pure, ¾ inch diameter	14.25	@	15.25	B. C. Hemp, 24	.38	@	.39
Hardware Rope	11.25	@	12.25	B. C. Hemp, 36	.37	@	.38
Jute rope, ¼ diam. and over, coils	14.00	@	15.00	America Light India—No. 6	14.50	@	
Sail twine, A grade	20.00	@		No. 7	13.50	@	

Chemicals

Papermaking chemicals are quotably steady and principal activity in the markets is against contracts, there being a fair movement of supplies on back orders but no important current business.

IMPORTS AT NEW YORK

Week of February 18-23

Paper

Str. Bremen, Bremen—O. G. Hempstead & Son, 4 cs. pasteboard; C. Steiner, 11 cs. printing; Irving Bank-Columbia Trust Company, 1,363 bls. wrapping; A. Frankan & Co., 7 cs.; Globe Shipping Company. 31 cs. photo and 7 cs. drawing; Martin, Bechtold & Co., 16 cs.; Scientific Materials Company, 7 cs. pasteboard; Order, 302 rolls newsprint.

Str. Eastern Coast, Helsingfors—Parsons & Whittemore, 61 rolls newsprint; from Kotka—Parsons & Whittemore, 1,274 rolls newsprint.

Str. Editor, Havre—Standard Products Corporation, 65 cs. cigarette; Guibout Freres & Co., 13 cs. writing.

Str. President Roosevelt, Bremen—Equitable Trust Company, 533 rolls newsprint; O. G. Hempstead & Son, 19 cs. pasteboard.

Str. Sahale, Rotterdam—Wilkinson Bros. & Co., 107 bls. and 8 rolls wrapping; Maurice O'Meara Company, 661 rolls wrapping; Republic Bag & Paper Company, 551 bls. wrapping; E. Dietzgen & Co., 37 cs.; C. Steiner, 22 cs. printing.

Str. Endicott, Hamburg—E. Dietzgen & Co., 25 cs. drawing; Wilkinson Bros. & Co., 59 rolls wrapping; Perkins-Goodwin Company, 69 rolls printing; Chemical National Bank, 82 rolls newsprint; Flexideal Company, 90 cs. press board.

Str. Frederik VIII, Christiania—American Exchange National Bank, 97 rolls newsprint; E. Naumberg & Co., 343 rolls newsprint.

Str. Ansonia, Liverpool—A. C. Dodman Jr. & Co., 25 cs. hanging; C. A. Johnson, 25 bls.; Oxford University Press, 5 cs. printing; B. F. Drakenfeld & Co., 32 cs. printing; F. J. Emmerich & Co., 8 bls. hanging.

Str. Mongolia, Antwerp—A. C. Dodman Jr. & Co., 10 bls. hanging; C. W. Williams & Co., 16 cs.; Borden & Riley Paper Company, 8 cs.; Gevaert Company of America, 8 cs. photo; Louis DeJonge & Co., 8 cs.; from Rotterdam—C. Steiner, 11 cs. printing; K. Pauli Corporation, 9 cs. writing; Bendix Paper Company, 6 cs.

Str. President Polk, London—W. H. S. Lloyd & Co., 35 bls. hanging.

Str. Suffren, Havre—H. Bourjois, 9 cs. cardboard; Surbrug Company, 23 cs. cigarette; Guibout Freres & Co., 9 cs.; American Express Company, 5 cs.; G. Lueders & Co., 6 cs. filter; Whiting-Patterson Company, 15 cs. hanging; Order, 7 bls.

Wood Pulp

Str. Bremen, Bremen—H. Hollesen, 2,000 bls.

Str. Eastern Coast, Danzig—Order, 4,525 bls.; from Helsingfors—Order, 135 bls. sulphite.

Str. Frederik VIII, Christiania—E. Butterworth & Co., 180 bls

Str. Frode, Drammen—Guaranty Trust Company, 8,035 bls.; from Larvik—Guaranty Trust Company, 4,934 bls.; Order, 1,275 bls.

Str. Topdalsfjord, Christiania—Nilsen, Lyon & Co., 2,800 bls.; Mechanics & Metals National Bank, 1,000 bls. sulphite; R. F. Hammond, 500 bls.; E. M. Sergeant Company, 125 bls. sulphite; Perkins-Goodwin Company, 125 bls. sulphite; Central Union Trust Company, 500 bls. sulphite; New York Trust Company, 12,500 bls. sulphite; Bulkley, Dunton & Co., 2,000 bls.; J. Andersen & Co., 1,200 bls.

Str. Neponset, Vancouver—Acer & Co., 9,375.

Old Rope

Str. Marengo, Newcastle—Brown Bros. & Co., 83 coils: from Hull-Brown Bros. & Co., 248 coils and 6 bls.; Ellerman-Wilson S. S. Line, 57 coils and 17 bls.

Str. Boston City, Bristol—Brown Bros. & Co., 234 coils.

Str. Frederik VIII, Copenhagen—Goldman, Sachs & Co., 120

Str. Mongolia, Rotterdam—Brown Bros. & Co., 99 coils.

bls. and 230 coils.

Old Bagging

Str. Editor, Havre—Leshner Paper Company, 198 bls.

Str. Grootendyk, Rotterdam—E. Butterworth & Co., 174 bls.

Str. Frederik VIII, Copenhagen—Goldman, Sachs & Co., 211 bls.

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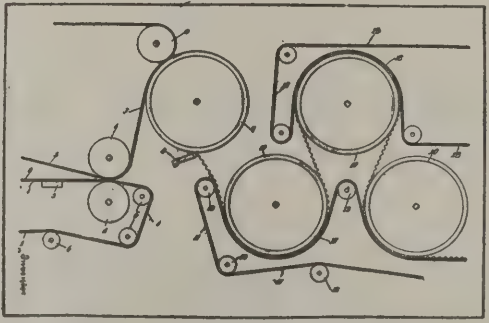

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Str. Bremen, Bremen—Goldman, Sachs & Co., 276 bls.; Ladenburg, Thalman & Co., 38 bls.; Chemical National Bank, 133 bls.

Str. Editor, Havre—Coal & Iron National Bank, 24 bls.

Str. Marengo, Newcastle—Philadelphia National Bank, 80 bls.

Str. President Roosevelt, Bremen—Goldman, Sachs & Co., 41 bls.; Chemical National Bank, 87 bls.; International Acceptance Bank, 171 bls.

Str. Boston City, Bristol—Second National Bank of Boston, 231 bls.; Guaranty Trust Company, 93 bls.; Order, 192 bls.

Str. Grootendyk, Rotterdam—E. J. Keller Company, 602 bls.; A. W. Fenton, Inc., 126 bls.

Str. Endicott, Hamburg—Equitable Trust Company, 26 bls.; Guaranty Trust Company, 23 bls.; Mechanics & Metals National Bank, 79 bls.; Union National Bank, 263 bls.; Strupp & Co., 108 bls.; Order, 214 bls.

Str. Frederik VIII, Copenhagen—Goldman, Sachs & Co., 51 bls.

Str. Archimedes, Manchester—E. W. Dutton, Inc., 44 bls.; Guaranty Trust Company, 505 bls.; Equitable Trust Company, 92 bls.; Order, 6 bls.

Str. Ansonia, Liverpool—Order, 174 bls.

Str. Suffren, Havre—Kidder, Peabody Acceptance Corporation, 48 bls.; Guaranty Trust Company, 408 bls.

Paper Stock

Str. Bremen, Bremen—Mechanics & Metals National Bank, 37 bls.

Str. Boston City, Bristol—J. W. Hampton Jr. & Co.. 417 bags;

Casein

Str. Pan America, Buenos Aires—Kalbfleisch Corporation, 3,335 bags.

China Clay

Str. Boston City, Bristol—J. W. Hampton Jr. & Co.,417 bags; Bankers Trust Company, 317 bags; C. C. English Company, 30 cks.

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Felt Soap

ALBANY, N. Y.

(Continued from page 21)

specialties is already overflowing, and among the displays of this group will be some of the most unique features of the Exposition. Paper cups, boxes, bags, form a small part of this department, which will be one of the most popular phases of the big paper show for the general public which will attend.

Direct mail advertisers will find that the paper manufacturers will give them a particularly fine opportunity to learn of the paper problem, which is so important in their preparation of advertising copy. Most of the big direct mail advertising houses no longer depend on the judgment of the printers for the selection of the paper needed, but specify the grade and quality which will give the type and illustrations the most attractive presentation. The Paper Show will by its showing of variety of papers, and the special service to be rendered by the exhibiting companies give the direct mail advertiser the best opportunity imaginable for studying paper, as the material on which the success of his printed matter depends.

* * *

The Riddle of Cellulose

(Continued from page 8)

exist in cellulose per se, but is formed from anhydroglucose by condensation.

It will be evident from the foregoing and from Professor Wise's contribution that cellulose chemistry is destined to be a subject of investigation for many years to come. Organic chemical research is difficult to popularize and results cannot be given in a trade journal with the fullness of detail that workers on organic chemical problems might desire, but the effort should be made to keep readers of a technical journal of papermaking such as PAPER, informed of developments in the field of chemistry as well as those in the fields of engineering and mechanics, if it can be done attractively without the use of too many recondite formulas and terms, which is what I have attempted conscientiously to do in this latest account of efforts to solve the riddle of cellulose.

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Burns Mfg. Co., 46 W. Broadway, New York City.
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National Sales Co., Cincinnati, O., (Bentonite).
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EMPIRE Size & Chemical Co., (Rosin Size—Foam Killer—Felt Soap), Albany, N. Y.
Philadelphia Quartz Co., 121 So. 32 St., Philadelphia, Pa., Silicate of Soda.

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Drakenfeld, B. F., & Co., Inc., 50 Murray, New York City.
English China Clays Sales Corp., 33 West 42nd St., New York City.
General Mineral Co., Inc., 104 Spring, New York City, (Imp., Exp. & Mfrs. Agts.)
Hammell & Gillespie, 240 Front, New York City.
Higman Company, John W., 29 Broadway, New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff (Job), New York City.
Keystone Minerals Co., 41 Union Square, New York City.
Penn-Keystone Co., 41 Union Square New York City.
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McHose Clay Co., Perth Amboy, N. J.
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Wright, Marcus S., South River, N. J.
United Clay Mines Corp., Trenton, N. J.
Carbola Chemical Co., Inc., 299 Ely Avenue, Long Island City, N. Y.
Binney & Smith Co., 81 Fulton, New York City, N. Y.
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wick, N. J.
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tan Ave., Brooklyn, N. Y.
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N. Y.
Harmon Color Works, Inc., (Pu
College Point, N. Y.
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Paper & Color Industries, I
Glenns Falls, N. Y.
Tait Paper & Color Industries, I
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New York City.
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Lane, New York City.
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ton, New York City.
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York City.
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Stellman, L. H. & Son, Battleboro, Vt.
Hooker Mfg. Corp., St. Johnsbury, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works (cylinder & fourdrinier), Appleton, Wis.
Beloit Iron Works, (tissue news, bookboard), Beloit, Wis.
Lawton, C. A. Co., The, De Pere, Wis.
Moloch Co., (paper, wall paper & sulphite), Kaukauna, Wis.
Manitowoc Ship Building Corp., Manitowoc, Wis.
MURRAY Mfg. Co., D. J., Wausau, Wis.

Slitters and Rewinders

Hamblet Machine Co., Lawrence, Mass.
Horne, J. H. & Sons, Co., Lawrence, Mass.
Clark-Aiken Co., Lee, Mass.
Fales, L. F., Walpole, Mass.
Hobbs, Mfg. Co., Worcester, Mass.
Rice, Barton & Fales Mach. & Iron Co., Worcester, Mass.
McDonald, Chas. J., (Rolls), Worcester, Mass.
Koegel's, Chas., Sons Inc., Holyoke, Mass.
Perkins, B. F. & Sons, Inc., Holyoke, Mass.
Kidder Press Co., Dover, N. H.
Langston Co., Samuel M., Camden, N. J.
CAMERON Machine Co., 57-61 Poplar St., Brooklyn, N. Y.
Central Machine Co., Niagra Falls, N. Y.
Moore & White Co., 15th & Lehigh Ave., Philadelphia, Pa.
Hudson-Sharp Mach. Co., (soft toilet roll rewinders), Green Bay, Wis.
Hewitt, J. W. Mach. Co., (Rolls), Neenah, Wis.

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Vacuum Oil Co., 61 Broadway, New York City.
Texas Company, 17 Battery Place, New York City.

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Island Paper Co., (ground wood dry), Carthage, N. Y.

Chateaugay Pulp Co., (ground wood), Chateaugay, N. Y.

High Falls Pulp Co., (ground wood, dr), Chateaugay, N. Y.

Dexter Sulphite Pulp & Paper Co., (Mechanical ground wood & Mitscherlich sulphite), Dexter, N. Y.

Fort Miller Pulp & Paper Co., (ground wood), Fort Miller, N. Y.

Arrowhead Milling Co., (sulphite Pulp), Fulton, N. Y.

Oswego Falls Pulp & Paper Co., (wood), Fulton, N. Y.

Finch, Pruyn & Co., Inc., (gorund wood pulp), Glens Falls, N. Y.

Blandy Paper Co., (ground wood pulp), Greenwich, N. Y.

Mohican Pulp & Paper Co., (wood pulp), Greenwich, N. Y.

Hinckley Fibre Co., (sulphite fibre), Hinckley, N. Y.

Tindale, Wm. H., (wood), Keeseville, N. Y.

United Indurated Fibre Co. of N. Y., (ground wood, dry), Lockport, N. Y.

Gould Paper Co., (ground wood), Lyon Falls, N. Y.

Malone Paper Mill, (sulphite fibre: gound wood), Malone, N. Y.

Hoornbeek's, John C., Sons, (ground wood, dry), Napanock, N. Y.

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ANDERSEN—J. & Co., 21 East 40th St., (Imptrs. of chemical Pulps, Kraft), New York City.

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Beebe & Co., Ira L., 132 Nassau, (wood pulp), New York City.

Butterworth, E. & Co., 1123 B'way, (wood & bleached sulphite pulp), New York City.

CASTLE & OVERTON, 200 Fifth Avenue, (wood sulphite), New York City.

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International Paper Co., (ground wood pulp & sulphite), New York City,.

International Pulp Co., 41 Park Row, (asbestine), New York City.

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Oxford Paper Co., 200 Fifth Ave., New York City.

Paine, A. G., Jr., 200 Fifth Ave., New York City.

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Price & Pierce, 30 East 42nd St., New York City.

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Defiance Paper Co., (ground wood), Niagara Falls, N. Y.

Niagara River Mfg. Co., (ground wood pulp), Niagra Falls, N. Y.

Pettebone-Cataract Paper Co., (ground wood), Niagara Falls, N. Y.

Defiance Paper Co., (ground wood), Norwood, N. Y.

Martin Pulp & Paper Co., (wood), Ogdensburg, N. Y.

Lake Champlain Pulp & Paper Corp., (Dry ground pulp), Plattsburg, N. Y.

Saranac Co., (ground wood pulp), Plattsburg, N. Y.

Underwood Paper Mills, Inc., (ground wood), Plattsburg, N. Y.

Hannawa Falls Water Power Co., (ground wood, pulp), Potsdam, N. Y.

Raquette River Paper Co., (ground wood sulphite), Potsdam, N. Y.

Johnston & Son, (dry ground wood), Port Leyden, N. Y.

St. Regis Falls Wood Corp., (ground wood pulp), St. Regis Falls, N. Y.

American Wood Board Co., (ground wood pulp), Schuylerville, N. Y.

Blandy Paper Co., (ground wood), Schuylerville, N. Y.

Iroquois Pulp & Paper Co., (ground wood pulp), Thomson, N. Y.

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Santa Clara Lumber Co., (pulp), Tupper Lake, N. Y.

Schroon River Pulp & Paper Co., (ground wood, dry), Warrensburg, N. Y.

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St. Regis Paper Co., (ground, wood, dry sulphite fibre), Watertown, N. Y.

SHERMAN Paper Co., (ground **wood pulp), Watertown, N. Y.**

Champion Fibre Co., (paper pulp), Canton, N. C.

Halifax Paper Corpn., (sulphite fibre & ground wood), Roanoke Rapids, N. C.

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Bayless Mfg. Corp'n (ground wood, sulphite fibre, also paper), Austin, Pa.

Durham Paper & Pulp Co., Durham, Pa.

Williams & Co., C. K., (mineral), Easton, Pa.

HAMMERMILL Paper Co., (unbleached sulphite), Erie, Pa.

Analomink Paper Co., (ground wood pulp), North Water Gap, Pa

Cherry River Paper Co., (sulphite pulp), 2129 Land Title Bldg., Philadelphia, Pa.

Dill & Collins Co., 140 N. 6th, (soda fibre, paper), Philadelphia, Pa.

Jessup & Moore Paper Co., Com'l Tr. Bldg. (soda pulp), Philadelphia, Pa.

Parson Pulp & Lumber Co., (spruce bleached & unbleached sulphite pulp), Finance Bldg., Philadelphia, Pa.

Bare, D. M., Paper Co., (soda fibre, also paper), Roaring Spring, Pa.

Glatfelter, P. H. Co., (soda fibre, also paper), Spring House, Pa.

Carolina Fibre Co., (ground wood, dry, sulphite also paper), Hartsville, S. C.

Tenn. Fibre Co., (cotton hull, fibre, dry), Southern Ry & Linden, Memphis, Tenn.

Yellow Pine Paper Mill Co., (sulphite fibre), Orange, Tex.

Sugarland Pulp & Paper Co., Sugarland, Tex.

Ryegate Paper Co., (Pulp), East Ryegate, Vt.

Parks Paper Co., (ground wood), Fitzdale, Vt.

Groton Mfg. Co., (wood pulp), Groton, Vt.

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Details of the Various Operations

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Chesapeake Corp., (papermakers' pulp), Westpoint, Va.
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Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
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Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.
Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.
Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.
Kaukauna Ground Pulp Co., Kaukauna, Wis.
Outagamie Paper Co., (ground wood), Kaukauna, Wis.
Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
Medford Lumber Co., (wood), Medford, Wis.
Mellen Lumber Co., Mellen, Wis.
Island Paper Co., (sulphite fibre), Menasha, Wis.
Ewing Everest Pulp Co., (ground wood), Merrill, Wis.
Grandfather Falls Co., (ground wood pulp), Merrill, Wis.
Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Elambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

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Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS
Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES
Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia. Pa.

RAGS

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Keller Co., Inc., E. J., New York.
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BLACK-CLAWSON Co., Hamilton, Ohio.

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SCREENS
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Pusey & Jones Co., Wilmington, Del.
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill.
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman, H. L. (centrifugal), Dayton, Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale, Pa.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

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Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

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Fibre

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Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.

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SIZE
Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific, Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
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Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel, T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
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Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
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Wood

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Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.
Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawer 539, Sharon, Pa.
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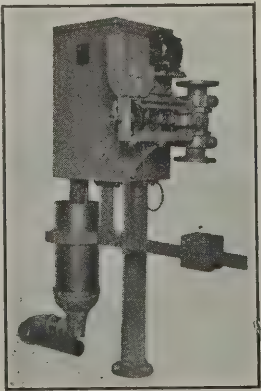

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Volume XXXIII, No. 20

PAPER

March 6, 1924

The Magazine of the Paper Industry

RUSSELL C. HUGHES, Publisher

THOMAS J. KEENAN, F.C.S., Technical Editor

ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

JUDGING from the stories now appearing in PAPER, it is high time the paper industry looked to its future. Perhaps, it has a scandal of its own as vital and amazing as the muddle being brought to light in Washington.

Certainly, it is high time thought was being given to the question of imports, dumping, and the trade in general.

It does no good to lament lugubriously and soulfully like a dog baying at the moon, unless efforts are put forth to find the cause of the trouble. Lamentations are useless. What is needed now is acumen and energy in going to the bottom of the trouble, and definite, absolute action in remedying the trouble.

* * *

The words, written by B. T. McBain in this issue regarding Judge Moore are the honest expression of a man who knew him well.

It must be a glorious thing to be so well thought of. Just to reach such a pinnacle is aim enough for one lifetime.

* * *

The second part of the series of Sulphite Mill Calculations by Mr. Van Arsdel appears in this issue. Here is something down on paper that many a man in the sulphite mill has longed for. The calculations set down required long, painstaking work to compile. They should be used to the limit by the sulphite mills of the country.

* * *

March is here. April is near by. Convention time approaches. It is only a month away. It is time now to get your reservations made in the Second Paper Industries Exposition as well as to lay your plans for spending the week of April 7 in New York City. It will be a week of rare pleasure for all who attend, as well as one of instruction.

By the way, preparations are going on steadily for the big Convention Number of PAPER. This will be the most comprehensive document covering the convention it is possible to secure. It is time now to get in that special advertisement telling of your good will to the trade and telling the world what you have to sell.

This Convention Number comes out only once a year and will be well worth your patronage.

* * *

There is one thing about it, Attorney General Daugherty seems to have sufficient to think about these days without cogitating on how to break up trade associations like those in the paper industry.

* * *

Well, there hasn't been a failure of consequence in the paper industry for days, perhaps weeks. Everything is looking up, if you please.

* * *

The Canadian Embargo seems to be going back into unconsciousness, once more. The movement has apparently worn itself out. Whether it will now disappear into oblivion is not known. Anyway, everybody is pussyfooting about it now.

* * *

Some engrossing facts are given by R. S. Kellogg in his address before the Kiwanis Club of Poughkeepsie regarding the newsprint situation. His address appears in this issue. One has no idea what the magnitude of the paper industry is until such facts are brought out.

* * *

We would like to remind you once more, that, right now, PAPER is the livest weekly publication in the paper industry. And do you notice the scads of news in each issue? There is something from all parts of the country.

—RUSSELL C. HUGHES, *Publisher.*

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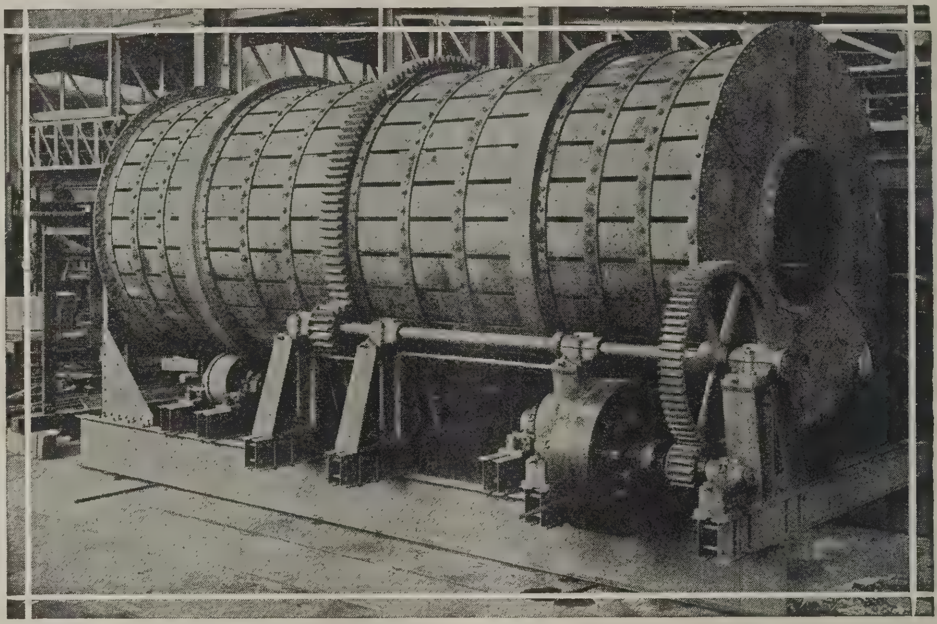
MURRAY



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PAPER
The Magazine of the Paper Industry

Manufacture of Mechanical Pulp

Action of Different Burrs in Grinding Wood Is Governed by Many Factors Which Are Here Explained

By I. H. COPELAND
Manager of Pulp Department, Tidewater Paper Mills Co., Brooklyn, N. Y.

IN a discussion of this subject, one will probably find a great variety of opinion as to the results obtainable through the use of any particular burr or combination of burrs. This is explained to some extent when we think of some of the factors which influence the results. First there is the way in which the burr is used, i. e. the care which is taken in dressing the stone and in keeping it in good condition. Second the temperature of the stock in the grinding pit. Third the speed and pressure ratio and the amount of power used per stone. Fourth the kind of wood used and fifth, the character of the grindstone. There are other factors but I think that these are the most pertinent. I shall not attempt in this article to cover the action of burrs under different operating conditions but shall describe the action of some different burrs and combinations of burrs, when used under average running conditions and with an average run of wood.

There are hundreds of different cuts, pitches, leads, shapes and types of burrs in use in the groundwood pulp mills of the world today. Not so many years ago, cast iron disks with any required number of teeth to the inch cut into their peripheries were used for roughing the surface of the stone. No definite pattern was made upon the stone surface but the surface was roughened so that it would grind wood. When the stone was considered to be too sharp and the resultant pulp too coarse a brick or a plane iron roller was passed across the surface of the stone. This had a tendency to break down some of the rough cutting surface and fill up the grain and a finer pulp would be the result. Today these disks or sectional burrs find little use except for truing up stones.

At the same time that the sectional burrs were in use the solid burr was also largely used for stone dressing. The solid burr is a steel cylinder on which can be cut any desired pattern which it is intended to transfer to the stone. When the burr becomes dull it can be recut in the mill machine shop and used over again. There are many reasons why this burr is not now practical when shell burrs can be obtained at a moderate price, but it is sufficient to say that the cost per ton is lower for the shell burr and at the same time much more uniform results are obtained.

The steel shell burr can be seamed so as to make any desired pattern. The shell is placed upon a mandrel which runs on roller bearings. The shell burrs are made in two sizes—3½ inches and 3⅞ inches inside diameter. The larger burr is to be preferred as it runs more smoothly on the stone, there being less chatter, while the resultant pattern on the stone is more uniform.

The disk burr, being a shell burr supplied with a light mandrel inside, is lighter than the ordinary shell burr together with the usual mandrel employed and it is asserted still further reduces the chatter and vibration.

The bevel burr, a recent invention, is a great aid in keeping a uniform pattern on the stone surface and in producing a uniform pulp. Any type of burr can be made with a bevel edge which prevents the teeth from digging their corners into the stone. The greatest advantage of the bevel burr is that it is more foolproof than other burrs.

While burrs are made in many different types, leads, pitches, cuts, etc., they are usually fashioned in some type of straight cut, diamond, spiral, or thread burr.

Straight-cut Burr

In the case of a straight-cut burr (No. 4 is most commonly used), the impression is first put on with the straight-cut, after which a No. 14, No. 12, or No. 10 diamond is used to face off the stone and square the edges of the impression. The kind of diamond used depends upon the nature of the particular stone to be treated, the speed and pressure ratio and the kind of wood being ground. This combination will produce a strong long fibered pulp with a low percentage of waste.

Spiral or Diagonal Burr

The No. 4 spiral burr can be used in a similar manner to the No. 4 straight-cut. The resultant pulp will be long, strong, and uniform but will be slower than that produced by the use of the straight-cut. In the case of the finer cut spiral burr No. 8 for example, this being the cut most generally used, the stone should be frequently cleaned up with a No. 14 diamond before dressing with the spiral. The resultant pulp is a fine silky fiber of fair length but it does not possess the same strength as that obtained with the coarser cut burr followed by the diamond.

Thread Burrs

As the lead of the spiral burr is increased, the resultant pulp becomes shorter. When the lead is sufficiently increased it becomes a thread or screw burr. This type of burr produces a very fine pulp of very short fiber, and a large proportion of floury stock. It is often used when a very fine sheet of paper is required, or when the pulp is to be used on slow machines and there is no particular desire in mind to economize on sulphite. In dressing with this burr, the burr should be moved across the surface of the stone very slowly in order to prevent it jumping out of its groove.

Diamond Burrs

This burr is best used in combination with another burr, though many mills prefer to use it alone. Unless production is sacrificed in order to produce a good quality, the resultant pulp is lacking in strength. The diamond burr has a tendency to produce a short free stock.

Burrs That Give Best Results

From the standpoint of production and quality, some type of the straight-cut or spiral burr used in combination with the diamond, will give the most satisfactory results.

No matter what burr is in use, it is advisable to have the stone surfaced off occasionally with the No. 14 diamond. This burr has many uses; when using a coarse burr for marking the stone, the diamond is used for squaring the edge of the impression and opening the grain between the marks. When using a fine marking burr, the diamond is used for facing the stone and leaving a smooth surface for the marking burr to pass over. When the stone surface becomes glazed, the diamond can be used to open the grain again When the pulp is too coarse, a light touch with the diamond will reduce the waste and improve the quality without reducing the production.

General Observations

While there are some who might dispute this statement the majority of manufacturers who have given it a trial have found that no matter what speed and pressure are used, or what kind of wood is being ground, the best all round results are obtained by the use of the flat-bottom burr. The name describes the burr, as it means a burr with a flat bottom between the teeth. Unlike the V bottom burr, the teeth are made as fine as possible, consistent with strength; until it is badly worn this burr does not have a blunt edge which breaks up the pattern on the stone. If a new V-bottom burr were used each time, practically the same results would be obtained as through the use of the flat-bottom burr. The foregoing applies to the marking burrs and not to the diamond. It is impossible to obtain good results through the use of dull burrs. It is not necessary to discard a burr after it has been used a few times if the teeth are still in good condition but when the teeth become worn down, it is more economical and greater efficiency is obtained by throwing the burr away and using a sharp one.

Frequency of dressing varies very greatly under different conditions. It is, however, always preferable to dress light and often in preference to marking the stone too heavily. While the pulpmaker is the governing factor, mechanically at least the burr used is a mighty important feature of the groundwood process. If the right burr or combination of burrs, to suit the mill conditions, is used intelligently, it is usually possible to obtain the right quality of pulp, provided the other mill conditions are not abnormal.

Most mills today are equipped with either hand-screw or hydraulic lathes. It is essential that these be kept in good condition. The pins in the burr holders should be renewed as soon as they become worn and everything possible should be done to eliminate play and vibration. It is just as important to have everything in shape to do a good job with the grinder lathe as with the lathe in the machine shop. The groundwood process is like many other things: the *little things* that nine out of ten people overlook are very often the things that count the most.

* * *

New Brand Names

Applications for registration of the following brand names have been made in the Toilet Paper Label Registration Bureau of the Tissue Paper Manufacturers Association:

From January 20, 1924, to and including February 20, 1924:

Arrowhead—Continental Paper & Bag Mills, New York, N. Y.
Boy Scout—Union Selling Co., Cincinnati, Ohio.
Earlsbest—National Paper Products Co., San Francisco, Cal.
Inter Ocean—Inter Ocean Bag & Paper Co., Chicago, Ill.
Jowada—Fort Howard Paper Co., Green Bay, Wis.
Laroma—Fort Howard Paper Co., Green Bay, Wis.
Red Top—Union Selling Co., Cincinnati, Ohio.
Repeater—Inter Ocean Bag & Paper Co., Chicago, Ill.
Sambo—Union Selling Co., Cincinnati, Ohio.
Sea Foam—Union Selling Co., Cincinnati, Ohio.
Target—Inter Ocean Bag & Paper Co., Chicago, Ill.
Tuscan Toilet Paper—Pelican Paper Co., San Francisco, Cal.

The following brand names have been registered in the Toilet Paper Label Registration Bureau of the Tissue Paper Manufacturers Association:

From January 20, 1924, to and including February 20, 1924:

Blue Rose—Fort Howard Paper Co., Green Bay, Wis.
Busy Bee—Gotham Tissue Corporation, New York, N. Y. (Taxin & Shapiro)
Dandelion—Ajax Paper Mills, New York, N. Y.
Try the Drug Store First—A. R. Rapp Co., Chicago, Ill.

The following appeared in recent issues of the official gazette of the United States Patent Office:

Trade-Marks Published for Opposition

O. G. of December 25, 1923, Serial No. 184,357.

Northern Cabinet Tissue—A picture of the label consisting of an oblong flanked on both sides by other oblongs with fir tree scenes, the main oblong having the words, "Northern Cabinet Tissue." Northern Paper Mills, Green Bay, Wis. Published for opposition December 25, 1923. Claims use since January 24, 1921.

O. G. of December 25, 1923, Serial No. 186,745.

Maid of the Forest—Fort Howard Paper Company, Green Bay, Wis. Published for opposition December 25, 1923. Claims use since March 17, 1923.

O. G. of December 25, 1923, Serial No. 186,953.

Snobloom—Fort Howard Paper Company, Green Bay, Wis. Published for opposition December 25, 1923. Claims use since November 2, 1922.

O. G. of January 8, 1924, Serial No. 186,533.

Laddie—Wortendyke Manufacturing Co., Richmond, Va. Published for opposition January 8, 1924. Claims use since September 1, 1923.

O. G. of January 15, 1924, Serial No. 183,864.

(Drawing consisting of hexagonal perforations between the two sheets of paper.) United States Envelope Company, Springfield, Mass. Published for opposition January 15, 1924. Claims use since January 1, 1889.

Trade-Mark Registrations Granted

O. G. of January 1, 1924, Serial No. 181,437. Registration No. 177,862.

Dupasco—(Design consisting of an outline of the head of a moose across which is written the word, "Dupasco.") Duluth Paper & Stationery Co., Duluth, Minn. Published for opposition October 16, 1923. Claims use since about 1910. Registration granted January 1, 1924.

O. G. of January 8, 1924, Serial No. 185,163. Registration No. 178,053.

T. F.—(Outline of an evergreen tree done in bold in the center of which is a circle containing the letters T. F.) Taverner & Fricke, Los Angeles, Calif. Published for opposition October 16, 1923. Claims use since January 29, 1920. Registration granted January 8, 1924.

O. G. of January 8, 1924, Serial No. 184,355. Registration No. 178,088.

Mermes—(Classic design showing the profile of a woman's head below which is the word, "Mermes.") Northern Paper Mills, Green Bay, Wis. Published for opposition October 16, 1923. Claims use since January 3, 1923. Registation granted January 8, 1924.

O. G. of January 8, 1924, Serial No. 184,352. Registration No. 178,094.

Fairy—(Design consisting of an oblong showing the sky with the moon, stars and fairies floating around, and the word, "Hairy" at the bottom of the oblong.) Northern Paper Mills, Green Bay, Wis. Published for opposition October 16, 1923. Claims use since March 15, 1904. Registration granted January 8, 1924.

O. G. of January 8, 1924, Serial No. 184,360. Registration No. 178,146.

Red Poppy—(Design consisting of an oblong divided into three parts: the ends having horizontal black and white bars and the center having an oblong framed picture of a poppy and the words, "Red Poppy" written to the left of the picture.) Northern Paper Mills, Green Bay, Wis. Published for opposition October 16, 1923. Claims use since August 31, 1921. Registration granted January 8, 1924.

O. G. of January 8, 1924, Serial No. 185,623. Registration No. 178,268.

S* P* Co.—(An oblong with curved corners and containing the letters S* P* Co.) Scott Paper Company, Chester, Pa. Published for opposition October 23, 1923. Claims use since March, 1907. Registration granted January 8, 1924.

O. G. of January 15, 1924, Serial No. 182,117. Registration No. 178,726.

Paris—The Tuttle Press Company, Appleton, Wis. Filed June 16, 1923. Claims use since 1905. Registration granted January 15, 1924.

Imports and Exports

Second of a Series of Articles on a Situation That Is Vital to the Paper Industry

Where Does The Blame Belong?

WHERE does the blame belong for the alleged dumping and rumors of dumping by European untries of paper and pulp in Amer- a, sold scandalously cheap?

Why can't it be stopped—if it is ue?

Who is to blame for the thing?

According to the information gleaned PAPER in various sources, the ame solely and entirely is on the permakers and the paper trade gen- ally.

For until evidence is gathered that e Anti-Dumping law is being evaded thing on this green earth can be done, cept prayer to the Almighty that a iracle happen.

And who will gather the evidence t the papermakers and those inter- ted in the paper trade? The govern- ent is twisted into a Gordian knot er the oil inquiry and the reduction taxes. Other trades don't care a hoop about conditions in the paper ade. They have troubles of their vn. It is strictly and absolutely up the paper trade alone.

This was made plain by E. J. Dough- ty, head of the Anti-Dumping Unit the government appraisers at the ort of New York, in an interview anted to PAPER. He is ready and illing to take immediate legal action henever evidence reaches him in con- ete form that a specific case of dump- g has arisen.

The most difficult obstacle to over- me is that proving there is injury to e business of this country, according Mr. Dougherty.

He brought out that the Anti-Dump- g law is like all laws, several vital cts must be proven before there can any action.

If a country produces more paper an it can use, or if the normal ex- rts of paper are greater than the me consumption, then allowance is ade for that.

Furthermore, it must be known at the paper or pulp is being sold in merica cheaper than it is sold at me.

Or, on the other angle, the fraud volved in changing classifications ust be shown absolutely and without e semblance of a doubt.

All of these require evidence, especially the clause referring to injury to the business of this country. This latter question is like the one regarding how many drinks are required to make a man drunk?

Only One Case

In all the recent history of the Anti-Dumping Law, with American papermakers tearing their hair with rage at alleged infractions of the law, with the certain knowledge in their own minds that there is a dark hued baby in the woodpile, only one case has been brought up for trial. This was in the case of Norwegian kraft paper. And it was all white-washed out immaculately in the hearings, for no proof was brought to show that it was dumping. The fact that it was not selling below the price in Norway and that Norway normally exports more paper than she uses herself saved the day.

Just one in scores of rumored cases. And that not amounting to a thing.

There is something wrong with the approach of the execution. There is not, however, any doubt as to the seriousness of the situation. In the issue of last week, Warren B. Bullock, in an article especially prepared for PAPER gave the facts and figures showing how the trade balance regarding paper is extremely adverse. The figures showed coldly and plainly that while the exports remained about the same in both the years of 1922 and 1923, the imports increased from $85,854,357 to $116,137,795. This is an increase of some 50 per cent. At the same rate of speed for a few more years there would be no paper industry in America whatever.

Various subterfuges are being operated right under the eyes of the officials, some of them legal, some of them not. Until the proper evidence is produced, however, nothing can be done. And it is up to the paper men of the country to get this evidence.

The Consignment Plan

One much used, and perhaps legal, plan is to ship large quantities of goods here on consignment, with the blanket order to get what can be got for it. This is dumped on the market at any old price and immediately, from the yells of the consumer, the American paper industry is largely composed of yeggmen and highwaymen.

There have been times when paper was shipped here and then exported to another foreign company cheaper than the American industry could export it once. This is another much liked plan of killing the American industry.

Germans Biggest Offenders

The Germans, according to disclosures made to PAPER, are the greatest offenders and really the key to the entire situation. The German situation will be taken up in detail in the next article.

In one case German paper was shipped here, purchased by a firm, and then sent to Cuba at a rate two cents a pound under the price of a domestic export company. It was bond paper.

Other schemes used, according to the information, are to send high quality paper like bond into this country in rolls, something not usually done. It is labelled "Newsprint," comes in free of duty, and then is cut in sheets on tiny marks put in for the guidance of the converter. There is nothing legal in this.

Only Rumors

There are other rumored cases by the score. The difficulty is that there is no concrete evidence on which to base action.

Importers of German and other European countries' product, contend, like one Mr. Doheny remotely connected with the oil business, that there is no dumping. Judging from the number of discovered violations, there is no dumping question. It is merely a bugaboo. They say the mere fact that goods are sold here cheaper than the goods of the American mills is no reason to think there is dumping. The importers of German goods are frank in saying that the American paper industry is merely frightened to death. It is using the dumping idea as a handle on which to hang a protest.

These importers are the most sanguine people in the world. They are confident that imports will steadily increase for years to come. In fact, if they do not increase, they are satisfied. The balance is comfortable for them right now. Basing their calculation on the last two years they see only roseate, glowing prospects for the future.

Everywhere interviews were given, the idea sifted out, that the paper trade itself is to blame for this state of affairs.

If they will not gather evidence there can be no action. If they do gather evidence it must be the right kind. Then the proper action will be taken.

That the matter is vital to the paper industry is shown by the recent activity of the American Paper and Pulp Association. Paper has long been in touch with the association regarding this matter.

Under the caption, "Import Crisis—An Emergency Service," Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, has sent the following announcement to members of the Association:

"The seriousness of the paper imports situation, with wrong classification, dumping and actual undervaluation of foreign importations, has forced emergency action by the American Paper and Pulp Association.

"The ordinary activities of the Information Service, and the publication of the monthly bulletin will be discontinued temporarily, and Mr. Warren B. Bullock thereby relieved to devote his attention to the import situation in both pulp and paper. He will go into the field at once making investigations at ports of entry to secure the evidence necessary to check the abuses of the customs laws."

In discussing this action, Dr. Baker said:

"We have been working on this matter for months, to determine the exact situation as regards imports of foreign paper. Mr. Bullock has paid visits to Philadelphia and other ports of entry, and spent part of the present week in Boston, where he found as at other ports, that every effort is being made by the importers to bring in paper under classifications that constitute an evasion of the payment of the proper duty. Our decision to have him devote his entire time to this work is the result of these preliminary suggestions."

While Mr. Bullock will now devote all his time to this question, he has long been spending much of his time sec ing evidence and quietly working ou plan of action. The article last w in PAPER was the opening gun a the first public announcement of h serious the matter is regarded.

It is obvious to the entire trade t the American paper trade cannot h another year with the import situat like it was last year. To do so wo be almost ruinous. There is hope, course, in the fact that the domes demand is large, but that consumpti is being undermined by the forei product steadily.

The only hope in aiding the dumpi situation is in the expenditure of requisite effort to secure the pro evidence. The fact that the appraise office in the United States finds goo valued at prices far under Americ prices is of no use, under fraud labels is proven, that the product being sold here for less than in own country and the various other tails called for by the law.

As to the tariff end of the matt itself, that will require further d cussion.

Waste in Pulp and Paper Industry

Judge Moore's Book

By: **B. T. McBAIN**

Assistant General Manager, Nekoosa Edwards Paper Company

ONE of the outstanding characters in the American Pulp and Paper Industry for many years past has been Judge Moore. His articles in the Trade Papers and his speeches before our Conventions have been the talk of the Industry during this entire week.

Judge Moore is now confined to his bed and is not likely to get around again for many months with the chances against him for complete recovery, though the Prayers of his many thousands of friends in the Industry should cause a miracle to be performed, the Great Ruler of the Universe being willing.

But Prayers and Miracles set aside, what is needed now in addition is the more substantial Coin of the Realm and this must be forthcoming.

The Judge's articles, many in humorous vein, are obtainable in book form and friends have taken the matter in hand to try to get a copy of this book into the hands of everybody interested in the manufacture of Pulp and Paper; not as a matter of charity, for that is not the idea or the purpose, but as a matter of duty first and a matter of business as well.

But, while there are 6000 people in the Pulp and Paper Industry who should now have this publication in their Library less than 1000 have taken advantage of the offer of the Committee in charge.

This little bit of information is being published under the writers well known heading "Waste in the Pulp and Paper Industry" first because it will be read by many and may in the end help the sale of the Judge's book, but chiefly to show how we all will waste time. We receive letters and put them aside meaning all the time to act. We check them over from day to day, piling first on one side of the desk and then on the other thinking we haven't time then to write and order and send the check. Then a second notice comes. This is filled or piled up with the first one waiting for a more opportune time to attend to the matter. Our memories are poor; the matter is forgotten—our own time in many times greater amount has been wasted in procrastination and the time of the Committee handling the matter for Judge Moore is wasted as well.

Why not act now? You will in the end. Do it today and Save Waste.

* * *

TO COOPERATE IN BIG ARTS EXPOSITION

Paper Industry To Lend Aid In Making Event Success

THE paper industry already is perfecting its plans to co-operate in the third annual graphic arts exposition to be held in Milwaukee August 18 to 23 under the auspices of the Milwaukee Club of Printing House Craftsmen. Headquarters for the show have been opened in the Hotel Pfister and inquiries being received by the Milwaukee committee in charge indicate the success of the exposition which is to be staged in the mammoth Milwaukee Auditorium, a building covering a square block and considered one of the b in the country for convention purposes.

Milwaukee, as the center of a large and pr lific paper and pulp producing territory, pr vides a great market for the products of t manufacturer serving this industry and t graphic arts exposition is expected to be meeting place for all those using and man facturing paper in its many forms.

Preparations for the exposition have be going on many weeks and the craftsmen sta ing the show some time ago incorporated und the laws of Wisconsin to smooth the w for those whose function it will be to admi ister the exposition.

It is the purpose of those back of the sho to make this year's proposition more con pletely representative of the pulp and pap manufacturing industry than any previous held.

Exhibit is the purpose of those back of t show to make this year's exposition most con pletely representative of the pulp and pap manufacturing industry than any previous held.

Exhibit space at the Auditorium is expecte to be completely filled with the latest pu and paper machinery which will be viewed b 150,000 visitors, many of them executives the paper, printing and lithographing in dustries.

Diagrams of space already are available an applications are being accepted at the hea quarters in the Hotel Pfister.

The association is for trade education ex clusively and no discussions of wages or hour will take place at any of the meetings. Th exposition is not conducted for profit and th time of those interested in making it a suc cess is given without pay.

The Paper Age We Live In

Never Enough Paper Available Till We Turned To Wood And There's only 25 Years' Supply in Sight—Two-thirds of the World's Consumption of Paper Produced and Used in North America—Russia Uses 6 lbs. a Year per Person, Compared with 150 lbs. in United States

By ROYAL S. KELLOGG
Secretary of News Print Service Bureau

SPEAKING at the noon luncheon of the Kiwanis Club, of Poughkeepsie, N. Y., on March 4, R. S. Kellogg, secretary of the News Print Service Bureau, presented a most interesting set of facts bearing on the newsprint paper situation in North America. He spoke in part as follows:

"Before I say anything about newsprint paper in particular, I should like to call your attention for an instant to the function that paper plays in the world at this stage of our development. We are so used to having paper that scarcely ever do we realize what it means to us. People who dig through ancient history and still more ancient history tell us man has passed through a stone and bronze age into a steel age. We are passing into a paper age. If you have any doubt of that, think what would happen if some great catastrophe should wipe out all the paper that there s in the world. Civilization would be n utter chaos by tomorrow. We depend absolutely upon paper for every kind of purpose, particularly for business purposes, since probably 95 percent of our business is done through paper and not through cash or actual exchange of commodities.

Never So Cheap or So Abundant

"Paper is now so cheap and abundant that we don't think about the time when it was not, and yet the memory of á great many men can go back to hat time. One of the most remarkable hings that we find as we look back into he earlier stages of civilization was the remendous search for materials upon which human opinions and human records could be written down and used by later generations. The word paper' itself comes from 'papyrus,' the name of a water sedge that grows along he Nile in Egypt. For 5,000 years writing material made from papyrus urnished the best recording material he world had—from about 4000 B. C. o 1000 A. D. But this was never true aper. The first real paper was made n China about 1800 years ago.

"It is only within the last fifty years hat the world has begun to have nough paper. There never was nough until processes were developed or making paper out of wood instead f rags.

Consumption by Countries

"To show that we are now in a paper ge, such figures as we can obtain from ficial sources indicate that on the 1920 basis the per capita consumption of paper in Russia was 6 pounds. At the same date in Japan it was 12 pounds; in Germany, 45 pounds; Scandinavia, 33 pounds; Great Britain, 76 pounds; and in the United States, 150 pounds.

Fifty Pounds Per Person

"More specifically, in addition to being a paper age, we can say, I think, that we are in a newspaper age. In 1880 the per capita consumption of newsprint paper in the United States was three pounds. In 1893 it was nine pounds. By 1919 it had grown to thirty-five pounds, and in the year 1923 it was fifty pounds. In the forty-three years from 1880 to 1923 it has grown from three to fifty pounds.

Factors in Development

"There have been two great things that have led to this—making paper from wood and the development of the rotary printing press. The first newspaper in the United States was published April 24, 1704. It consisted of two sheets, 9 x 12 inches in size. The latest news it had was from London on the preceding December 2nd, and was about some kind of trouble in Ireland. Ireland has been a good source of news ever since. Today we have printing presses that in a single hour will turn out 48,000, 8-page papers, with each page nearly twice the size of the first paper. Today we have 22,000 newspapers in the United States—and some to spare. I won't say which ones are to spare. We have over 2000 English-language dailies and with a circulation of 31,000,000 of week-day issues and 21,000,000 of Sunday issues. The average size of the daily papers with over 100,000 circulation is 27 pages, with 100 pages for the Sunday issues. They contain all sorts of material.

What Constitutes News

"It takes a great deal to make a big newspaper today. The editor of one of these great journals not long ago gave a talk to a class in journalism at one of our prominent universities. He endeavored to set up his conception of what constituted news. One of his mathematical formulas ran like this:

> 1 bank clerk plus 1 wife plus 3 children equals zero from a news standpoint.
>
> 1 chorus girl plus 1 bank president minus $100,000 equals news.

Graphic Notes of Paper Consumption

"In 1923 the amount of newsprint paper used in the United States was 2,800,000 tons. If spread out into one continuous blanket it would cover an area equal to the combined areas of New Jersey, Massachusetts and Connecticut, something over 12,000,000 acres. It would also make a strip 400 feet wide running from here to the moon. You have seen coming down the streets of the city on heavy trucks great rolls of newsprint. These rolls are as a rule 72 inches wide. The newsprint paper used in the United States in 1923, if put into one of these rolls and unwound, would stretch 16,500,000 miles or reach to the sun in 5 years and 8 months. Some of you see the New York *Times*. On October 7th last year the *Times* used 877 tons of paper in printing that one Sunday issue. This much paper would blanket 3,800 acres.

"We have today paper machines that are turning out paper at the rate of over 1,000 feet a minute in a steady stream. We have newspaper presses eating it up even faster.

Growth of Advertising and Circulations

"Certain interesting developments have been responsible for this unprecedented use of newsprint. Advertising has been one of the big ones. Tremendous circulation have had a great deal to do with it. We have today papers that in twenty years have grown from 100,000 to 700,000 or 800,000 circulation. We have printed at this time a copy of a daily newspaper every day for every family in the United States and Canada. There is a daily newspaper habit.

Mexico as Compared with Newfoundland

"In 1923 Mexico produced 12,000 tons of newsprint. Mexico has one modern paper manufacturing plant. Newfoundland, which has a paper mill established by Lord Northcliffe in 1909, during the same period produced 64,000 tons; Canada produced 1,263,000 tons of newsprint and the United States 1,485,000 tons. So that during 1923 North America produced two-thirds of all the newsprint paper produced in the world. More than 88 percent of the

Canadian newsprint went to the newspaper publishers of the United States; 10 percent was used in Canada. The rest went to the ends of the world; 6.000 tons went to South Africa.

Newsprint is 100% Wood

"Newsprint is a 100 percent forest product. The highest grade of paper is made from rags. The next highest is made from woodpulp and rags. Newsprint is made entirely from wood. It consists of about 80 percent ground wood and 20 percent sulphite pulp. Sulphite is produced by cutting wood up in small chips and cooking it in a chemical solution for six or eight hours. The chemicals dissolve out everything except the pure cellulose. Groundwood is produced by holding bolts of wood against rapidly revolving grindstones. A little coloring is added usually to improve the appearance.

Increased Output of Newsprint

"For the past nineteen years there has been an average increase over the preceding year of 7 percent in the combined output of newsprint paper in the United States and Canada.

"Canada is watching her output grow with very great interest. It will be close to that of the United States by the end of 1924. The production of newsprint paper follows cheap wood and cheap power—the prime requisites. At the present time Canada is more fortunate in having these elements than the United States. The industry was developed earlier in the United States. Canada is not so far along in the exploitation stage.

"We have at the present time a producing capacity of 10,000 tons of newsprint a day in North America, an increase between 60 and 70 percent in the past six years.

Pages of Newspaper in a Cord of Wood

"The unit of supply of the raw material for making newsprint paper is the cord of wood. About 1½ cords of pulpwood is required for producing a ton of newsprint paper. Translated into more familiar language, it has been figured out that a cord of wood will furnish 96,000 pages of newspaper of the ordinary size. The great production of newsprint paper we had in 1923 in North America required about 4,000,000 cords of wood, a pretty good little wood pile.

Where Will We Get the Wood?

"Where are we going to get the wood? Not bery long ago I ran across a book written by a man in England in 1890 when woodpulp papermaking was just getting into a good stride. He spoke of being able to turn to wood as an inexhaustible source of supply for the future. That is obviously not true. There is no such a thing as an inexhausible supply. We can make such a thing true, but it is not yet. There are no exact statistics on this subject, but of the species of wood we are now using to make paper from, we are supposed to have in the Northeastern States about twenty-five years' supply of pulpwood at the rate it is now being used. In Eastern Canada at the present rate of consumption we have perhaps not more than fifty years' supply, nobody knows exactly.

Paper Mill Investment Figures

"The requirements for a completely self-sustained modern news mill are very much greater than the ordinary man realizes. I mean a plant equipped to make its own groundwood, its own sulphite, and then equipped to take the two and put them into sheet paper with all modern improvements and at the modern rate of production. Such a plant requires about $50,000 investment for every ton of daily capacity to make paper. A plant with a capacity of 100 tons daily on that basis means $5,000,000 of investment. That includes nothing for production of a supply of raw material. Coupled with this hypothetical plant there ought to be the ownership of sufficient producing forest to supply that plant with 40,000 to 45,000 cords of wood yearly. This might require an additional $5,000,000, making a $10,000,000 investment altogether, or an investment of $100,000 per ton for every ton of daily capacity.

Problem of Timber Cultivation

"Now you see something of the magnitude of the problem of manufacturing paper. We must take some thought as to the future of our raw materal.

Among the paper manufacturers in the United States and Canada and the newspaper publishers there is a more intelligent, a livelier interest in the problem of protection and reproduction of forest resources than there has ever been. It is exceedingly gratifying to note that big paper producing companies are figuring most seriously upon methods of putting their forest lands on a permanently producing basis. Most of the talk about getting paper out of a substitute for wood is beside the point. The thing to do is to keep the forest land of this country, producing the wood we need.

"Every one of us has a duty to perform in helping promote proper forestry measures. After all these years of education and agitation, we are settling down to a practical forest policy for the United States and Canada. Whenever you get a chance to help in that direction you are doing the best possible thing you can do."

* * *

Company Incorporated

The Commonwealth Wall Paper Company has been incorporated at Boston, Mass., and has been authorized to issue 100 shares of common stock without stated par value. The company will manufacture wall paper. The incorporators are Charles D. Golub, president; Samuel Blackman of 36 Cunningham Street, Samuel Brenner, clerk.

FITCHBURG RECEIVER FILES REPORT

Permanent Receiver to Be Named t Operate the Plant

GEORGE WEBSTER of Holyok Mass., temporary receiver in the cas of the Fitchburg Paper Company agains the Whitmore Manufacturing Company Holyoke under court decree, has filed hi report and orders of notice to creditors the Whitmore Company and to others interested were issued. It is probable tha a permanent receiver will be named at tha time. Mr. Webster, with the filing of th report, resigns as temporary receive Avery, Gaylord & Davenport are couns for the Whitmore Company.

Receiver Webster's report as to the co dition of the Whitmore Company follow

"Your temporary receiver respectful represents that he has been operating th Whitmore Manufacturing Company und decree of this court since Dec. 20, 192 the date of his appointment, a period substantially eight weeks. During th period he has sold and delivered pape products to the value of $42,858.31; tha he has on his books at this date uncom pleted orders for $10,078 for paper proc ucts; that there are no receiver's certif cates now outstanding; that there is noth ing due on account of the receiversh operation of this plant, except accoun payable of $3,239.72, accrued payroll $500, salaries of $230, mortgage interest $383.68; your temporary receiver has cas on hand of $427.66 and your temporary r ceiver says there is due him from the o eration of the plant of the Whitmo Manufacturing Company $28,618.35; th your temporary receiver has on hand paper products, raw, wrought and in pr cess, approximately $45,088.39; land, buil ings and machinery, equipment, furnitu and fixtures of a total book value of $270 150.90, said land, buildings and machiner being subject to a mortgage for $100,000 Holyoke Savings Bank of Holyoke.

"Your temporary receiver has spent f operation of the plant during the perio covered by this report, including he power, light, labor, salaries, wages, m terials, supplies, office expenses and cou sel, $40,128.60 which amount includes $15 110.86 received by him on accounts place on the books of the company prior to th receivership, which accounts had been a signed to the First Peoples' Trust of Bo ton and which accounts were ordered be paid by this court to the First People Trust; that he has received during th period $40,556.28 which amount includ the said $15,110.86 which he paid to th First Peoples' Trust of Boston in accor ance to the foregoing."

* * *

McCall In Dayton

Consumption of paper in Dayton will increased materially with the opening Apr 1, of the first unit of the McCall Publis ing Co. plant, being moved to this city fro New York.

Forty presses will be operated at th start, it was divulged by Nellis R. Fun mechanical superintendent, at a rece meeting of the Dayton Printing Hou Craftsmen's club.

Five hundred people will be employe Where the company plans to obtain magazine and pattern paper has not be announced, although it is known that th stock for both purposes could be obtaine in mills in this section.

Permeability vs. Porosity of Paper

Interesting Features of the Gurley Densometer Which Gives Satisfactory Results Under Varying Conditions

By C. F. HANSON

Director of Research, Habirshaw Electric Cable Co., Yonkers, N. Y.

IN the issue of PAPER for February 14, 1924, one page 14 was a paper by V. Ravizza on the "Degree of Porosity of Paper" which I have read with a great deal of interest. I desire to make one or two comments on this paper.

1. I note the term "porosity" is used in the title. I am wondering if air permeability would be more appropriate. This term is used by some paper men in England and by a few in America. I am not suggesting that the term "air permeability" be used instead of porosity, but am wondering which one would be the more desirable one to use for standardization work. If you have any comments on this matter, I should be pleased to receive them.

2. On page 15, in the first and second paragraphs appear criticisms regarding the type of instrument as represented by the Gurley densometer. The paragraphs state that air in contact with water in these instruments becomes laden with moisture which is carried to the paper under test and changes the porosity of the paper and thus introduces an error, and also that the effective hydrostatic head changes during the test. Regarding the moisture in the air changing the porosity of the paper, I have not found any serious effect of this in testing insulating paper with a density ranging from 5 to 50 seconds per 100 c. c. displacement of air through a circular opening of one square inch.

We have a Gurley densometer which we have been using for over a year. We have used kerosene in this instrument and found that the readings obtained with kerosene check very closely with those obtained with distilled water. Furthermore, after allowing the air to pass through the sample of paper once, we have permitted it to pass through a second time and the second reading checks with that obtained in the first. In view of this experience I would say, so far as insulating papers are concerned that the error introduced by moisture being carried by the air into the sample is negligible.

Regarding the change in hydrostatic head, the Gurley densometer has the least change in the head of the four instruments listed in the article. It is true that, using paper as nearly identical as possible and using the same aperature, the reading obtained on a Gurley densometer will not check with the reading obtained on a "suction paper porosity tester" as shown in Figure 4, because in the instrument as shown on Figure 4, the hydrostatic head changes considerably whereas with the Gurley densometer, the change is very slight. I might add also, that the question of friction in the Gurley densometer might be a factor affecting the results. In the study of this factor, I have used kerosene instead of water and also placed the instrument in different levels to see what the difference would be in the readings obtained. I found that the readings were the same with kerosene as with distilled water and that the level could be changed to a considerable amount before any appreciable change occurred in the readings obtained. I concluded that with just a fair amount of accuracy in leveling, the errors due to friction were entirely negligible. I found, however, that there is one interesting feature about the Gurley densometer and that is the readings obtained by using different size apertures.

One instrument we have has a circular aperture of one square inch area and the other one has a circular aperture of 0.25 square inch. Theoretically, it would be expected that the one with the smaller aperture would give a reading four times that of the larger aperture. However, in practice, I find that the ratio is more nearly 3.2. The only explanation that I can give for this is what I call an "edge" affect. In a smaller aperture, the periphery is much greater in relation to the area than it is in the case of the instrument with the larger aperture. It seems, therefore, that stretching near the edges of the paper would not be the same for the two different size apertures. The difference in the stretching might explain the deviation of the experimental ratio from the theoretical ratio.

Complains of Waste

First reports of the effect of paper mill waste on the Wisconsin river and on other streams of the state is contained in the 1923 bulletin of C. M. Baker, state sanitary engineer, just issued.

Although the survey, which was started last fall, has not gone far enough to permit conclusions, the work which has been done thus far is outlined in the report. The survey will be pushed to completion when the water is at a low stage during the summer months. It may result in rather drastic rules in regard to pollution of streams by waste from paper mills, it was said.

Samples of river water were collected above and below sources of pollution in the vicinity of Rhinelander, Tomahawk, Merrill, Wausau, Mosinee, Stevens Point and Wisconsin Rapids. Analyses of the water were made to determine the effect of the waste and the natural purification process.

In addition to the work to be done in the Wisconsin river and in other streams this summer, investigations also will be made at each of the mills to determine the volume and the character of the various wastes. The report of the sanitary board also describes outbreaks of typhoids at Wausau, Minocqua, Two Rivers and discusses the typhoid reduction at Sheboygan and Sturgeon Bay, subsequent to water improvements.

Try Out Plan

Grays Harbor County, Washington owners of cut-over lands will try out a reforestation plan originating with County Assessor J. E. Calder.

Grays Harbor County, one of the most heavily timbered counties in the state, has a continually enlarging area of logged off lands. Much of this land is worthless for agricultural purposes and hence after the timber has been felled the assessed value of the land is lower and the tax money received by the County for it is less than formerly paid into the treasury on the same land.

The owners have agreed to put their cut-over lands under the jurisdiction of the state forest patrol which has previously only guarded standing timber.

The Washington state law requires proper burning of slashings immediately after logging as a part of that operation. With proper protection the land will re-forest itself from the seeds not destroyed. Dean Hugo Winkenwerder of the College of Forestry of the University of Washington states that the vitality of the Douglas fir seeds last for seven years and that it is not injured by the heat of the ordinary slashing fires.

The actual cost in the past for fire patrol has amounted to approximately 3 cents an acre although the statuary allowance has been 5 cents for it.

Paper Men Play Basketball

Teams representing four plants of the Kimberly-Clark Paper Company will take part in a big basketball tournament Friday and Saturday, February 29 and March 1 in the new Kimberly clubhouse at Kimberly, Wis. The four teams will represent the company's plants at Niagara Falls, N. Y., Niagara, Wis., Kimberly, and Neenah. Contests on a par with those between professional teams are promised.

Each team representing the Kimberly-Clark Company is composed of men with professional experience or men who have starred in college and the rivalry between the company's mills is keen in all branches of athletics.

The Neenah aggregation has traveled through the state in years past and defeated some of the best professional teams. With such stars at Kenneth Chappelle, Ivo Anderson, Kuehl brothers, Creaven, Stilp and others the Neenah mill's quintet is expected to give a good account of itself. All the teams are evenly matched and the games will be keenly contested. The team that wins will be recognized as one of the best in the country.

The coming contests are arousing great interest in industrial and sporting circles and the management is making arrangements to take care of a large attendance as each of the mills' teams will be supported by a large body of rooters.

Some Sulphite Mill Calculations

A Collection of Formulas and Graphs Which Will Assist in Designing Apparatus or Calculating Results of Tests

Part II Gas Volumes

By W. B. VANARSDEL

NOTE.—*The writer of this series of articles does not aim to present a complete text of chemical engineering calculations, nor is any claim to originality put forward. The methods which are described are for the most part well known, but some of them have been described in books or magazines which are not always available to the pulp mill engineer. Many of the graphs, and one or two of the calculations, are new.*

(A) *Reduction of gas volumes to standard conditions of temperature and pressure.*

The volume of a perfect gas varies directly as the absolute temperature, and inversely as the absolute pressure. Then if v is the volume of a pound of the gas at one temperature, T, and pressure, p, and v_0 is the volume at another temperature, T_0, and pressure, p_0,

$$\frac{v}{v_0} = \frac{T}{T_0}\,\frac{p_0}{p}$$

If standard conditions are taken as a temperature of 32°F (491.6° absolute) and a pressure of 29.92 inches, this equation may be written,

$$\frac{v}{v_0} = 0.0608\,\frac{t+459.6}{p}$$

where t is temperature in degrees F.

Fig. 1 gives a graphical solution; thus any given weight of gas occupies 1.35 times as much volume at a temperature of 250°F. and a pressure of 32 inches, as it does at standard conditions.

(B) *Partial pressure and percentage by volume.*

When the percentage composition of gas is determined by means of the Orsat apparatus, the result is in percentage by volume on a dry basis. If the gas contains no moisture, and the percentage of a constituent A is determined,

$$\text{Partial pressure of A} = \text{Total pressure} \times \frac{\%\text{ by volume of A}}{100}$$

If the gas is wet, however,

$$\text{Part. press. of A} = \frac{\%\text{ by vol. of A}}{100} \times (\text{Total press.}-\text{pressure of water vapor}).$$

For the case in which the gas is saturated with water vapor, Fig. 3 will assist in the solution of this equation.

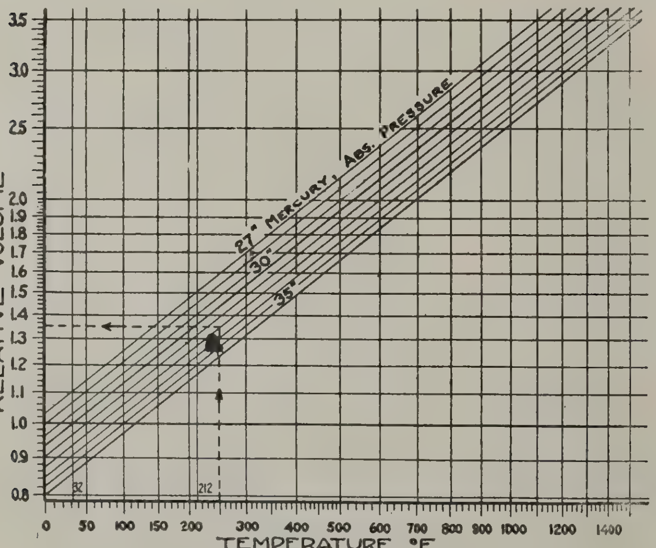


Fig. 1—Gas Volumes Relative to Volume at Standard Conditions

(C) *Percentage loss or removal of a constituent.* (1)

Suppose the percentage of sulfur dioxide (or any other gas) is determined both at the inlet and at the outlet of an absorbing system, the percentages being A and B respectively. Then the recovery, or percentage removed in the absorbing system,

$$\%\text{ removed} = \frac{10{,}000\,(A-B)}{A\,(100-B)}$$

while the percentage lost in exit gases,

$$\%\text{ loss} = 100\left[\frac{B\,(100-A)}{A\,(100-B)}\right]$$

Notice that if the percentages are 50% entering the system and 10% leaving it, the loss is not 1/5, or 20% of the sulfur dioxide, but only 1/9 or 11%. These equations hold true whether or not the gas has changed in temperature or pressure, or has picked up or lost water-vapor (assuming the Orsat method of analysis), but if another gas appears as the first one disappears (as for instance dioxide in a Jenssen system),

$$\text{substitute } \frac{100-C}{100-C} \text{ for } B,$$

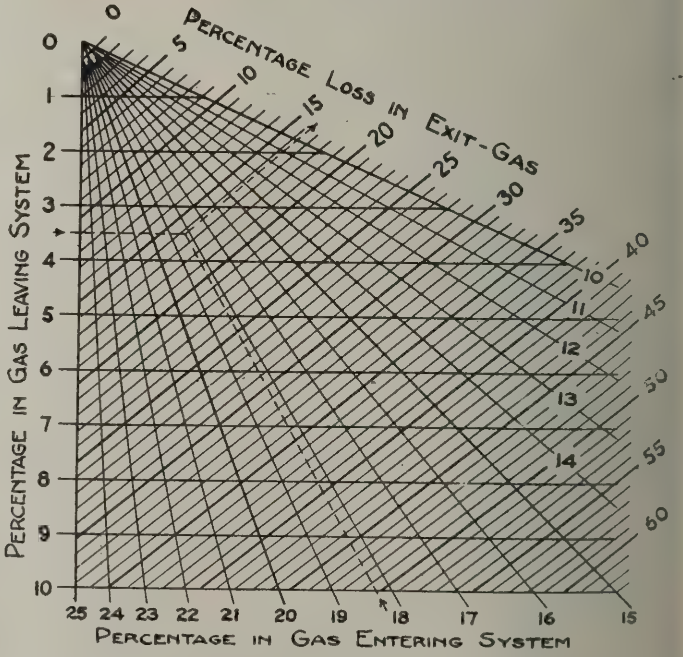


Fig. 2—Percentage Loss in Tail-Gas from an Absorption System

where C is the percentage of the second gas at the outlet. Fig. 2 is a graphical solution of the equation for percentage loss.

For example, if gas entering an absorption system contains 18.25% of sulfur dioxide, and the gas leaving the system contains 3.5%, 16.25% of the sulfur dioxide is lost in the tail gas.

(D) *Percentage by volume and percentage by weight.*

---

(1) W. B. VanArsdel, *Chem. Met. Eng. 24*, 846 (1921).

Suppose the analysis of a gas is given as *A, B, C* and *D* percentages by volume of four constituents, and the molecular weights of these constituents, are respectively *M, N, P* and *R;* then the percentages by weight will be:

$$\text{Of the first, } a, = \frac{100\,AM}{AM + BN + CP + DR}$$

$$\text{Of the second, } b = \frac{100\,BN}{AM + BN + CP + DR}$$

$$\text{Of the third, } c = \frac{100\,CP}{AM + BN + CP + DR}$$

$$\text{And of the fourth, } d = \frac{100\,DR}{AM + BN + CP + DR}$$

The molecular weights which are likely to be used in pulpmill work are as follows:

Oxygen,	32.0
Nitrogen,	28.0
Air,	28.8
Sulfur dioxide,	64.4 (approx.)
Carbon dioxide,	44.1 (approx.)
Chlorine,	71.0 (approx.)
Water vapor,	18.05

E) *Volume changes due to water vapor.*

At a given temperature, no more than a certain fixed weight of water will evaporate into a cubic foot of gas, nd this weight is independent of the composition or pressure of the gas. It is given in the lower curve and right-and scale of Fig. 3.

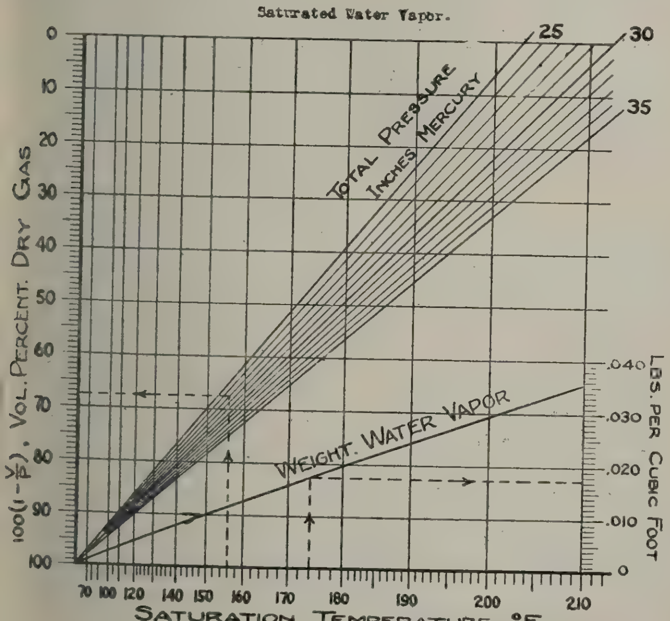


Fig. 3—Volume and Weight of Saturated Water Vapor

hus at 174°F, 0.0174 pound of water vapor "saturates" cubic foot.

If *P* is the total pressure in a moist gas, and *V* is the por pressure of water at that temperature, then if the s is saturated with water vapor,

$$\text{Percentage of dry gas, by vol.} = 100\left(1 - \frac{V}{P}\right)$$

is quantity is given by the upper lines and left-hand ale of Fig. 3. A gas at 27 inches total pressure, saturated th water vapor at 156°F, contained 67.5% by volume of y gas. Then if a cubic foot of dry gas is saturated with water without changing in temperature or pressure, its volume increases:

$$\frac{\text{Wet volume}}{\text{Dry volume}} = \frac{1}{1 - \dfrac{V}{P}}$$

If *A* is the percentage by volume of a constituent on a dry basis, its percentage on a wet, or saturated basis decreases:

$$\%\text{ in wet gas} = A\left(1 - \frac{V}{P}\right)$$

The partial pressure of this constituent (see section B above), in the wet gas becomes:

$$\text{Partial pressure} = \frac{AP}{100}\left(1 - \frac{V}{P}\right)$$

(F) *Specific volume of sulfur dioxide.*

Within the ordinary operating range of temperatures and pressures, sulfur dioxide does not exactly follow the simple gas law quoted in the first sentence of Section A; the deviations amount to several per cent at fairly low temperatures and high pressures. Several experimenters have measured the actual density under various conditions. Fig. 4 is a summary of the results of Roth, Regnault and Baume, expressed as cubic feet per pound. The reference point, 32°F, 760 millimeters pressure, corresponds to a volume of 5.475 cubic feet per pound.

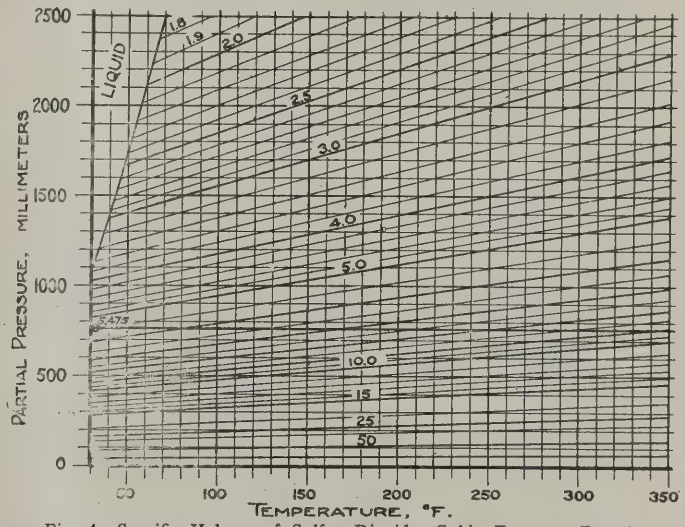


Fig. 4—Specific Volume of Sulfur Dioxide, Cubic Feet per Pound

Example. 325 cubic feet per minute of a dry gas containing 18% SO_2 enters an absorbing system at a temperature of 90°F. and a pressure of 6 inches of water. Barometer 28.8 inches, or 732 millimeters. The gas leaving the system tests 1.5% SO_2 by Orsat analysis, is at atmospheric pressure, and is saturated with water vapor at a temperature of 68°F. (a.) What is the volume of gas leaving the system? (b.) What weight of water-vapor does it carry? (c.) What weight of SO_2 enters the system per minute? (d.) What percentage of this SO_2 leaves with the exit gases? (e.) What weight of SO_2 is thus lost?

6 inches of water = 0.44 inches of mercury = 11 mm. of mercury; total pressure = 29.24 inches or 743 millimeters at inlet, 28.80 inches at outlet.

(a.) Volume of inert gas mixed with the SO_2 = 0.82 x 325 = 266.5 cu. ft. Using Fig. 1, the volume at 90°, 29.24 inches is 1.135 relative to standard, and the volume at 68°, 28.8 inches is 1.110. Then the volume of inert

$$\text{gas leaving the system} = 266.5 \times \frac{1.110}{1.135} = 261 \text{ cu. ft.}$$

(Continued on page 27)

The Editorial Page

Get Busy

Unless the American paper industry wants to be smothered beneath the constantly increasing river of imports from Europe, it is time to get busy. For the foreign competition is, without a doubt, what is placing the paper industry in this country in its deplorable condition.

The American Paper & Pulp Association has acted with commendable promptness in assigning that double-barreled hustler, Warren B. Bullock to the task exclusively of going to the bottom of the business and finding a solution. While it is a tremendous contract, Mr. Bullock can do it.

PAPER wants to offer itself unreservedly to Mr. Bullock in this campaign to defend the American paper industry. The first public announcement that the paper industry means business was made in an article in last week's PAPER in which Mr. Bullock summarized the entire import and export situation, pointing out some of the subterfuges used to get goods into this country. PAPER is wholly in accord with this campaign. It will do whatever it can, for it has for weeks been pointing out the danger of that competition.

When Mr. E. J. Dougherty, head of the Anti-Dumping Unit, said that the chief blame for lack of action lies on the men in the paper industry themselves, he appears to be speaking the truth. No other industry will worry about the American paper trade. Then the American paper trade must take the bull by the horns and do things for itself. Evidence is required in such cases, as in all legal proceedings before action can be taken. It is up to the men in the paper industry to gather that evidence, and to properly present it.

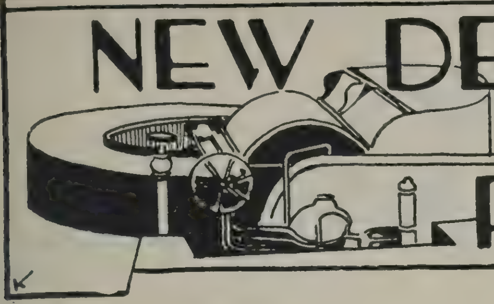
The solution of the import problem may not be easy to find. It is no idle, small, trifling problem. It is a gigantic thing with malicious teeth and disposition. When imports gain fifty per cent in one year, over the preceding year, and exports remain practically stationary, it is high time to act.

Full support should be forthcoming for Mr. Bullock in this campaign. He is deserving of and should get without exception the entire support of the industry.

The time for idleness and rumination has passed. It is time to get busy. Action is the only thing European competitors will listen to.

It is true that speaking in general the drift of our current trade accounts with the rest of the world approaches more nearly to a balance than at any time since the year 1910. The figures on foreign trade of the year 1923, just published by the Department of Commerce, reveal that we exported $376,000,000 more of goods than we imported. The balance in our favor attains but a tenth of that in 1919, an eighth of that in 1918, a ninth of that in 1917. It only slightly passes half of the balance of 1913, a year of peace in the chief countries later engaged in the European war.

But these facts do not help the paper industry one iota. The harrowing facts have been given and they show conditions in a bad light.



NEW DEVELOPMENTS IN PAPERMAKING

Method of Preserving and Hardening Paper

A method of preserving and hardening paper is the subject of a patent issued to Judson A. De Cew, of Mount Vernon, N. Y., under date of February 12, 1924, the U. S. patent number being 1,483,630. Mr. De Cew has assigned the patent to Process Engineers Incorporated, of New York, of which he is president.

As set forth in the patent specifications the invention consists essentially in coagulating the soluble mucilaginous or colloidal matters in the paper pulp with an agent which is at the same time a preservative.

Mr. De Cew says he has discovered a method of improving the quality of the paper which consists in preserving the pulp from fermentation during the process of manufacture and at the same time coagulating the soluble mucilaginous matters present by either accident or design within the pulp.

Paper pulp is in general not sterilized in the process of manufacture and as a result, jell-like masses form wherever the pulp lodges in pipes or tanks, and when they dislodge, masses of slime cause serious difficulties with the paper machine besides producing many blemishes in the paper.

In most pulp stock there is soluble mucilaginous material which is especially apparent in mills using waste paper.

A solution of formaldehyde used in small quantities will not only prevent fermentation in the pulp but will coagulate most of the soluble mucilaginous material present and increase the retention of it in the paper. The result of this treatment is a harder and snappier paper and there is less difficulty on the paper machine.

In applying this process, Mr. De Cew adds to the beater or mixing tank, a solution of formaldehyde in the proportion of approximately one pound formaldehyde to one thousand pounds of paper stock. The stock so treated improves with age instead of undergoing the usual deterioration.

Waste paper stock is often coated with glue or casein or starchy materials which is not coagulated will cause froth to form on the paper machine which slows down production. Where this process is used, much cleaner paper can be made because the pulp does not stick to the pipes and tanks. When paper stock is acid with the alum used in sizing it, it is much more likely to ferment than at other times and under such conditions, this process is very important also.

What Mr. De Cew claims as his invention is:

1. A method of preserving and hardening paper which consists in adding to the pulp a solution of formaldehyde and completely mixing it with the pulp before passing the pulp to the paper machine.
2. A method of preserving and hardening paper which consists in treating the paper pulp with a solution of formaldehyde in the proportions of approximately one pound of formaldehyde to one thousand pounds of pulp.
3. A method of preserving paper pulp containing alum from fermentation which consists in incorporating into the mixture of pulp and water a small quantity of formaldehyde solution.
4. A method of preserving and hardening paper which consists in coagulating the soluble mucilaginous matters in the pulp with a coagulating agent which is at the same time a preservative.

* * *

Sizing of Paper with Tree Bark Oil Soap

Tree bark oil is a dark green mass of fat and resin extracted from the bark in the course of its preparation as a fodder material. It melts at a temperature of 35 degrees C and in the crude state requires for saponification 5.70 per cent of sodium carbonate. The soap is prepared by heating with the necessary quantity of soda ash for several hours or more rapidly with caustic soda, the product from one thousand grams of the oil being made up to 150 grams. This soap, in the proportion of six per cent of doap and four per cent of sulphate of alumina, has been used successfully for the sizing of paper pulp. Larger quantities give a larger paper and the pulp tends to be sticky from excess of resinous matter.

A peculiarity of the papers that are sized with bark oil soap is the fact that the ink resistance of the sized paper increases with age, so that a marked improvement is noted after two months and a very marked difference exists after a few years. This is attributed to the progressive oxidation of the unsaponifiable matter in the size emulsion. Bark oil soap is not so powerful a sizing agent as cottonseed oil soap, but whereas the latter produces a very marked dimunition in the tensile strength of the paper, as is the case with the aluminum soaps of all the fatty acids, the decrease is far less in the case of the bark oil sizing, presumably on account of the resinous constituents of the latter. *Journal of the Society of Chemical Industry.*

* * *

Preventing the Reddening of Sulphite Cellulose

Dr. Emil Heuser has been granted a patent, see German Patent No. 388,213, on a process of continuously preventing the reddening of sulphite pulp.

It has been shown that the reddening of sulphite pulp during the course of the treatment of the pulp in the beater can be permanently prevented by the addition of a very dilute acid solution of the persulphates of the alkalies or the alkaline earth elements. The process may be applied in the following manner.

Four kilograms of difficultly bleachable sulphite cellulose (the chloride of lime required to bleach the cellulose completely amounts to 19.8 per cent) and one thousand kilograms of water are very intimately mixed together in a beater. Then two kilograms of potassium persulphate, which amounts to one half a per cent on the weight of the air-dry pulp, and two kilograms of aluminum sulphate are added and thoroughly mixed with the pulp. The whole mass is then transferred to a tank provided with stirring arrangement and mixed therein for such time as is required for the conversion of the reddish coloration of the sulphite pulp to a light gray. This process takes about nine hours. At the end of this time all of the persulphate has been consumed.

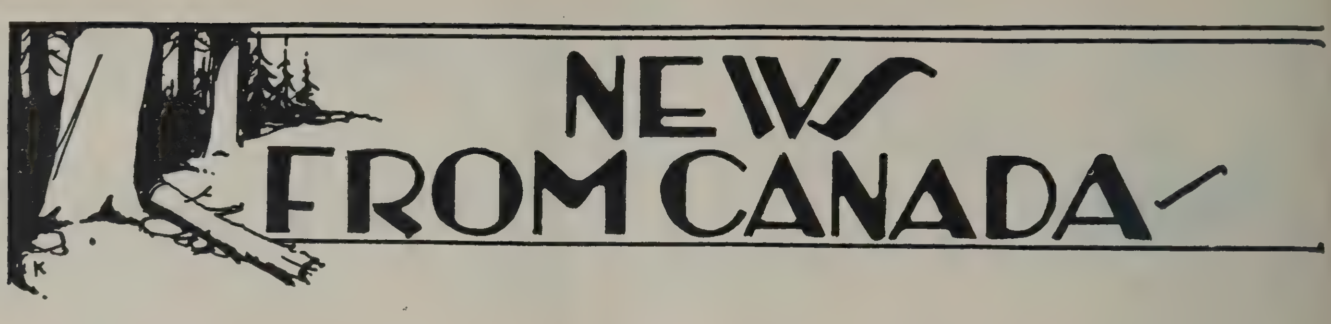
* * *

Preparation of Paper Stock

Cellulose fibers which are suitable for use in the manufacture of paper may be isolated from cellulose-containing materials; such as wood, flax straw, bran and other similar materials, by digestion, preferably with continuous circulation of the digestion liquor, at a high temperature and pressure with liquids that have the least possible carbonizing effect on the fibers, such as, for example solutions of ammonia, sodium carbonate, hydrogen sulphide, or the like.

The digestion proceeds more rapidly in the presence of catalysts, such as copper, nickel or iron, and is therefore preferably carried out in vessels which are made of such metals. This process may be used for the preliminary treatment of, and partial removal of lignin from, cellulosic material previous to digestion by known processes, such as the sulphite or the soda process. Or it may be used in conjunction with them, mixtures of ammonium hydroxide with other cooking liquors being employed.

For example five hundred kilograms of wood are effectively opened up by heating the mass to a temperature of 280 dgrees C for a period of ten minutes with three hundred liters of a two per cent solution of ammonium hydroxide solution in an iron boiler, preferably of the vertical type, prorided with suitable circulating pump.



NEW FACTS BROUGHT OUT IN PULPWOOD HEARINGS

Laurentide Engineer Testifies on Forest Resources of Quebec—Sweazy Favors a Compromise

AT the sitting of the Canadian Pulpwood Commission in Quebec City, important testimony was given by Secretary Beck of the Canadian Pulp and Paper Association and by J. Wilson, forestry engineer of the Laurentide Paper Company, who testified in his capacity as a forestry engineer, rather than as an official of that company.

Mr. Beck said that he had sent out a questionnaire to all members of the Association for the purpose of finding out what percentage of their pulpwood they purchased from settlers and the prices paid therefor. The replies showed that practically all manufacturers said they bought as much wood as possible from private dealers. It was also shown that as a general rule they paid the ordinary export price, and, in some cases, rather more. The Laurentide Company said that although it owned extensive limits, 35 per cent of its annual consumption was obtained from settlers. Price Bros. said that they had bought quite a lot of wood from settlers, and that in future they would take all that was offered to them as long as the price was not prohibitive. Federal statistics were quoted showing that 30 per cent of the wood used in Canadian pulp and paper mills was obtained from settlers. He made light of the claim that the American mills would be able to get wood from Scandinavian countries in the event of an embargo being put on. He has spent much time in these countries three years ago, and had found manufacturers quite anxious about future supplies for themselves.

Mr. Wilson gave some interesting figures on the forest resources of Quebec showing that in 1913 the timber available was 363,603,000 cords. During the last 10 years, 14,000,000 cords had been burned, 72,000,000 cords destroyed by bud worms and 16,500,000 feet cut, making a total of 102,504,608 cords destroyed. This left available 261,098,592 cords. The yearly cut averaged 10,460,000 cords, and, assuming that there was no increase in the demand, the forests in the province, at the present rate of demand, would be gone within 26 years. He thought that the embargo would be beneficial.

At the Montreal sitting of the Canadian Pulpwood Commission R. O. Sweazy, of that city, a consulting engineer, and a man who knows the Canadian pulp and paper situation thoroughly, said when questioned about the proposed embargo on pulpwood exports: "I would favor a compromise between Canada and the United States by which Canada would be permitted to sell to the Americans all the pulpwood they need, provided that Canadian forest products from stump to highest grade paper are permitted to enter the United States duty free." He did not fear Scandinavian competition in the American market, if an embargo were declared. He also thought that the existing forest protection policy in Canada was pretty much a joke, and that, if continued, the wood supply would not last more than 30 years. However, once forest fires were checked he thought that the export of pulpwood would cease to be a grave matter. Nature provided for reforestation but Nature was helpless in the face of puny fire protection.

That a strong effort will be made to secure a compromise on the pulpwood embargo question through the free admission of Canadian paper of all kinds to the United States is also evident from the remarks of other leaders in Canadian pulp and paper industry.

H. F. Bullard, general manager of the Dryden Paper Co., recently said: "The machinery in our mill is largely of American manufacture. On all such importations duty and sales tax has brought up the cost to us to 35 per cent above the price paid for similar machines by our United States competitors. Where articles produced in Canada are available, the effect of the tariff has brought the price up to practically the same as the U. S. price plus duty. The Canadian mill, therefore, starts with a heavy handicap as compared with its United States competitor in the greatly increased capital on which interest has to be paid. The United States mill also has the advantage in greatly reduced prices for coal, chemicals, machine, clothing, repairs and general supplies.

"It would, therefore, seem reasonable to reserve for Canadian industry the one commodity (pulpwood) by means of which the Canadian manufacturer can overcome the handicap of higher costs which the tariff and distances from sources of supply impose in his operations. If the United States mill, however, is allowed to continue competing against the Canadian mill in the purchase of pulpwood, we feel that some compensating advantage should be accorded to the Canadian mill and representations should be made to the United States government for the free entry into that country of all grades of paper produced, in addition to newsprint on which no duty is now imposed.

"In conclusion, therefore, we believe that if it is impossible or unwise for the Canadian government to put into effect an embargo on pulpwood from privately owned lands, that strong representations should be made to the United States government to remove either wholly, or in part, the tariff barrier now existing in order that Canadian industry may be placed in a position to compete with mills across the international border who are using Canadian wood."

* * *

Star New Operations

John Martin, head of the John Martin Paper Company, Winnipeg, and a partner in the Buntin Reid Paper Company, Toronto, was in Toronto last week and stated that by July the company would be operating in their new building in Winnipeg. The new structure is being erected on the site of the old building which was recently destroyed by fire, the John Martin Paper Company having been completely burnt out.

MAJORITY TESTIFY AGAINST EMBARGO

British Columbia Depends on U. S. to Supply the Market

WHEN the royal commission on pulpwood held sessions in Vancouver recently a majority of witnesses, contrary to expectations, testified against application of an embargo on the exportation of logs from the province.

British Columbia, with her great stands of virgin timber, depends largely upon export demands of the United States and the Orient to keep her log market up to strength. United States capital plays a prominent part in logging operations of the province. Many witnesses before the commission were representatives of United States companies.

So marked was the absence of supporters of the embargo on the first day of hearings that the chairman, W. A. Anstie was moved to remark: "We should like to hear somebody in favor of an embargo on the export of logs. We understood that there was quite a strong sentiment in British Columbia that way but so far we have had no evidence of it."

All the evidences of the first day was against an embargo and, with one exception, came from the organized lumber industry. The exception was a farmer who said that he was cutting cottonwood on his land for which there was no market in the province but which found sale in Washington for manufacture into paper. An embargo would make his cost of clearing greater.

J. D. McCormick, president of the B. C. Lumber & Shingle Association, stated that the export market offered an opportunity to dispose of the smaller fir logs which mills were unwilling to handle, since their equipment was set to handle the larger logs. The small trees could not be left standing since their roots were so close to the surface that with the removal of the large trees they would soon blow down. He did not think that an embargo would bring United States mills to B. C.

Other witnesses testified that Japan would not be influenced to place capital in B. C. for manufacturing if her supply of logs were cut off by an embargo but would simply turn her business to United States Pacific operators.

The second and concluding day in Vancouver brought testimony from the other camp. Representatives of box manufacturers and a number of shingle men, led by Aird Flavelle, presented strongly-worded briefs urging the necessity of an embargo and conservation.

The box manufacturers pointed out that the United States and Japan received most of the spruce and hemlock exported in the form of logs, and, they said, much that went to the United States afterwards found its way to Japan where it was manufactured into shooks which competed with the products of B. C. box factories in the markets of the world. Figures were submitted to show that the export of these logs had increased steadily from 3,300,000 feet in 1920 to 45,000,000 feet in 1923.

Mr. Flavelle stated that prohibition of export from crown granted and crown lands should be effected.

* * *

Merging Talk Still Going

Negotiations, which are now well advanced, have been under way for some time looking towards the merging of several Canadian companies producing fine papers. It is understood that definite terms are now being discussed. The plan calls for the organization of a large new company backed by American and Canadian capital, the leading plants to be taken over being the Howard Smith Paper Mills, Limited, of Montreal, and the Provincial Paper Mills, Limited, of Toronto. Others may be included. While no suggestion has been made as to possible capitalization, it is understood that some fairly extensive financing would be undertaken. Whether this will take the form of a stock or bond issue is not clear. The get-together movement on the part of these interests may be hastened by the realization that the home market cannot absorb all the fine paper they produce, while it is difficult just now to find new markets abroad.

* * *

Eddy Close Sulphite Plant

For the first time in thirty-six years the E. B. Eddy Co. of Hull, Que., has been compelled to close down its big sulphite plant, thus throwing out of work 220 men. This has been rendered necessary, not through lack of work, but because of the decision to install new and greatly improved machinery. It had been thought that possibly the closing down might not take place until summer, but it was finally decided not to put off the matter. It is probable that the period of idleness will last from five to six months. President Milne says: "We regret to have to close down the sulphite plant and thus cause possible hardship to a number of our employees, but some of the digesters and other machines have been in use there for 36 years and have outlived their usefulness. It is impossible for the Eddy Company to manufacture sulphite today as cheaply as we can buy it, for the old plant has become antiquated with the great improvements that have taken place within recent years. We have therefore been forced to decide upon scrapping the old plant and replacing it with an entirely new one."

* * *

Confidence In Saguenay

At the recent annual meeting of the shareholders of the Saguenay Pulp and Power Co. Senator Beique, chairman, informed the gathering that he had great confidence in the equity which the company holds in its various properties, especially the Peribonka limits. He regretted, however, to say that he did not consider their prospects very bright unless they could provide the capital necessary to meet outstanding obligations and supply working capital. He explained the difficulties occasioned through the Becker failure, which would mean serious losses, and also pointed out that large gains would result through changes made in contracts held by the company.

* * *

Speaks at Peterboro

C. Howard Smith, head of the Howard Smith Paper Company, and president of the Canadian Manufacturers Association, addressed a meeting of the Chamber of Commerce at Peterboro, Ont., on trade conditions in Canada, setting forth that high tariff means prosperity, and using the case of the United States as an example.

TO REOPEN BEAR RIVER PAPER MILL

Big Plant Was Idle For Three Years—New Financing Makes Reopening Possible

PREPARATIONS are being made for the reopening of the paper mill at Bear River. This mill will be operated by the Bear River Pulp and Paper Company. New York City, Boston, and Ohio parties have been instrumental in organizing the company. The chief difficulty experienced by the promoters and one that could not be overcome until the negotiations has consumed over eight months, was the appeasing of the bond holders in Clarke Brothers Limited, who had operated the mill for some years. The Clarke concern went into liquidation following the post war slump. Despite all efforts to revive the company, the plant remained idle for three years.

Recognition of their holdings at face value and the exchange in stock and bonds of the new company were finally agreed. It was decided that a flotation of approximately $200,000 in bonds would be made in order to renovate and re-equip the plant. This work has been started and indications are that the mill will resume operations in the late spring. It is also the intention of the leaders in the new company to build an extension to the mill and also construct wharves and warehouses besides maintaining extensive woods operations. The assets of the defunct company were offered at auction by order of the courts and bid in by the new company. It is unlikely that stock or bonds in the new company will be offered publicly for sale, for the present at least as the financing will be effected privately. Representing the company at Bear River now is C. W. Rantoul, who recently came from New York to undertake the work of preparing the plant for the resumption of operations.

* * *

Braun To Remain

Despite reports to the contrary, W. L. Braun, works manager of the Nashwaak Pulp and Paper Company, at the St. John, N. B., mill, of that concern, will remain in charge there. Mr. Braun has been stationed at the mill for the past two years. Previous to entering the employ of the Nashwaak Pulp and Paper Company he was employed by Brown Brothers Company at Berlin, N. H., and Fraser Companies at Edmunston, N. B. Joseph Allison, who was instrumental in part in the founding of the mill by the Cushing interests many years ago died recently. He was a director of the original company for some years. He was a leading mercantile figure in St. John, where burial took place. Two sons survive.

* * *

I. P. Increases Output

The International Paper Co. recently increased the output of its newsprint mill at Three Rivers, Que., from 240 to 310 tons daily. A further increase is expected to be made very soon. The shutting down of the Watertown plants has no doubt made stronger demands on the Three Rivers plant, which is operated at low cost.

* * *

Abitibi Makes Record

The Abitibi Power & Paper Co. has recently made some high records. The daily average for the week ending February 17th was 492.14 tons, an increase of about .16 tons per day. To do that at any time would be worth while, but to do it during two consecutive weeks is outstanding. In the same week there were three days when the production went over 500 tons. Tuesday, 503.72; Thursday, 501 50; and Friday, 506.72 tons. On Thursday and Friday the output was 1,008.2 tons. The week before there was only one day over 500 tons, February 7th, when the output was 512.82.

H. E. BEEDY TAKES DESK IN NEW YORK

General Manager of Nashwaak Pulp and Paper Company to Take Trip Abroad

IN the future, H. E. Beedy, who has been vice president and general manager of the Nashwaak Pulp and Paper Company, operating a mill at St. John, N. B., and owning large tracts of pulpwood lands in eastern Canada, will be stationed in New York City. Besides continuing in his present duties he will act as assistant general manager of the Oxford Paper Company, of New York City, operating a mill at Rumford Falls, Me. Mr. Beedy has been stationed at the St. John mill for the past two years, having succeeded E. N. Jones as general manager of the Nashwaak Pulp and Paper Company, a subsidiary connection of the Oxford Paper Company.

But before taking up his office in New York City, Mr. Beedy will make a tour of Europe in the course of which he will investigate pulp and paper manufacturing operations in Germany, Sweden, Norway, Finland and England. His tour will likely consume two months. Prior to leaving St. John, Mr. Beedy was presented a loving cup and silver cigarette case by the employes. While he will be stationed in New York City in the future, he will make occasional inspection trips to the Canadian and Maine holdings of the two companies.

The Nashwaak Pulp and Paper Company has increased the capacity of the St. John pulp mill ten tons of pulp daily. Heretofore the daily capacity was seventy tons. In the future it will be eighty tons daily. This increase was made possible by the building of a new dryer. This dryer was rushed along in construction. This is the second increase in capacity in a year. The first was achieved by the building of an addition to the plant and the installation of additional equipment, coupled with the building of a water main to connect with an increased water supply. A new main had been constructed by the city of St. John, from Spruce Lake, seven miles to the west. The Nashwaak Pulp and Paper Company then built a connecting main, about five hundred yards in length from the mill to the chief main. The increased water supply was a great boon to the company, as the lack of water in the past had been one of the principal operating defects.

* * *

Aeroplane Spies Out Land

American interests that have invested heavily in Canadian pulpwood limits have demonstrated the value of the aeroplane as a means of spying out the land. The experience of the *Chicago Tribune* interests supply a case in point. Last year they acquired from the Quebec government 2,000 square miles of limits on the Manichouagan district in that province and acquired also important water rights on the Outarde River. The latter is a rapidly running stream emptying into the St. Lawrence, there being in one part a drop of 200 feet within a few miles, making the current too swift for boats. Dense forests and heavy underbrush also make it difficult for surveyors to work on the ground. But the ground had to be surveyed, so recourse was made to the aeroplane. By observations thus made from a considerable height it was possible to gain information and solve problems that would have defied surveyors working by the ordinary methods. Moreover, the heavy power plant machinery can now be floated to the spot where it is desired to put it in place.

* * *

May—How smoothly the auto runs.

Ray—Yes, what do you suppose is wrong with it.

Fair Rent Question

One of the reasons for the call for a fair rent court in St. John, N. B., is said to have been the hefty advances in rents made by John A. Sinclair, chairman of the New Brunswick Workman's Compensation Board. Mr. Sinclair owns real estate in St. John. He is also head of the body that has been discriminating so strongly against the pulp and paper industry, and incidentally, posing as a friend of the "downtrodden." The compensation taxes demanded by this board are higher than any other board in existence. And yet not more than fifty per cent of the receipts from the taxes is allotted to the compensated. The balance is expended in "expenses". Now that the employers are exhibiting interest in the board, indications are that some changes will be made. What is needed is an entirely new organization. Because of incompetency over which they have no control, the pulp and paper companies are being heavily penalized. Investigation of the board by an efficiency expert has been under way.

* * *

Shipments Diminish

In proportion as the probability of an embargo on exports of pulpwood becomes more unlikely, to that extent do such exports from Canada decline, is the inference from the Canadian trade returns for January, which show the shipments of pulpwood to the United States last month to have been only 79,405 cords, as compared with 133,328 for the same month in 1923. During the 12 months ending January 1,330,406 cords of pulpwood were shipped across the line, or 252,000 more than during the same months during the preceding year.

Of the 1,874,167 cwts. of newsprint exported during January, all but 11,216 went to the United States. New Zealand took 8.139 cwts. and British South Africa 1,054 cwts. Australia did not take any, which shows that the British Preference, in which Canadian papermakers do not participate, is hitting the industry in this country very hard. In December, 1922, Australia took 42,000 cwts. of newsprint.

The total value of pulp and paper exports for January was $7,821,000, an increase of about $17,000 over December. Of this the United States took $7,283,000, and the United Kingdom $188,503.

* * *

Butterfield Dies

Samuel W. Butterfield, associated with the International Paper & Pulp Company, of New York and who designed and supervised the construction of many of the mills of the company, died Feb. 21 at his home, 69 Morrison Avenue, West Somerville, Mass.

He was a native of Farmington, Me., and was born Oct. 4, 1834. He became associated with the International interests many years ago and designed and supervised construction of their mills in Maine and Canada.

He was a member of various Masonic bodies. He is survived by a daughter, Miss Stella M. Butterfield of Somerville and a son, Fred Butterfield of Dover, Me.

* * *

Operating 80 Per Cent

The Kinleith Paper Mills, Liimted, whose head office is at St. Catherines, held their annual meeting a few days ago. The plant, which turns out about twenty tons daily of book and writing paper, is operating at about eighty percent capacity at the present time. H. F. E. Kent of Toronto, was re-elected President and General Manager; H. H. Love, Vice President; George H. Jefferson, Secretary and A. G. Parker, Treasurer.

RECEIVERSHIP WILL BE ENDED

Offer Assets For Sale to Close Out The Receivership

THE affairs of the Bay Sulphite Company of Canada will be wound up. At a recent meeting of bondholders it was decided to offer the assets for sale and tenders are being called for March 21st. The properties offered include the sulphite pulp mill at Port Alfred and the Chandler mill, which was taken over from the Saguenay Pulp & Power Co., as well as the timber limits. Such action is taken to establish the position of the bondholders as much as anything else. If the amount received does not cover the obligation to the bondholders, the latter will be empowered to take over the properties. The Chandler mill is at present closed down, but the one at Port Alfred is operating.

The Brown Corporation, which is one of the largest producers of sulphate paper in Canada, and a large manufacturer of bleached sulphite fiber pulp and kraft wrapping paper in the United States, is making an issue of $2,000,000 of 7 per cent cumulative preferred shares. The plants of this firm in Canada are at LaTuque, Que. The Brown Company of Portland, Maine, agrees that in the event of the Brown Corporation failing to pay any quarterly preferred dividend within one year of the required dividend date, or if the latter fails to make the required provision for sinking fund purposes, it will purchase any stock offered at 105 and accrued interest, U. S. funds.

The statement of the Saguenay Pulp and Paper Co. for 1922, just issued, shows that the gross operating income and sales were $6,646,750, as compared with $5,882,137 in the preceding year. After deducting selling expenses, cost of sales and general expenses gross income was $1,477,390 as compared with $2,433,073, the decrease being attributed to the increased cost of making sales. After making deductions for interest charges, for reserves and bad debts, a debit balance of $419,881 was carried to surplus as compared with a credit of $64,981 in the preceding year. The liquid position of the company at October 1st, 1923, showed an excess of current liabilities of $38,555 over current assets, as compared with a net working capital of $378,300 at the end of 1922.

* * *

The Embargo Again

The only commercial organization to endorse the proposed embargo on pulpwood exportation to the United States from Canada is the Chatham N. B., Board of Trade. This body held a meeting recently at which the embargo was the topic of discussion. A resolution was passed that the organization approved of the attempts to secure an embargo, and pledged itself to fight for such a measure, asserting it would conserve Canada's pulpwood supply and force the manufacture of pulp in Canada, as well. When the pulpwood commission convened in Chatham recently, the preponderance of sentiment as expressed on the witness stand was against the embargo.

In its meetings through Quebec, the pulpwood commission, now divided into two sections, one for the western provinces and the other for the east, has found the testimony strongly against the embargo. In many of the places in which hearings have been held, not more than five per cent of the witnesses have been in favor of the embargo. In a number of centers, no witness has appeared to favor the embargo. Very few of the farmers have espoused the embargo cause. Petitions have been submitted, signed by from fifty to five hundred farmers threatening to quit the farms if the embargo is introduced.

Canadian Mills Dominate

A. L. Perkins, of Powassan, Ont., who is a large dealer in pulpwood, says that he is opposed to the proposed embargo on pulpwood for several reasons. He states that the Canadian mills are rapidly dominating the continent in pulp and paper and are today side-stepping the freight rates in existance, to get their wood to the mills and are employing water transportation. Mr. Perkins adds that as long as provincial governments persist in setting aside vast pulpwood areas for the benefit of a few shareholders of large paper concerns, just so long will the Canadian public be obliged to contribute to railway deficits. There is a tremendous tonnage escaping the railways daily by the course which has been followed by provincial governments. "Put the embargo into effect," declares Mr. Perkins, "and you will curtail the earnings of the railways by many millions and completely stagnate the pulpwood industry, with serious consequences. The poplar pulpwood business in Ontario has reached immense proportions and ninety-eight per cent of this wood must be exported, as there is no market in Canada that we can find, in a shipping experience of twenty-nine years standing. I sincerely regret that the American market affords our only outlet that is profitable for peeled spruce and balsam and peeled poplar and their figure is none too high, considering prices of all commodities that go to produce a carload of pulpwood."

* * *

To Sell Ross Plant

Under the Bankruptcy Act, tenders are being called up to March 12 for the entire plant, equipment, fixtures and stock-in-trade of the Ross Can Co., Limited, of Bowmanville, Ont. The company manufactures paper and tin cans and have been in operation for the past four years. The value of the machinery, equipment and plant is placed at $128,244 and of the stock in trade, $26,936. The town of Bowmanville owns the building and land and in 1919 gave the Ross Can Co. a franchise by which it had a lease of the building and land for ten years at a rental of one dollar a year, free from taxes, except school tax, and the right to purchase the building and land for $35,000. The building itself cost in the neighborhood of $60,000. For the second ten years the Ross Can Co. were to pay a rental of $4,537 in monthly installments of $378 and also full taxes. It is understood that this franchise can be renewed to the new purchaser.

* * *

More Loss for Paper Men

Tenders are being called for the purchase of the stock in trade, presses, printing department equipment, calender finishing room equipment, etc., of the S. L. Davison and Hughes Engraving and Lithographing Co., Limited, 364 Richmond St. West, Toronto, who recently made an assignment. A number of paper houses being creditors for considerable amounts.

* * *

Gage Company Going Good

A very satisfactory report was presented at the annual meeting of W. J. Gage & Co., Toronto, which was held lately. Sorting business in the manufacturing stationery line at the present time is reported rather quiet but the orders for fall trade delivery are improving and the outlook is considered very good. All the old officers were re-elected as follows: President, H. H. Love; Vice President, H. F. E. Kent; Secy.-Treas. A. G. Parker. The company reports that the envelope business is getting better all the while.

Through the Middle West

TO REBUILD SRERE WAREHOUSE

oss by Fire Estimated at $30,000—Business Proceeding

PLANS to rebuild the warehouse of Srere Bros. paper mill at Franklin, Ohio, lestroyed by fire Monday with a loss esti-nated at $30,000, are already being made.

Howard Chaney, manager of the Srere in-erests in Franklin, has communicated with fficials of the firm in New York and is aid to have recommended the rebuilding of he warehouse at once.

It is thought the company will erect a stor-ge plant adjoining its present pulp mill, which as not touched by the flames.

Spontaneous combustion is believed to have aused the blaze which broke out Monday norning in the two-story brick and frame uilding, which was used for the sorting and orage of rags.

Thirty women employes, one of whom gave he alarm, fled to safety after seeing the ames spread, endangering their escape. They ere forced to grope their way through smoke the exits.

So hot were the flames that a box car on he Cincinnati Northern R. R. was damaged though it was standing several yards from he warehouse.

The building was covered by insurance and as declared to have been well-kept and uarded against fire.

The blaze was the first in several months fecting the numerous paper mills of the iami Valley.

* * *

Improving Allied Mills

Extensive improvements are being made at e Monarch Division of the Allied Paper ills, Kalamazoo, Mich. The cutters in the w-stock finishing room are being turned ound, the stands are being lengthened to ld fourteen rolls instead of eight, and they e planning on using three cutters instead of ur which they have been using heretofore. he other cutter is being moved to what is nown as the old coating room. Here five ating machines have been torn out, and irty girls are sorting in here. They also ve two cutters and two trimmers taking re of them. The other ten coaters are run-ng twenty-four hours, and the other finish-g room, employing twenty-five girls, is still operation. They have also lengthened out e of the coaters, so it can take a sheet 75" de. This is working out so well, they are anning on doing the same thing to another achine. Business is booming at the Allied.

* * *

Extensive Additions

A real estate transaction forecasting exten-e additions by the Standard Paper Com-ny at Kalamazoo, Mich., has just been con-ided between the company and the New rk Central Railroad. The transaction in-lves transfer of title to five acres of land tween the present plant of the company d the Kalamazoo River. The transfer paper s signed during the week by A. H. Smith, esident of the railroad, and Bartlett C. ckinson, president of the paper company. e latter refused to amplify his announce-nt that the company was contemplating ex-sive additions.

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Harvey Back from Panama

eorge H. Harvey, of the Garner & Har- Company, Middletown, Ohio, has just urned home from a delightful trip to the est Indies and the Panama Canal.

George A. Whiting Weds

George A. Whiting, 74 years old, one of Wisconsin's pioneer paper manufacturers, surprised his friends when it was announced here that he had been married in Chicago on Monday. The millionaire paper man's bride is Mrs. Mae R. Babcock, who was the widow of Arthur Babcock of Wausau, Wis. It was at first reported that the bride had been a nurse in the Whiting home, but this was denied by the family. Her age was given as 49 years.

Mr. and Mrs. Whiting are spending their honeymoon in the south. They went to Florida and expected to visit Cuba before returning to Mr. Whiting's East Forrest Avenue home in Neenah.

Mr. Whiting's interests cover many sections of Wisconsin and the upper peninsula of Michigan. He came to Neenah in 1865 and founded the Whiting Paper Company with branches in Menasha and other cities. He also controls the Wisconsin Paper and Pulp Company, at Whiting, Wis., and the Proper Paper Company of Neenah, as well as the Whiting hotel at Stevens Point.

About two years ago Mr. Whiting was divorced by the second Mrs. Whiting who has been living for several years in Minneapolis. His first wife died twelve years ago. Mr. Whiting retired from active participation in his enterprises about five years ago.

* * *

To Study Waste

C. M. Baker, sanitary engineer for Wisconsin, has started a survey to determine for all time whether the waste dumped by papermills in the Wisconsin and Fox rivers has the deterrent effect on fish life that is claimed by sportsmen. For years there has been a debate as to the effect of papermill waste on fish life, sportsmen declaring that it practically has destroyed fishing in streams bordered by papermills. Most of the mills have installed save-alls which has reduced the amount of waste dumped into the streams but it is contended that considerable liquid, with solids, is being dumped into the rivers.

Samples of water have been taken at places where there are papermills and samples also have been taken of the waste. It is expected the survey will show the exact extent of the pollution, if there is any, and probably will result in regulations of suggestions for elimination of objectionable practices.

* * *

Goodman Now President

Directors of the Peshtigo Paper Co., of Peshtigo, Wis., have elected Charles Goodman of Marinette, as president of the company to succeed John Sutherland of Dayton, Ohio. D. C. Everest of Rothschild, Wis., has been elected vice president. Mr. Sutherland was president of the company since its organization a few years ago when the property was taken over from the Peshtigo Pulp and Paper Co. Several notable improvements have been made in the property since that time.

Announcement has been made of the resignation of A. C. Witherbee as general superintendent of the company. W. E. Swan, superintendent of the sulphite department, resigned recently and he has been succeeded by Max Boehm of Rothschild.

FALK CORPORATION HAVE NEW REPRESENTATIVES

Offices Are Opened by Company in Detroit and San Francisco

THE Falk Corporation, of Milwaukee, announces the appointment of representatives in San Francisco and Detroit to handle Falk Herringbone Gears and Falk-Bibby Couplings in those territories.

E. C. Myers is appointed to the San Francisco office with headquarters at 320 Rialto Building. Mr. Myers is a graduate of Syracuse University, where he took the four-year electrical engineering course. For several years he was with the General Electric Company, first at Schenectady and for about ten years in San Francisco. A little more than a year ago he opened a New York office for Cotton, Neill & Company, Ltd., and now joins the Falk Corporation after having had an experience that should make him a valuable member of the sales staff of that concern. His territory includes the states of California, Oregon and Washington.

Charels C. Walsh is appointed Detroit representative, with offices at 1500 Real Estate Exchange Building. Mr. Walsh received his engineering education at Highland Park College, Des Moines, Iowa. His career in the engineering and sales field has included service with the Michigan Central Railroad at Detroit, the Morgan-Wright Rubber Works, of Detroit, the S. K. F. Ball Bearing Company and the W. C. Du Comb Co. His activities have covered a wide range in both engineering and selling and he is thoroughly acquainted with the Michigan territory in which, together with Northwestern Ohio, he is to operate.

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The Summers' Patent

B. S. Summers, of Port Huron, Michigan, has perfected a method of chemical control in connection with the manufacture of sulphite chemical pulp for which letters patent have been issued by the United States Government, according to the late *Patent Gazette*.

This is not the first time Mr. Summers has been to the front in connection with patents for fiber making industries, having also invented the process for making fiber rugs in use in so many states today.

This new chemical control of sulphite pulp, quick cooking was perfected and is in use in the Port Edwards and Nekoosa Mills of the Nekoosa Edwards Paper Company in Wisconsin and by this control a very much whiter and stronger fiber is produced, making the quick cook pulp more closely resemble the slow cooked or Mitscherlich pulp which has also lately been greatly improved by Mr. Summers at three of the Mitscherlich mills in Michigan, at Port Huron, Detroit and Alpena.

Mr. Summers is a graduate of Ann Arbor and has been a Manufacturing Chemical Consulting Engineer for many years among the fiber producing industries.

* * *

First Bleach-Making Process

The first bleach-making apparatus to be used in Middletown, Ohio, will be installed in the new $100,000 addition to the W. B. Oglesby Paper Co., contract for which has just been awarded to the F. K. Vaughn Building Company of Hamilton, Ohio.

Machinery already has been ordered and the new unit is expected to be in operation in a few months. In it also will be several beaters and rotary machines.

GROUNDWOOD SHORTAGE FELT BY WISCONSIN MILLS

Slight Curtailment in Production Pending Return of High Water

THE long continued low stage of water in the Wisconsin River has finally compelled a temporary curtailment of operations at the Wisconsin Rapids and Biron Mills of the Consolidated Water Power & Paper Company with main offices at Wisconsin Rapids, Wisconsin. No paper was made at Wisconsin Rapids mill Saturday, February 16th or Monday the 18th, and officers of the Company said that for the next thirty days it would probably be necessary to shut down the machines at both the Wisconsin Rapids and Biron Divisions for one or two days a week.

Low water last fall, which made it impossible to store up the usual quantity of groundwood for winter use, is the cause of the present curtailment. Usually a sufficient supply of groundwood is prepared in advance, during the periods of high water to supply the machines through the winter months, but during 1923 high water did not come when it was needed and the amount of groundwood prepared in advance, together with that shipped to them from their Canadian mill, has proved inadequate to keep the mills running at capacity.

Officers of the Nekoosa Edwards Paper Company of Port Edwards, Wisconsin, stated that they have recently installed steam turbines at both the Port Edwards and Nekoosa mills and these had freed Nepco mills to a large extent from dependency upon water power, and that consequently they were able to operate to full capacity at this time.

"Due to the foresight of the general management in providing auxiliary steam power and to the efficiency of the water wheel grinders that are able to operate absolutely no trouble is anticipated because of unfavorable water conditions," an officer of the company stated. "We are now operating at full capacity, in fact, are now making more paper than any time in the history of the Nekoosa Edwards Paper Company, and we expect to do so indefinitely without regard to the water situation."

The present curtailment in operations is a new thing to the Consolidated Company's mills, which has a record for continuous operation at full capacity that is believed to be unequalled by any other mill in the Wisconsin Valley.

* * *

Adds $150,000 Capital

The Valley Iron Works of Appleton, manufacturers of paper mill machinery and accessories has added $150,000 capital, it was made known through an amendment to the articles of incorporation just filed at Madison. This will give the company a capitalization of $550,000. The original incorporators of the company in 1900 were Augustus Ledyard Smith, William A. Fannon, and Emil A. Peterson. The amendment was signed by Ernest Mahler, vice president, and H. M. Burns, secretary.

* * *

Mead Heads Peerless

George H. Mead again heads the Peerless Paper Co., directors as chairman of the board as a result of the annual election of stockholders of the Dayton concern. Other directors are A. L. Rieger, R. T. Houk, Sr., W. N. Hurlbut, L. F. Berk, R. E. Cowden, all of Dayton, and H. P. Carruth, of Chillicothe.

The offcers are: A. L. Rieger, president and general manager; R. T. Houk, Sr., vice president; R. E. Cowden, secretary, R. E. Pohl, treasurer, and M. G. Benson, assistant secretary.

Kraft Pulp Odorless

A new process is about to be tried out at the Nekoosa mills of the Nekoosa Edwards Paper Company which it is hoped will eliminate the disagreeable odors in the manufacture of kraft pulp.

Laboratory tests to date have shown that this is possible and a more practical test is soon to be made in the mills themselves.

It had been expected that these tests would be completed without any publicity being given, but anything new in the pulp and paper industry in Wisconsin cannot be kept under cover long, especially in the Nepco mills where something new is being developed all the time and when the whole Wisconsin pulp and papermaking fraternity keep their eyes and ears focused for new things that may be seen or heard.

The new development will be given further publicity at an early date if the practical test is the success that the laboratory trial proved it should be.

Bertrand S. Summers of Port Huron, Michigan, is the inventor of the process, and he has already applied for patents on this process.

If successful, then perhaps, Chicago will have a kraft mill as an industrial possibility.

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Unique Advertising Letters

The Nekoosa Edwards Paper Company of Port Edwards, Wisconsin, during the past month has been sending to its customers among the wrapping distributors of almost all of the States of the Union, a chain of letters descriptive of their mills, starting with Power Plants and going all down the line of pulp mills, both mechanical and chemical, the various paper mills, their finishing rooms and shipping facilities at the same time describing in each letter someone of the 300 odd grades of colors of wrapping paper produced by Nepco plants.

Samples properly identified accompany these letters of description and by the time the last letter reaches its destination, each one of these distributors will have received a complete line of samples with an idea of how each one is made.

The interest with which these letters are received and looked forward to from week to week, shows their value.

Nepco produces 10% of the paper made in Wisconsin, or about 200 tons per day.

* * *

Experimenting With Kraft

The Nekoosa-Edwards Paper Co., at Nekoosa and Port Edwards, Wis., is conducting experiments with a new process of kraft paper manufacture which the inventor claims will eliminate the odor usually accompanying the manufacture of that type of paper. The experiments, conducted on a small scale, will determine the feasability of the plan in commercial production and probably will be adopted in the mill if it is successful.

B. S. Summers of Port Huron, Mich., inventor of the process, says it is successful in laboratory experiments. He has conferred with officials of the Nekoosa-Edwards Co. which has arranged for the experiments in the mills.

* * *

Complete Finish Room

Announcement has just been made by the Champion Coated Paper Company of Hamilton, Ohio, of the completion of one of the largest finish rooms in the world. It is 290 by 150 feet and makes the east mill of this plant extend 1230 feet along North B Street.

The floor of the new addition was built to carry a weight of 500 pounds to the square foot.

MAKING SURVEY OF WISCONSIN RIVER

Effects of Paper Mill Waste Being Studied By State Engineer

A COMPREHENSIVE survey of the Wisconsin River to determine the extent and effect of pollution by paper mill wastes is well under way and a report dealing in detail with the subject will be published before the end of the year, it is revealed in the 1923 report of C. M. Baker, state sanitary engineer, which was made public at Madison recently. The survey will continue throughout most of the present year and will be the most complete ever attempted in Wisconsin, it is said.

Take Samples of Water

The survey, the report states, was started last fall, when samples of river water were collected from both above and below the sources of pollution in the vicinity of Rhinelander, Tomahawk, Merrill, Wausau, Mosinee, Stevens Point and Wisconsin Rapids. The samples are being analyzed but no report on the finding has yet been made public.

It is proposed to follow this survey by the collection of additional samples next summer at a lower stage of the river and under different climatic conditions. In addition to this, the report declares: "Investigations will also be made at each of the mills to determine the volume and character of the various wastes. Upon completion of this work, a comprehensive report will be made dealing with the effect of paper mill waste upon the streams of the state."

Investigation Made

This investigation, it is understood, is being made in an effort to settle for all time the controversy which has existed in regard to the extent of paper mill waste, and its effect upon the waters of the Wisconsin and other rivers.

* * *

Vocational School Soon

Paper mill plants in the Appleton district and industries closely allied to it are taking the lead in organizing a class in foremanship training. The first meeting is scheduled to be held on March 6 in the Vocational school in Appleton. Among the concerns which are interested in the movement and which have announced they will cooperate the The Thilmany Pulp and Paper Company, Kimberly-Clark Company, Appleton Wire Works, Valley Iron Works, Interlake Pulp and Paper Company, Wisconsin Wire Works, Tuttle Press Company, Patten Paper Company, and the National Fiber and Paper Company. Other industries will be represented in the movement which is expected to have an important bearing in teaching how to reduce accidents.

* * *

Logging Going Fast

Present conditions in Upper Michigan and Northern Wisconsin are reported ideal for logging, according to those who have visited the scene of operations. The abundance of snow has made it possible for contractors to continue cutting operations with increased rapidity, whereas early in the winter it was feared lack of snow would make it impossible to obtain a normal supply of pulpwood. The blizzard which temporarily blocked roads in Wisconsin the first week in February will have no bad effect, but on the contrary will make it possible to increase the output. The storm did its greatest damage south of Marinette and the country to the north there is just enough snow to aid in getting logs out of the woods.

In New England

Criticises Present Methods

Carleton W. Eaton, forestry engineer, speak-ig before the Portland Farmers Club, Februry 13, indulged in some criticism of present iethods of the taxation of timber lands. Folowing the address a committee of five with Ir. Eaton as chairman, was appointed by the lub to study the problems of taxation, reforstration and fire protection.

Four phases of Maine's forestry problem ere considered by Mr. Eaton; protection, ixation, management and reforestation. In pening he called attention to the fact that ie tree growth in Maine is not keeping up ith tree removal. With regard to fire protecon he said that there is an increasing annual verage of fire damage throughout the state hich indicates that remedial measures should e applied. Through forest fires, he said, a irge area is taken out of production every ear and heavy money loss results.

Insects also have wrought serious damage nd diseases must be reckoned with.

With regard to the management of Maine mberlands he had something complimentary say. In no other department had such rides been taken by Maine timberland owners, e said, and the time was not far distant when ie services of foresters for management ould be universal. It simply remained to ake all timberland owners up to follow the xample of larger companies in this respect.

Reforestation in Maine was proceeding ather too slowly, Mr. Eaton said. Maine has lanted to date, since the first efforts for reorestation were made, approximately 3,800,-00 trees, enough for about 3,800 acres. It iould plant almost that much annually in rder to keep up with the annual production f mismanaged land. Then the waste land ould remain untouched.

Mr. Eaton suggested that more coordination nd better morale of the fire prevention force as necessary as a remedial measure.

He suggested that the taxation problem ight be solved by a nominal annual tax on ie land and a tax on the timber when it cut, or when it reaches maturity whether is cut off that time or not.

As to management, he said that given better re protection and a more equitable system of ixation, the individual owner would be inpired to better manage his timberland proprty.

With regard to reforestation he said that Iaine's small state nursery was at present ntirely inadequate to meet the State's needs, nd that this situation should be remedied in far as was possible by funds that could be iade available.

* * *

Changes and Corrections

The American Writing Paper Company has ist issued a printed sheet recording a numer of changes in its Primary Lines which ave become effective since the "Handbook f Quality-Standards" was published. It is evised for inserting in the Handbook in order bring it up to date.

The emendations embody important revisions nd changes in weights, colors, watermarking, itroduction of new lines, etc. The matter is ivided off by perforations for readily tearing part, and each section is designated with the age number corresponding to the place where is intended to be pasted in the Handbook. he back is gummed for the purpose.

These correction sheets are being mailed printers and others who have the Eagle-A Iandbooks. The American Writing Paper ompany willingly furnishes copies to anyone iaking requests for them.

Extend Power Plant

Extensions and improvements of the big power house of the International Paper Company at Jay, Me., are under way. The lower windows in the structure have been bricked up preparatory to reinforcing the lower part of the building. A new plan of applying concrete will be used. Instead of pouring the concrete in the usual manner, a big concrete gun will be used, applying the concrete at a much more rapid rate than is possible by pouring.

It is understood that additional power machinery is to be installed early in the spring and that operations will be carried on by the company upon a considerably larger scale at Jay than in the past.

* * *

Buy Big Building

The Wakefield Paper Box Company, of Wakefield, Mass., has purchased the large building in the rear of the Brown Block, Main Street, Wakefield, owned by the Wakefield Real Estate & Building Association, which has been occupied by the company for several years under lease. The company plans to make some alterations and enlargements. The company has been located in the building since 1911 when it was burned out of its former location in the Cutler property fire.

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This Ford Retires

Henry Ford of Melrose Highlands, for many years identified with the wholesale paper trade and one of the best known paper salesmen in New England, has retired from that field and has become associated in the shoe business, covering northern New England.

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ANNOUNCE DATES OF 47th CONVENTION

Big Banquet Will Be Held on Thursday of Convention Week

THE formal call for the Forty-Seventh Annual Convention of the American Paper and Pulp Association is the dates announced being April 8 to 10 inclusive.

In general the program of the week will be as in other years. Tuesday, April 8, will be devoted, in addition to meetings of group associations representing manufacturers of the various grades of paper, to the Salesmen's Association.

The group meetings of manufacturing associations will be continued on Wednesday, together with the Woodlands Section convention of the central organization.

Thursday, April 10 will be devoted to the convention sessions and the banquet of the American Paper and Pulp Association.

There will be a radical change in program for the Association banquet, in that instead of political notables of national renown as speakers, those to be selected will be some of the nation's most prominent business men, and will talk on business, rather than political conditions.

The Salesmen in their program are to have speakers who will strike a popular note, and the banquet will be a dinner and smoker, rather than a dinner-dance as was the case a year ago.

The Technical Association will hold its convention during the week, and the National Paper Trade Association will also be in convention, all of the most important meetings being scheduled for the Waldorf-Astoria.

During the entire week the Second Paper Industries Exposition will be in progress at Grand Central Palace, making it a week devoted to paper in all the phases of the industry's development.

Railroad rates have been granted to those in attendance on the basis of one and a half fare for the round trip, and this will apply to all the associations of the industry, by joint arrangement with the American Paper and Pulp Association.

In the Far West

Are Working Together

The conclusion of a conference between Forester William Darby of the Canadian forest service and Supervisor Calvin Dahlgren of the Superior National forest which is under the jurisdiction of the United States forest service has resulted in an agreement for greater cooperation between the two countries in protecting from forest fires the woods and lake country adjoining the boundary line.

An arrangement was made to erect a new steel tower on Shortiss Island in the boundary waters and install telephonic connections with the Superior National forest Lac La Croix ranger station, which already has telephone connections with the local forestry headquarters. The Shortiss Island tower will be erected by the Canadian service and commands a view of a large section of country that has not had any tower protection.

* * *

Lightning Starts Forest Fires

John McLaren, fire chief of the Denver, Colorado, office of the forest service admits that some reports have reached him that the supervisors of the Holy Cross forest near Glenwood Springs, Colorado; the Hayden forest near Encampment, Wyoming, and the Shoshoni forest near Cody, Wyoming, explain that four lightning bolts were responsible for starting fires within their zone, during January, but says:

"In my experience in forest and fire work, I have never heard of lightning striking in winter. Temperatures within the forest were very low, and the out of season lightning did very little damage. We are endeavoring to account for the peculiar atmospheric condition which produced lightning during January."

* * *

Need Pulp Mill

Mark F. Mendenhall, head of a local power company, told members of the Spokane, Washington, Chamber of Commerce, recently that the increased demand for straw board, straw egg holders and other articles by the Inland Empire would warrant the establishment of a pulp mill at Spokane to supply the trade with these products.

He said that there was now enough straw on hand between Spokane and Walla Walla to furnish material to keep a mill in operation for more than a year, and he urged the establishment of a mill to cost approximately from $800,000 to $1,000,000.

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Forest Exhibit by Manufacturers

The National forest exhibit at the Colorado Merchants and Manufacturers convention during the week of February 18-23 exhibited twelve samples of the native wood grown in Colorado, an informative tablet telling us that during 1923 there were 33,447,000 board feet cut, while there were 908 acres planted.

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Carew Gets Contract

The Carew Manufacturing Company, Hadley Falls, Mass., has been awarded a government contract for 11 lots of paper totaling 493,000 pounds. The contract totals $132,000.

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Power Plant Near Completion

The power plant of the American Tissue Mills, Holyoke, Mass., is nearly completed. McClintock & Craig, 33 Lyman Street, Springfield, Mass., are the engineers.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

IS CONSERVATION ADRIFT IN THESE UNITED STATES?

Review of the Situation Throws Much Blame on the Already Belabored Secretary Fall—Other Facts Brought Out

THE American Forestry Association, through its secretary, Mr. O. M. Butler, has issued a statement, from which we quote below, on the question "Is Conservation Adrift?" It is unquestionably a logical question if viewed in the light of recent developments in Washington.

Conservation is not adrift as a principle that has been adopted by the rank and file of the people of this country, or by the country's industries. The history of the forestry movement, briefly but accurately reported in recent issues of this journal, would indicate a fairly straight course towards a safe haven. But if we consider the officers in certain departments of the federal government as the sole agents entrusted with the commission of carrying forward a broad and stable program, then there are good grounds for believing that conservation is indeed drifting, and it will have to be a case of "shipping the pilot

A vast number of people have complacently rested in the thought that the basic conservation principles of the government were for the most part settled. Yet during two national administrations no definite progress in carrying forward the program which the people supposed was in effect has been apparent. Appropriations have usually been diminished rather than increased; a constructive policy has been lacking in relation to over two hundred million acres of public lands; fire damage has increased in Alaska; an attempt has been made to transfer the hard working and efficient Forest Service from Agriculture to the Interior,; and the bulk of effort toward correct forestry practice has come from private individuals and groups, and from the Forest Service.

"Looking back over the past half decade and more, what is the conservation policy of the American people as exemplified by their government?" asks the American Forerstry Association. 'The public, it may be suggested, is entitled to know."

"When Mr. Fall was appointed Secretary of the Interior, the federal policy of conserving public forest resources had become well recognized as a definitely established principle. Mr. Fall was known to be bitterly opposed to that principle. He was an openly declared anti-conservationist in spirit and in action. When he was thwarted in his plans to have transferred to his jurisdiction the National Forests in the western United States and in Alaska, many people construed the result as a conservation victory, although the nation was left in doubt as to whether the administration was supporting Mr. Fall or the defender of the principle, the Secretary of Agriculture.

"The Fall episode was not an indication of progress. It was a senseless obstruction in the path of the conservation movement—a costly mistake resulting from administrative wavering from a clear-cut conservation policy. Mr. Fall was permitted, if not encouraged, to precipitate his fight to scuttle the very best conservation agent of the Government, the Forest Service. In doing so, he first lifted the curtain upon the instability and indecisiveness of the conservation policy of the nation, as exemplified by the representative government at Washington. Had our policy been as clearly and as securely established as it should have been, and as sacredly respected by the party in power, Mr. Fall's aggressive campaign as a freebooter of public resources would never have begun.

"The unrestrained activities of Mr. Fall, as a trustee of public property, reveal similar governmental instability and confusion in the conservation of other public resources. While Secretary of the Interior he promoted a bill for the creation of the All-Year National Park in the vicinity of his own land holdings in New Mexico, which, if enacted into law, would have been destructive to the basic principles of National Park conservation. It is significant of the point that his bill was actually passed by the Senate and it was defeated primarily by the protest of an indignant public, aroused by men and organizations wholly outside and unrelated to the government.

"Four years ago the Water Power Act and the Coal, Oil, and Gas Leasing Act were passed by Congress. These bills established the conservation principle that the title to waterpower and coal, oil and gas, owned by the government, should not pass from the government. To men like Mr. Fall, these principles appear to have had no meaning and no sacredness. Nevertheless, the unsympathetic Mr. Fall was commissioned with the public trust of administrating those very acts. As long as anti-conservationists are placed in positions of trust over public resources and as long as they are not held to strict accountability in respecting and carrying out established conservation policies, there will be Teapot Dome scandals. They are merely the sordid products of a lose administrative attitude toward conservation.

"The absence of definite progress on the part of the administration in carrying forward a broad program of conservation during the past four years is strikingly evident. The situation is one rightly causing wide-spread public concern. We are still without a constructive policy for the handling of our 220 million acres of public lands, not including the national forests, 150 million acres of which are steadily becoming more and more unproductive because of uncontrolled grazing. In Alaska fires continue to ravage millions of acres of public domain, with no policy yet affected for handling or protecting these lands. Game protection in Alaska is a farce and political make-shift, because Congress fails to provide the amount of money needed for effective game conservation.

"Before the war, the passage of the Weeks Law established a federal program for the acquisition of six million acres of forest land on the headwaters of navigable streams. The Federal Government appropriated $2,000,000 annually, for a short period of years, for the purchase of these forest lands, and then, with the purchases only one-third completed, it departed from the program. Thus far, it has refused to restore it to more than 50 per cent of its original scale. For the forthcoming year, the Forest Service, whose administration of the National Forests stands out as one of the brightest spots in the conservation firmament, is now confronted with reduced appropriations.

"In the face of this apparent slowing up and dissipation of the conservation movement, the report of the Senate Committee on Reforestation brings home to the nation the urgency of prompt action to assure its people a supply of raw wood. Despite a strong public urge during the past five years, we are still without a national forest policy. The report of the Senate Committee does not expose a hitherto-unknown situation, but merely adds authority to previous investigations which the United States Forest Service has made, but which have failed to stir the government to action. That the situation with respect to our wood supply is critical, Congress must now admit. Will it act? And if it does, will it give the nation the broad, comprehensive policy which the situation imperatively demands?

"The Senate Committee on Reforestation has, through Senator McNary, introduced a Bill which provides for constructive legislation and authorizes appropriations. The Bill is one which everyone will endorse. Its passage will mark a constructive step toward in formulating a national policy for forest conservation. It has strong public support and it should be enacted at once. Bills somewhat similar have been before Congress during the past several years. Congress has turned them aside. If the McNary Bill suffers the same fate, the present administration will indeed have lost the opportunity to restore public confidence in its conservation platform.

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Research in Paper Field

How the Northeastern and Lake States Forest Experiment stations of the United States Forest Service are planning for their research work, particularly for the pulp and paper companies in those regions, was told to the New York Forest Club at a recent meeting. About twenty foresters were present, and plans were made for a spring field trip as a wind-up of the season's series of meetings. Samuel T. Dana and Raphael Zon, directors of the two experiment stations were the speakers, and told of the growth and other studies which are in contemplation. Mr. Dana told of the work being done in reforestation in the pulpwood producing region, while Mr. Zon called attention of the foresters to the manner in which the jack pine, once despised, is coming into prominence as a valuable tree to the western paper mills.

HOW MUCH LAND SHOULD GOVERNMENT OWN?

Question Arises Between Government and Private Interests

THE question of how much land the federal government should properly own, and how much should remain under private management for the best interests of the country at large, and for the country's industries in particular, is one that has arisen for discussion in recent conferences between the federal authorities and the private interests.

That the government and private interests must work together, and that neither should own or control all of the forest land area of the country was the opinion expressed by Dr. Baker, Executive Secretary of the American Paper and Pulp Association at the recent Washington conference. Dr. Baker's statement as given by the department of Agriculture indicates that his organization contemplates the probable acquisition by the government of approximately one-third of the forest land, while private interests will need to handle the other two-thirds with a view to perpetual supplies. The statement is as follows:

"The paper and pulp industry can not turn its raw material problem over to the Federal Government. The industry must spend its own money and create its own leadership to work out this problem, getting the help and advice of the Forest Service. The Federal Government will probably have to acquire at least one-third of the forest land of the country, but private initiative will have to be depended on to properly handle the other two-thirds of our forests and will have to undertake this task in the very near future."

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Looking to the Future

The Louisiana forestry authorities are now judging the boys forestry contests in which 650 boys were enrolled as competitors for a total of $805 in prizes. Of the prize money $500 was offered by the Great Southern Lumber Company, the same organization which controls the Bogalusa Paper Company, and which is doing an important work in promoting forestry in the state of Louisiana. The company has placed between 50,000 and 100,000 acres of land under cooperative forestry management with the state authorities. The Louisiana Forestry Board at a February meeting made plans for continuing the boys forestry club work in 1924, and heard the interesting report that the development of forestry sentiment in Louisiana during 1923 made it possible to reduce the area of land burned over during the year to 285,000 acres, as compared with 1,200,000 acres two years previously.

Definite forestry work among the youth of the land began as a general movement just after the World War. The Louisiana plan has received widest publicity because of its perfection of organization. Similar work, however, is under way in other sections of the country, notably in the Northeast, many pulp companies and timberland owners cooperating. In New York, the Forestry Association has trained Boy Scouts in fire prevention and reforestation and has succeeded in reclaiming upwards of five hundred acres of land with Scout labor. Several projects were carried out on privately owned land in 1923, under the auspices of the association in cooperation with paper and pulp companies and other industrial groups, and the outlook for the coming planting season is excellent.

Cost of Reforestation

Interesting figures on the cost of reforestation operations of pulp and paper companies as well as of state and federal operations, have been given out by the Woodlands Section of the American Paper and Pulp Association. The private planting is the most expensive, the chief difference being in the labor costs.

New York state figures, based on 1,200 acres of private planting, show a total cost of $12.61, but one company's operations cost $23.33 per thousand trees. The general figures, however, were much lower, the planting cost being $7.84 per acre, and stock being $3.86. A New England figure, based on 200 acres only, shows a cost of $24.99 per acre, but the stock was expensive, being $9.44 per acre, and the planting cost being $13.58. In the middle Atlantic states the stock was much cheaper, and figures based on 600 acres cost a total of $10.46, with 1,570 2 year seedlings to the acre.

Northeastern state forest operations vary widely, from $9.44 in Pennsylvania to $17.15 in Massachusetts. The Massachusetts stock cost was $9 and the planting cost $7.15. New York planting where seedlings were used cost only $11.80 per acre.

Federal government operation in Michigan, where pine was used show a cost of $4.50 per acre, with seedlings, while in Minnesota the figure was slightly higher, being $5 per acre. In these figures, however, the fact should be noted that only 700 to 800 trees are planted to the acre, instead of 1,000 to 1,500 on the private tracts. In Minnesota where older stock was used the cost rose to $9.12 per acre. The large acreage planted, and the fact that the federal operations were for the year 1922 account in part for the lower cost as compared with the state and private planting reports.

* * *

Fire Prevention in Quebec

A radical change in the method of handling the forest fire question in Quebec was described to the provincial assembly by Honore Mercier, minister of lands and forests. The new policy is that the limit holders will be expected to protect their own forests from fire the coming year, while the provincial authorities will look after the matter in the other forest areas of the province.

He announced that the government plans to introduce legislation soon for a new organization of fire fighters, in line with the suggestions made at the recent colonization congress. There will be a force of uniformed fire rangers, all through the district, all of whom will be responsible to the government, through the forest ministry, and all will be expected to file with him a preliminary report showing their plans for organization of their respective districts.

During the debate the question was asked whether the method of erecting fire towers in use in the United States would be part of the plan, and Mr. Mercier stated that this was part of the plan. The regions would be so mapped that fires could be spotted and located by coordinated reports of the observers, made by telegraph, telephone and wireless.

Asked as to the policy relative to brush burning by settlers, Mr. Mercier stated that there would be no interference with rubbish burning on settlers lots. One representative pointed out that a single county last year suffered a loss of $2,300,000 from forest fires.

When questioned, Mr. Mercier said the fire prevention policy of the past three years had proved a failure, and a radical change was necessary. The use of aeroplanes, he said, had been successful, and the assembly finally appropriated the money asked for the maintenance of the new fire prevention system.

FIRE WARDENS GUARDING MUCH TIMBER

Twenty-Six Million Acres Under Guard in Oregon, Report Says

THE fire wardens are guarding more than 26,000,000 acres of timber in Oregon. Some of these wardens are appointed by the federal government and some of them obtained their positions from private state protective organizations. The Federal Forest Service, the State Forestry department and the seventeen private protective associations are cooperating in an effort to keep the wild fires out of the Oregon forests.

Of the area guarded by the wardens 58 per cent is in Federal ownership and 42 per cent is in private or state ownership.

There were 627 wardens employed in 1923 to guard these forests. 235 of them were Federal and 392 state wardens. Private owners of timber, sawmills, etc., paid 93 per cent of the state wardens leaving only 7 per cent of them to receive their pay from the state.

The state forester reports that although there was no noticeable difference in the number of fires occurring in 1923 yet 40 per cent less area was burned over than the average for the past ten years. He said that 73 per cent of the fires were controlled before they had burnt a ten acre area and 216 before they had spread over one-quarter of an acre.

Outside of the National forests in Oregon the area of forest type lands burned over was 45,136 acres, entailing a total loss of approximately $190,000.

A criticism of the big timber owners in Oregon is that after logging over a piece of timber they then neglect to safeguard it from fire with the result within one or at least two years it is swept over by fire which destroys all the life of the young timber or seeds on the logged land. It is easy for fires to burn in these logged areas. Each year a larger number of private owners are taking precautionary measures to prevent these fires and thus have natural re-forestation take place.

* * *

Future of Lake White Pine

Of the 350 billion board feet estimated to have comprised the original stand of white pine in the Lake States, 300 billion have been cut, more than 40 odd billion have been destroyed by fire, and possibly five billion board feet, mainly in Minnesota, remain to be cut, according to the Forest Service, United States Department of Agriculture.

What can be expected in the future for this economically important tree is at present a subject of study by the Lake States Forest Experiment Station. Twenty-five years ago Prof. Filibert Roth, until recently Dean of Forestry, University of Michigan, estimated that there were then 200,000 acres of second-growth white pine in Wisconsin. Since then fires on cut-over land have considerably retarded additions to this area and have to some extent reduced the original tracts.

Michigan and Minnesota probably have each as much as Wisconsin, or more. While this second growth is very open, the fact that the old forests yielding 5,000 to 40,000 board feet an acre ranged only from 12 to 100 trees to the acre indicates that good yields may be expected from the second growth stands, and at considerably earlier ages than those of old-growth areas.

Second-growth white pine in the Northeast is now bringing an average of about $14 a thousand on the stump, and there is every evidence that stumpage prices in the Great Lake region will in not very many years prove so favorable that second-growth white pine will be recognized by lumbermen and farmers alike as a crop worth far more than the cost of the protection and care necessary to secure its best development.

PAPER PRODUCTS

COMPETITION AND THE BRAND NAME

The Value of a Brand Name Explained as regards Competition—New Ideas Expressed

By J. E. WILLERT

GIVE me a pound of coffee. It is not so long ago when we wanted a pound of coffee this is what we said, in fact we wanted a pound of sugar, a pound of soda crackers, we said so, not so now, it is a brand we want. If it is coffee a coined name or the name of a hotel, if it is sugar it is a mask or the name of some creature of our own creating, if it is crackers, we are told of our need or issued a command.

So it is all down the long line of food products, clothing, shoes and household necessities, every age, all literature, are called on to furnish the name of a brand.

There are two kinds of competition, destructive and constructive.

Destructive competition is that which seeks to reduce a price in order to obtain the purchase. To do this a degeneracy of quality has to take place as the competition is continuous, the limit of reduction of profit and cost of production is reached and, naturally, this degeneration has to begin. Quality is thrown away and the selling of price and terms begins.

Constructive competition is that which attempts to gain business on a basis of quality backed by responsibility, the inculcating of the public mind with a fixed idea of the distinctiveness of the merchandise, its superiority over competing merchandise and its ability to better perform the task for which it was made.

The introduction of the Brand came at an opportune time, destructive competition was in full sway, quality was degenerating, ingenious wholesalers were offering premiums of all kinds to the retail dealer to draw his trade and direct his mind from the reduced quality.

The people were the sufferers, at this time pure food laws were being introduced into the legislatures checking the degenerating of food stuffs, but other articles of trade could not be reached.

The coming of the brand at this time changed the whole method of competition, self expression in merchandise appeared, first in food stuffs, then in clothing, shoes, etc., and then through the whole realm of commodities, eating into every phase of commercial life.

Constructive competition took charge with the coming of the Brand. A branded commodity must have backing, the maker's name must appear on it and appearing it becomes the guarantee of the quality, therefore quality must be supreme that the dignity and honor of the maker be maintained.

A new style of competition, the intense effort to improve the grade, untiredness to increase the service, attractiveness—a great aim.

A proclamation of the several virtues of every brand must be sent forth, the creative minds of advertising men were brought into play, every art is now used to impress the public mind with the goodness of every man's product.

This is good. It compels a maintenance of quality, an extension of service and a continuous effort to improve.

There is in such a condition a temptation for some makers to produce a commodity branded with a name, which has in its cadence the same sound as the original, this deception however, is soon discovered by the public and the attempted deceit soon redounds to the benefit of the responsible maker.

Brands and watermarks have entered into the paper field and are being advertised freely, the trade at large is benefited, a splendid help to the jobber, to the printer and to the consumer.

There is danger of a multiplicity of brands bringing about a confusion in the buyer's mind. A few brands thoroughly concentrated on are great order bringers.

The question of whether a jobber should sell his own individual brands or should handle only the nationally advertised brands is one for solution.

It is accepted that every jobber has his own clientele who have complete confidence in him and will take his guarantee as the last word in quality but, on the other hand, there steps in the getting of new trade who are impressed with the national brands, this condition far outdistances the advantage that there may be in individual brands.

A national brand backed by a jobber's guarantee is a combination that cannot be beaten.

The brand has come to stay, the jobber is helped, the retailer benefited and the consumer satisfied.

Quality cannot be cut, consumption is increased and prices are maintained at a proper level.

Constructive competition is based on quality plus brand and Brand is based on the responsibility of the maker, whose success is entirely dependent on his maintenance of quality.

* * *

Talk of Association

Much favorable comment is being made on the organization of an association of American Paper Specialty Manufacturers.

Many jobbers have expressed the opinion that this was a splendid step for this particular branch of the paper industry to make.

A center of information both for the jobber and manufacturer will be of valuable assistance.

Paper Specialties need distinct attention.

VORTEX COMPANY IS WINNER OF SUIT

For the past year, the United States District Court at Buffalo, Honorable John R. Hazel, District Judge, has had before it the case of The Vortex Mfg. Co., of Chicago, versus the F. N. Burt Company, Ltd., of Buffalo, N. Y.

This case, that is of interest to the entire drink-dispensing industry, has just been decided by Judge Hazel in favor of The Vortex Mfg. Co.

The Vortex concern brought suit against the Burt Company for an alleged infringement of the Vortex re-issued patent No. 15,381, covering the blanks used in making the Vortex paper cups.

The Burt Company, according to the decision handed down by the Judge, "entered the field with its paper cone cup in 1918." It was not until the latter part of 1922 that the Vortex Company, failing to dissuade the Burt Company by peaceable means from making a paper cup in a closely similar manner, decided to appeal to the courts.

In its defense, the Burt Company sought to establish four points justifying its action in imitating the Vortex Cups. Judge Hazel, in the decision just rendered, declares that none of these points has been established by the pleading of the Burt Company.

In conclusion, Judge Hazel says, "In my opinion—the structure manufactured by the defendant company (Burt) is an infringement. A decree for the plaintiff with costs."

Charles W. Hills, Sr., Chicago patent attorney, who represented The Vortex Company in the suit, is authority for the statement that the decision broadly holds validity of the Vortex re-issued patent and the infringement of the claims in suit.

"Every one of the seven claims involved in the litigation was sustained as valid and infringed," said Mr. Hills.

The Vortex Mfg. Co., is now bringing out several new products. It is also making improvements in its present line of cups, at no increased cost of manufacture. These products should be favorably received by the drink dispensing trade.

* * *

Take on New Line

The further activities of the enterprising firm of Meikle & Wood, Baltimore, Md., will be employed in the interests of the American Paper Forming Co., manufacturers of Diamond A Paper Plates, for whom they will act as Sales and Distributing Agents in Pennsylvania, Maryland and Virginia. The lines handled now by this firm are,—

Menasha Printing & Carton Co.
Robertson Paper Co.
Green Bay Paper Napkin Co.
North End Paper Co.
Consolidated Paper Bag Co.

* * *

Mr. Arthur W. Blackman, President of D. F. Munroe Company, Boston, has just returned from a thirty day trip through the West Indies.

They Heeded It

In the February issue of *The Mail Bag* there is a splendid article entitled, "The He-Man Hint They Heeded." It tells of one W. O. Ben Johnson, superintendent of the Woronoco Mills, and his many activities. Not satisfied with being superintendent, he is acting postmaster, moderator of town meetings, lecturer at the High School, leader of the men's glee club, Mayor of the town, and several other jobs. During the war he was fuel administrator, liberty loan chief, and a whole lot of things.

Being elected secretary of the Hampden County Traffic Association and finding laxness in meeting attendance, he sent out a letter which we give herewith.

Traffic Mgr. and Brother Member:

Please pardon my frankness, but on account of lack of space you will realize necessity.

Why don't you attend meetings of your Association?

Is it because:

You have no traffic problems to solve?

You are proficient to the extent of needing no assistance?

You are familiar with all changes in classification, rates, routes, demurrage, and a hundred other things?

You feel individual action more efficient than united effort in filing protest relative to these changes?

You think your Association can accomplish nothing?

While I do not advocate our Association knows everything, I do say frankly that the combined knowledge of its members far exceeds that of any one of us.

No matter how much or how little you know, we need you and you need us.

To my mind there is only one thing that should cause your absence, viz., lack of time. If such is the case, send an understudy as he will be heartily welcome.

What we want is full attendance at our meetings, and with this everything else will follow.

Please write me as frankly as I have written you.

Yours very truly,
Hampden County Traffic Association.

'Tis some letter, written in a language understandable, and it brought results. As *The Mail Bag* states, the business world can stand a lot of letters that don't need an interpreter to find out what they are getting at.

* * *

New Plant Started

A new plant for shredding of paper for packing purposes has been established in Appleton by William Harrison. He has taken possession of a building near the foot of John Street hill. Paper is purchased from the Appleton mills. The shredding is done by a new machine which he has just installed.

* * *

Hold Open House

The Victory Bag Company of Marinette, Wis., recently held open house at its plant inviting the general public to inspect conditions and become more familiar with the work done. Tours through the plant were conducted at 2:30 and 3:30 p. m. Many visitors took advantage of the invitation and remarked at the cleanliness and neatness of the girls employed. The purpose of the movement was to impress on the public the favorable working conditions provided for employes.

Twiller Sales Talks

Irresponsibility and disaster are pals. Be responsible, success goes with it, they are twins.

* * *

Don't be a Niagara in your talk be a Niagara in your power.

* * *

Discover yourself first and then cultivate what you discover.

* * *

Look a fact squarely in the face, make friends with it, then it will work for you.

* * *

When you start to build something stay with it till you shingle the roof, then live in the house you've built.

HEARING SOON ON NEW RATES

Many Paper Companies Join In New Protest

PROTESTS have been lodged with the Public Utilities Commission of the State of Maine by the Maine pulp and paper mill interests against the increase in freight rates of the Maine Central Railroad on pulpwood.

The Public Utilities Commission has ordered a hearing on the protest for next week, at the State House at Augusta. It is probable that the greater part of the pulpwood industry of the state will be represented at this hearing.

The new rates became effective on February 5. The rates were promulgated by the railroad, it is alleged, without an advance notice of sufficient length to permit the filing of a protest or a request for a hearing.

The pulp and paper petition alleges that the railroad has, within recent years, made three heavy advances in the rates on pulpwood and that the further increase is made in the face of a decrease of ten per cent in operating costs of the railroad since the close of the war, hence the rate raise is not justified.

Joining in the petition to the Public Utilities Commission are the following concerns: Oxford Paper Company of Portland, the S. D. Warren Company of Cumberland Mills, the Eastern Manufacturing Company of Bangor, Orono Pulp & Paper Company of Orono, Penobscot Chemical Fibre Company, Advance Bag & Paper Company of Howland, Poland Paper Company of Mechanic Falls, Maine Coated Paper Company of Rumford, Nekonegan Paper Corporation, Pine Tree Pulp Company, Keye Fibre Company, Skowhegan Paper Company of Skowhegan, Androscoggin Paper Company, South Windham, Gilman Paper Company, Cushnoc Paper Company of Augusta and the Kennebec Paper Company of Skowhegan. In addition to those signing the petition, representatives of other paper and pulp companies will be present.

* * *

Paper Company At The Helm

When the "All For Colorado" Association was mentioned as a good thing to make better business conditions and feeling throughout the entire state of Colorado, the suggestion coming from the Colorado Editorial Association, the Butler Paper Company, of Denver, was one of the first to sign on the dotted line. The purpose of the association is to make the folks in the small town feel that they are as much of the business of the state as those in the larger cities. THEY ARE.

Paper Men at the Exposition

The annual carnival of the Colorado Merchants and Manufacturers Association was held in the Denver municipal auditorium during the week of February 18-23. There were upward of two hundred exhibits.

Myers Pulp and Paper Company's booth with a large bundle of scrap paper had a card sign alongside: "Save your waste paper. We use this in the manufacture of paper products."

On the front railing was a pyramidal form which showed the pulp in various stages, and a booklet of 20 pages, spread out, each leaf a sample of the different kind of card board made by the company, the caption of the book "A Sample of Our Products."

Next booth was that of the Inland Paper Box Company, of Denver, its exhibit consisting of the various shapes, sizes and colors of paper boxes. Very natty.

Adjoining the Inland was the booth of the Continental Label Folding Box Company, Denver, and if color photography was practicable, a photograph of that booth was worth anyone's attention.

From scrap paper to beautiful boxes and gorgeous labels, the story told within a few feet of space, yet how wonderful has the paper industry and kindred arts kept pace with all other arts and crafts.

* * *

Short Newsy Items

The Western Paper & Envelope Company has been incorporated in Long Beach, Cal., with a capital stock of $220,000, by Bert P. Boles, J. Q. Garwood, H. F. H. Schneider, Frank H. Jaques and Leigh A. Hume.

* * *

The Burford-Bohlinger Paper Box Company has been incorporated in St. Louis, Mo., with a capital stock of $25,000, by Alfred P. Bohlinger, Jr., of St. Louis; Wesley C. Buford, Webster Grove, Mo., and others.

* * *

The Tennessee Paper Mills, Chattanooga, Tenn., is expending $75,000 on installation of steam power plant to increase the capacity of the plant from fifty to sixty tons of paper box material per day.

* * *

The Crystal Springs Bleachery Company, Chickamauga, Ga., is in the market for machinery for the manufacture of paper bags.

* * *

The New Orleans Corrugated Box Co., New Orleans, La., has let the contract for erection of a $12,000 factory building at Oleander and Bernadotte Streets.

* * *

The International Harvester Company has purchased the factory building of the New Orleans Corrugated Fiber Box Co., New Orleans, La., and will turn it into a tractor and implement house.

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Fire Destroys Warehouse

A fire of unknown origin destroyed the warehouse of the Grimes Waste Paper Company, 11th and Wynkoop Streets, Denver, Colorado, on the night of February 16. Loss about $10,000.

* * *

To Use Old Paper Mill

The old plant of the Denver Factories Company, an old paper mill, located right along the railroad at South Kalamath and Mississippi Avenue, Denver, Colorado, has been purchased by a new incorporation, the Colorado Central Railways Company, and after alterations the new concern which is a branch of the Missouri Car company of St. Louis, will manufacture both steam and electric railway cars.

OFF GOES THE LID FOR CONVENTION

First Announcement Made for Annual Superintendents' Conclave

THE General Committee of The American Pulp and Paper Mill Superintendents Association, reports that the arrangements for the coming convention, which will be held at the Miami Hotel in Dayton, Ohio, May 22, 23 and 24, 1924, are practically completed.

There will be some worth while doings all the time. Superintendents are warned to be prepared for three of the largest and busiest days of their lives.

The program will be replete with information and knowledge of the art of Pulp and Paper making, and the papers on subjects of vital importance to the Superintendents will be written and given by the ablest man, in and out of the industry.

There will be entertainment and dinners in the evenings as usual. Special provisions have been made for the entertainment of the ladies.

Hotel accommodations have been reserved in the leading hotels of the city, and members who expect to attend are requested to send for their resevations early, to the Chairman of the General Committee.

"COME ON. LET'S GO. There is going to be a surprise in store for you at sometime during the convention, that you cannot afford to miss," says the General Committee to all Superintendents.

Here is the complete membership of Committees who are working for the success of the convention:

General Committee — H. W. Server, Chairman, (The Miami Paper Co., West Carolltin, Ohio), F. R. Henry, John J. Maloney, B. T .McBain, Homer D. Martindale, Thos. E. Keogh, Tom Harvey, Michael Ludwig, Jr., Henry F. Obermanns.

Arrangements—Dr. F. R. Henry, Chairman, (The A. A. Simonds-Dayton Co., Dayton, Ohio), H. G. Funsett, Al. O. Rolfe, Adam Ritz, William Battles, Benj. Bishop, Homer H. Latimer, John A. Tully, and R. F. Englehart.

Reception—John J. Maloney, Chairman, (The Franklin Coated Paper Co., Franklin, Ohio), Dan Daverin, Can. Div., B. T. Larrabee, N. E. Div., F. L. Barstow Conn. V Div., M. J. Argy, No. N. Y. Div., Chas. Aull, Miama V Div., J. F. Yordy, Miama V Div., E. H. Gilman, Mich. Div., Chas. E. Raney, West. Board Div., Jos. H. Slater, N. W. Div.

Resolutions—B. T. McBain, Chairman, (Nekoosa-Edwards Paper Co., Port Edwards, Wis.), S. F. McHenry, Can. Div., B. T. Larrabee, N. E. Div., John J. White, Conn. V. Div., H. Stafford, No. N. Y. Div., L. T. Murphy, Miami V Div., E. H. Gilman, Mich. Div., C. E. Nicely, West. ~~Board Div. and~~ L. E. Smith, N. W. Div.

Registration — Homer D. Martindale, Chairman, (The Shartle Bros. Machine Co., Middletown, Ohio), E. D. Burgess, Can. Div., B. M. Betrie, N. E. Div., T. F. Rogan, Conn. V Div., F. J. Rooney, No. N. Y. Div., John J. Maloney, Miami V Div., George Pountain, Mich. Div., Claude Nicely, West. Board and John Hercher, N. W. Div.

Transportation—Thos. E. Keogh, Chairman, (The Peerless Paper Co., Dayton, Ohio.), W. T. Schenk, John Calder, Martin V. Brooks, Jos. M. Cathcart, W. W. Winship, J. Howard Stansell, John F. Yordy, G. S. Martindale, Fred Belden, C. H. Noble and Fred Leuders.

Visitation — Tom Harvey, Chairman, (The Gardner-Harvey Paper Co., Middletown, Ohio.), Al. O. Rolfe, Michael Ludwig, Jr., Frank Smith, C. E. Goodenough, Oscar N. Jones, L. T. Murphy, Jack Smith and Michael Redmond.

Press Committee—Thomas J. Keenan, PAPER, L. D. Post and John Cornell, *The Paper Mill & Woodpulp News,* A. A. Tanyane, *The Paper Trade Journal,* E. Scott Dowd, the *Paper Industry.*

Paper—Larry Collins, *The Dayton Journal,* Frank Hunt, *The Dayton News,* Ednor M. Rossiter, *The Dayton Herald.*

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GENERAL ELECTRIC GIVES 48 AWARDS

Charles A. Coffin Foundation Honors Employees for Meritorious Service

FORTY-EIGHT employees of the General Electric Company, scattered through factories and offices all over the United States were given awards of money and certificates by the Charles A. Coffin Foundation in recognition of outstanding services performed during 1923.

The winners comprise ten shop men, ten foremen, sixteen engineers, six commercial men, five administrative employees and one woman—a stenographer in the Pittsfield works. One of the groups, W. B. Cordes, is marine superintendent in the New York office and a frequent contributor to PAPER. He is given an award for quick action in preventing one of the new electrically propelled municipal ferryboats from running into collision with the slip during the official trials of the vessel.

The forty-eight were selected with the greatest care from among 80,000 employees of the General Electric by a committee of officials headed by President Gerard Swope.

William Le Roy Emmet, a consulting engineer, is one of the recipients through his development of the mercury boiler. The most notable achievement among the foremen was that of Louis E. Mitchell and Arthur J. White of the National Lamp Works in Cleveland in perfecting apparatus for the manufacturing of tipless incandescent lamps.

W. J. Delahanty, a salesman attached to the San Francisco office, was awarded for putting in four days and nights untangling a power plant damaged by a short circuit. John B. Cox, field engineer of the railway engineering department, won an award in connection with the electrification of the Mexican Railway, and Oliver J. Nichlaw, of the contract service department, on electrical installations in India.

These awards mark the completion of one year's work of the Charles A. Coffin Foundation, established by the General Electric Company in May, 1922, as a tribute to one of the founders, who for a long time was president of the company.

* * *

Control of Blister Rust

Control of white-pine blister rust, a disease which is a most dangerous forest enemy, is necessary if the white pine industry is to be perpetuated in the West, where the disease is already present. Simple and practical methods are available to any pine owner in the Eastern United States which enable him to safeguard his pine from the disease, says the United States Department of Agriculture, and vigorous action is required to develop and apply measures that will minimize the damage in the West.

* * *

Box Company Established

The Fall River Paper Box Company has been established at 1831 Pleasant street, Fall River, Mass., and as soon as machinery is installed, will commence the manufacture of paper boxes. Alexander Shapiro is proprietor of the new company.

SALESMEN TO GATHER APRIL 8

Agitation Starts to Make the Annual Meeting a Big Success

THE most important convention in the history of the Salesmen's Association of the Paper Industry will be held in New York April 8, when the salesmen of the industry will take up problems of the greatest importance to the American mills.

Following up the campaign originated by the American Paper and Pulp Association for the restriction of abuses of the customs laws by the importers of foreign paper, the Salesmen's Association at the Monday meeting which discussed convention plans decided to devote much of the convention program to this matter.

"This, I regard as the most important question before the industry today," said President J. L. Fearing, addressing the Salesmen, "and the Salesmen's Association can do no bigger thing than to get aggressively behind the movement to stop the improper importation of foreign paper."

The American Paper and Pulp Association has been continuing the efforts to restrict violations of the customs acts, the import conference in November being devoted entirely to this important movement. When Warren B. Bullock, who has been assigned to investigate customs cases on behalf of the American Paper and Pulp Association, became temporary secretary of the Salesmen's Association one of his first steps was to have Dr. Baker, executive secretary of the American Paper and Pulp Association, take up this matter with the Salesmen's Association, in an effort to secure the co-operation of the salesmen in the parent organization's work on this problem. The result is the decision of the Salesmen's Association to make the import problem its chief topic of discussion at the coming annual convention.

* * *

Swedish Pulp and Paper Prices

Prices quoted on woodpulp in the Swedish market at the end of the first two weeks in December, according to a report received from Consul General D. I. Murphy, at Stockholm, were as follows: Bleached sulphite, first quality, 250 to 285 crowns; easy bleaching sulphite, 205 to 225 crowns; strong sulphite, 180 to 200 crowns; strong sulphate, 180 to 195 crowns; wet mechanical ground wood, 55 to 65 crowns. All prices f. o. b. per metric ton, Swedish port. While a number of changes have occurred in woodpulp prices, quotations on papers remain the same, kraft wrapping ranging in price from 280 to 580 crowns; and M. G. sulphite from 340 to 540 crowns, according to quality. Greaseproof and newsprint papers are quoted at 450 crowns and 280 crowns, respectively. Swedish crown=$0.2621 at present rate of exchange.

* * *

Large Production of Newsprint

Starting the first manufacture of paper in the Maritime Provinces on any large scale, the new mill at Bathurst, New Brunswick, shipped to the United States in the quarter ended December, 1923, newsprint paper valued at $215,508. As the mill only commenced operations during the latter part of the year a much larger amount will in all probability be exported during 1924. It is understood that the company imported some pulp from Newfoundland mills. (Consul G. C. Woodward, Campbellton, New Brunswick, January 24.)

* * *

He—The engine seems to be missing, sweetheart.

She—That's all right, dear, it doesn't show.

Some Sulphite Mills Calculations

(Continued from page 13)

From the analysis, this is 98.5% of the final dry volume, which is therefore $\frac{261}{0.985} = 265$ cu. ft. From Fig. 3, the volume % of dry gas saturated at 68° is 97.5%; the volume of saturated gas leaving the system is therefore $\frac{265}{0.975} = 271.5$ cu. ft. per minute.

(b.) From Fig. 3 this gas carries 0.001 pound of water per cubic foot, or 0.27 pound per minute.

(c.) Partial pressure of SO_2 in gas entering system = 0.18 x 743 = 134 millimeters. From Fig. 4, the specific volume of SO_2 at 90°F, 134 millimeters pressure = 35 cu. ft. per pound. The weight of SO_2 in the gas is therefore $\frac{325}{35} = 9.3$ pounds per min.

(d.) From Fig. 2 the loss of SO_2 in the exit-gas is 7% of that entering the system.

(e.) The weight lost is 0.07 x 9.3 = 0.65 pound per minute.

The next article in this series is entitled, "Resistance to Fluid-Flow."

* * *

Conditions in Japan

As a result of the disaster offices, stores, warehouses and mills of firms dealing in "European" paper in and around Tokio were burned down. These were, however, restored within a month and able to meet the demand for "European" paper. This is the condition of the private companies, which, fortunately, suffered small damages.

One of the largest mills, however, the Government Printing Paper Bureau, suffered severely, its damages being roughly estimated at 2,000,000 dollars.

Earthquake Losses

We cannot know the exact amount of damage wrought by the earthquake, but from reliable reports we can make a rough estimate. The loss of European paper may be put roughly at 55,000,000 pounds, which amounts to 7,700,000 yen. This is rather smaller than it was generally supposed.

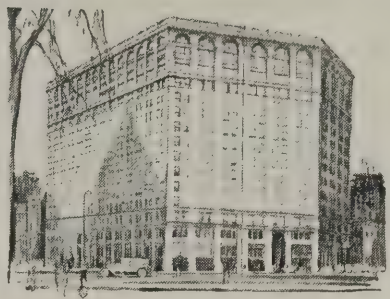
Although the loss was small, the settlement of fire insurance cannot be made, so the losses will be greatly felt. In fact, the paper manufacturing company and its agencies were unable to make use of checks, so there resulted a moratorium. Even for discounted checks, the banks had to postpone payments, so there was naturally great difficulty in the circulation of capital.

There was, however, between the first-class paper manufacturing concerns and their selling agencies a means arranged for the payment of checks issued, and the companies supplying merchandise to the agencies allowed a postponement of payment so that there will be a gradual restoration of credit conditions within a few years. So, although there seems to be such confusion in paper manufacturing circles at present, there is no need of being pessimistic about the future News Print Service Bulletin.

* * *

UNDERSTANDING is the first foundation stone of co-operative accomplishment.—*Trained Men.*

THERE MAY BE a wrong way of doing right but there isn't any right way of doing wrong.—*Mason's Monthly.*



New York Headquarters for Paper

IF you are making a buying trip to New York, begin at The Fifth Avenue Building. Here you will find the New York offices and salesrooms of the leading manufacturers, paper merchants, mill supply manufacturers, and mill engineers. It is a buying center for book and coated stock.

THE FIFTH AVENUE BUILDING
Broadway and Fifth Avenue
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"More than an office building"

The economic problem of securing an adequate supply of paper

THE book is of special interest to everyone connected with the pulp and paper industry and equally so to all users of print paper. It points out clearly what must be done to develop sufficiently our supply of pulpwoods. It shows the steps necessary in forest conservation and discusses the subject from the practical viewpoint of industrial needs.

Pulpwood an Wood Pulp in North America

By ROYAL S. KELLOGG

Author of *Lumber and Its Uses, The Cost of Growing Timber, The Timber Supply of the United States,* etc.

270 pages, 6x9, 87 illustrations, $4.00 (*English price 20s.*) *net, postpaid*

The book describes the pulpwood industry, the processes of making paper pulp from wood, the timber supply of North America, the need for increased timber production and the future possibilities of the pulp and paper industry. Detailed statistics of production and consumption since the establishment of the industry are given in the appendix and shown in the text by means of graphic charts of unusual effectiveness. The book also carries many illustrations typical of mill operations and forest scenes.

Do You Know

That 100 million cords of pulpwood have gone into paper in the United States and 30 million cords in Canada?

That paper-making is a billion-and-a-half-dollar industry in North America?

That a permanently self-contained operation for the manufacture of 100 tons of news print paper daily may require the equivalent of an investment of $10,000,000?

That the United States and Canada produce and use as much paper as all the rest of the world combined?

That the per capita consumption of paper in the United States is 150 lb. yearly?

How much pulp may be made from a cord of wood?

How much pulpwood and wood pulp has been exported from Canada?

How much pulpwood and wood pulp has been imported into the United States?

What are the pulping properties of 70 species of American woods?

What are Forest Regions of North America?

How much and what kinds of timber there are yet left in the various regions of the United States and Canada?

How much forest land in North America is publicly owned and how much privately?

What regulations apply to timber cutting in the public forests?

What are the essentials of a forest "Working Plan"?

That forestry is the application of definite scientific principles to the growing and using of timber crops?

What it costs to grow timber?

Who is responsible for the maintenance of the timber supply of the United States and Canada?

What are the essentials of a National Forestry policy?

That without forestry there is no adequate, permanent supply of paper and other wood products in America?

That there is no sense in delaying the effort to maintain the American timber supply on the false assumption that we can turn to any other part of the world for any considerable part of the wood products essential to our well being?

Read This List of Chapter Headings

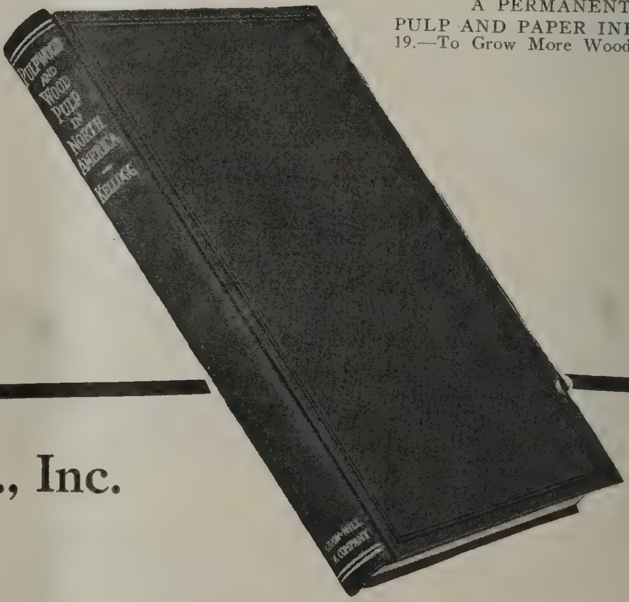
Part One
WOOD PULP
1.—Recording Materials
2.—Processes
3.—Consumption of Wood Pulp in North America

Part Two
PULPWOODS
4.—Logging
5.—The Unit of Measurement
6.—Pulpwood Grades
7.—Pulpwood Used in North America
8.—Properties of American Pulpwood

Part Three
TIMBER SUPPLY
9.—Forest Regions
10.—What We Have
11.—Forest Ownership

Part Four
TIMBER PRODUCTION
12.—The Need for Forestry
13.—The Chance for Forestry
14.—The Methods of Forestry
15.—The Hazards of Forestry
16.—The Cost of Forestry
17.—The Responsibility for Forestry
18.—What Should Be Done

Part Five
A PERMANENT PULP AND PAPER INDUSTRY
19.—To Grow More Wood



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"Eastco" Bleached Sulphite is good pulp; it makes good paper. Furnished in Bales, Rolls or Laps as required. Write for Samples and Prices.

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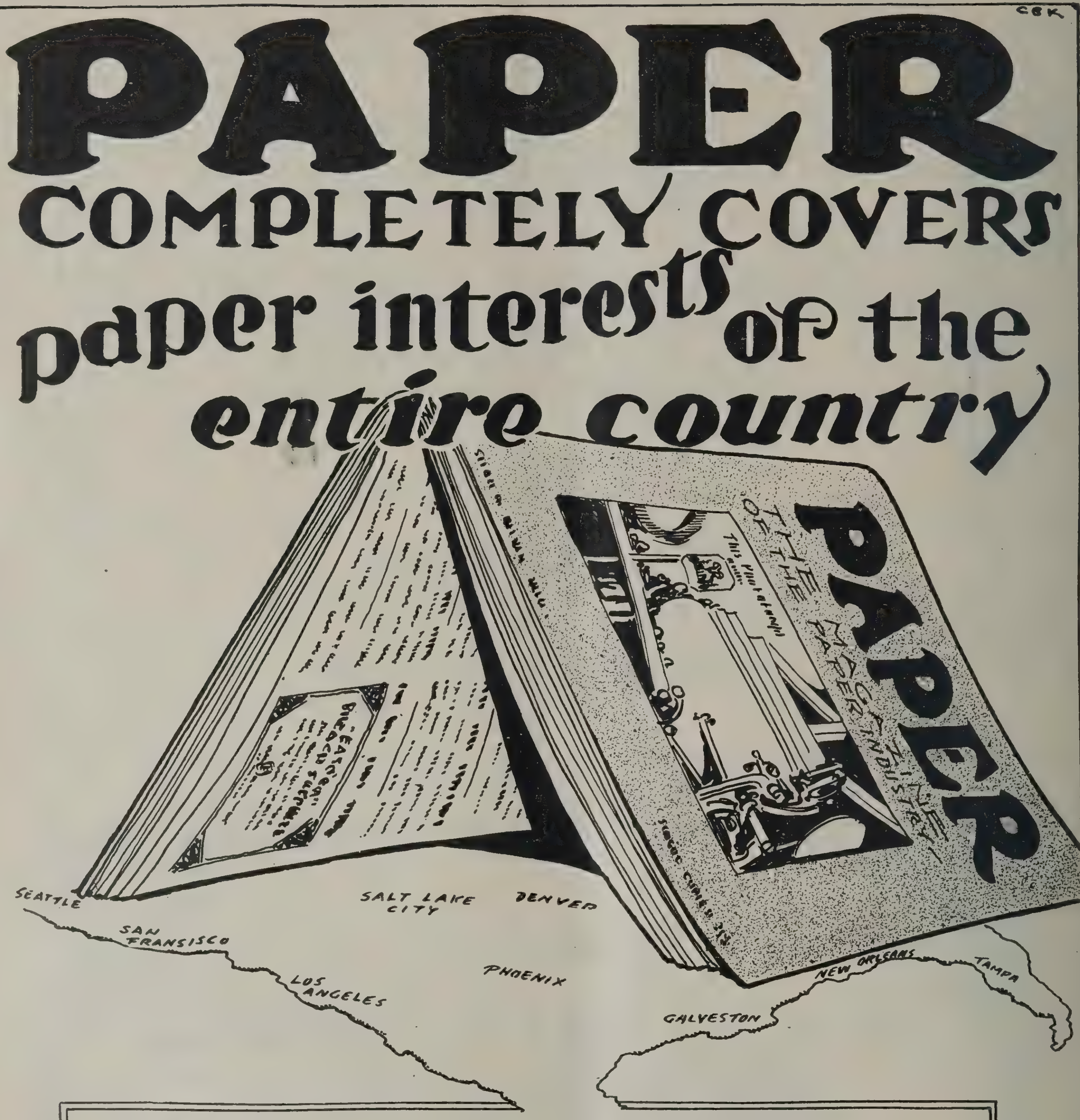

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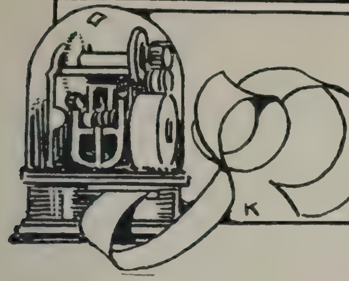

LATEST MARKET REVIEW

IMPROVEMENT SOON IN THE MARKET

Monthly Market Review Says Business Will Pick Up Shortly

FORECASTS of an improvement in business early in 1924 ,as compared with the late fall and early winter months have been made good," says the monthly market review of the Paper and Pulp Industry, the monthly bulletin of the American Paper and Pulp Association to its members.

"The year was hardly begun before there was a notable influx of orders in nearly every grade, and the business increased steadily throughout January. There was then a slight falling off in new orders, the immediate needs of the consumer having been met, such increased demand is still being felt. Some grades of paper are stronger now than at any time for months.

"Even in the grades which were slowest to feel the increased demand there has been evidence of a healthy iprovement in conditions. In book, for instance, while the volume of orders has not been remarkable, the number of small orders is reported by many companies as being the largest on record, though all for immediate delivery.

Late Market Quotations

(12 M. Tuesday)

	Bid	Asked
American Writing Paper Co. pref.	2½	2¾
International Paper Co., ...	37¼	37½
Union Bag & Paper Co., ...	60	61½

"Fine papers have been in good demand, and as a rule the demand is heaviest for the better grades. Kraft wrapping has been showing renewed strength, even on the sea board where the foreign competition has been most seriously felt.

"It is perhaps significant that the increased demand is largely coming to the mills from the interior markets, rather than from the coast points where many importers have evidently been seeking every possible means of evading the customs acts by improper classification of imports.

"The general improvement will doubtless be reflected to some extent in the January production figures of the mills. The improvement, however, will probably be shown to a greater extent in the production figures for February, when many of the orders received during January were being handled in the mills."

Brown Issue Stock

Hornblower & Weeks has announced the offering of $2,000,000 per cent cumulative preferred stock ($100 par value) of the Brown Corporation, incorporated under the laws of the Province of Quebec, at a price of 98½ and accrued dividend to yield about 7.10 per cent. The stock is callable at 105 and accrued dividends, and dividends are payable quarterly in United States gold coin.

The Brown Corporation, formed in 1905, owns and operates a large modern sulphate pulp mill of 220 tons daily capacity and a lumber mill at La Tugue, Province of Quebec, Canada, representing a cash investment of more than $6,000,000.

* * *

Now In Bankruptcy

The Northeastern Paper Company of Cambridge, Mass., has been formally petitioned into bankruptcy by three creditors. The claims are small. The Metropolitan Filling Stations claim is $487.22; the Garden City Press of Newton, Mass., for $1500 and the George W. Prescott Publishing Company of Quincy, Mass., of $71.76. The company formerly occupied the Morey & Company building. It recently vacated the premises and D. DeStafano Company, Inc., is now occupying the building as a paper warehouse with Morris Driscoll as manager.

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With over 20 years of practical experience in the wire business, we started our present plant six years ago and in spite of the adverse conditions of the paper industry, we have brought our production up to over half million sq. ft. per year. We are constantly adding to our list of satisfied customers. We are making special weaves, seams and edges for all paper making purposes.

Write us for prices and samples

GREEN BAY
WIRE WORKS
GREEN BAY
WISCONSIN

BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.75 @ .80
Manila No. 1	.70 @ .75
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	45.00 @ 50.00
Chip	42.50 @ 45.00

Paper and Board

New York, March 4—Business in most kinds of paper continues to develop in a consistent manner and in fair volume. The demand is still somewhat lopsided; that is, some descriptions are in good movement toward consumers whereas other classes of paper are experiencing comparatively quite market conditions. There is as yet little disposition evinced by buyers to operate on other than a very reserved scale; currnt orders are almost entirely against immediate requirements, and a percentage of consumers are managing to get along with contract commitments in such a way as to preclude any additional purchasing of importance for spot shipment.

The industry as a whole is marked by activity of a scope which can be correctly designated as better than normal, certainly much above what was regarded as normal in pre-war days. At the same time demand for some kinds of paper is not of sufficient volume to provide capacity work for all of the mills of the country. There are some groups of paper mills which are in want of orders and which are exerting such effort as they can to stimulate buying. This means of course that price concessions are being offered and granted to buyers in certain cases; consequently the price tone in some classes of paper is none too steady. Trere are other papers which are in active demand, with the call for supplies running neck and neck with the production, and with manufacturers therefore securing firm market prices without any difficulty whatsoever.

Newsprint continues to lead all other kinds of paper in point of volume of demand. Publishers are absorbing print paper in a steady way and are using supplies in heavy amounts. In fact, judging from the size of the issues New York newspapers are printing each day, newsprint consumption is holding to the high level reached during the past half year and is probably increasing slightly. Advertising in the daily press is establishing some new records, and publishers are finding it necessary to frequently omit many columns of advertisements from their issues.

Newsprint production in the United States in January showed a substantial jump over the December output, amounting to 128,772 tons, compared with 117,790 tons in the final month of 1923. Shipments from mills totaled 123,253 tons in January, against 116,826 tons in December, which means that manufacturers shipped out paper in tonnage close to their production during January. Canadian mills produced 109,875 tons of newsprint in January, against 95,726 tons in the preceding month, while mill shipments totaled 107,966 tons, contrasted with 100,624 tons in December.

The demand for book paper is along restricted lines and yet there are numerous signs of gradual improvement in this branch of the industry. Printers are mostly ordering as their needs develop but consumption of book paper is slowly though surely increasing, with the result mills are getting a little more business as time goes on. It is reported that book paper manufacturers in the Middle West are operating close to normal capacity, and those mills situated in the East are finding an outlet for about all of their current production, with operations on a fair ratio of full output.

Book paper prices have steadied to a pronounced degree. Instances are cited off and on of concessions being granted but it is noted that tonnage orders usually are involved in such cases, while manufacturers in general are maintaining quotations firmer than they were. Machine finished book is quoted at 6 to 6.25 cents a pound f.o.b. New York, with higher prices named on better qualities, and coated book is quoted at 8 to 12 cents per pound, depending on the quality.

Coarse papers are in moderate demand. It is true that consumers are seeking to fill their requirements in wrapping paprs with about the cheapest grade of such paper as is available, and imported kraft is displacing the domestic product in numerous consuming quarters, temporarily at least. Converters, however, are reported placing good business with domestic kraft mills, which keeps manufacturers fairly well engaged.

Fine papers are firm and the strong position of raw material—rag stock in particular—is creative of a rising tendency in bonds and ledgers, especially the higher grades. Demand is developing in a satisfactory way insofar as its steadiness is concerned, and the volume is of normal dimensions.

Box boards are in routine movement with demand gradually expanding as the spring season draws near. Prices are somewhat irregular owing to competition among manufacturers, and plain chip board is quoted at about $42.50 in a majority of cases f.o.b. New York, and news board at $45.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.75	@	.80
Manila No. 1	.70	@	.75
White No. 2	.70	@	.75
Colored	.80	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.00	@	6.50
No. 2 Fiber	5.00	@	5.50
Card Middles	4.00	@	4.50
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	50.00	@	55.00
Binder Boards	80.00	@	85.00
Chip	42.50	@	45.00
Manila Lined Chip	65.00	@	70.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

It is quite apparent that offerings of mechanical pulp by producers and importers have decreased in number and volume the last few days. This reflects the less favorable weather conditions experienced by grinders, and is naturally creative of a firmer price undertone in groundwood. No advance in market levels has been noted but sellers are much more insistent on receiving the prices asked, and not so many instances come to light where groundwood is bought at concessions.

Domestic grinders are reported securing $35 to $38 a ton f.o.b. pulp mills for spruce groundwood for prompt shipment, and in cases where consuming plants are situated faily close to producing points and a low freight is involved up to $40 has been reported paid. Imported groundwood is selling in New York at $33 and $34 a ton ex dock at this port, and importers in common are quoting $35 though most transactionsa re slightly under this price.

Foreign and Domestic Chemical Pulp

Prices of some kinds of chemical pulp display a strengthening tendency. Importers and domestic producers put much stress on the prevailing level of pulp values, it being contended that pulp is being sold at below the cost of production in this country and under the replacement cost abroad, which condition has somewhat of a steadying influence on prices. At the same time available supplies are large enough to keep market levels from rising notwithstanding that demand is developing in better volume than in several months.

Kraft is probably characterized by a firmer price tone than any other kind of pulp. Manufacturers in Sweden are quoting, as a unit, a minimum of 2.50 cents per pound landed American ports for No. 1 kraft, and importers say that any sales that are made in this market at lower figures involve pulp which "distress" holders have been obliged to sacrifice. Sulphite is quoted irregularly, with prices on foreign strong unbleached sulphite ranging around 2.65 cents ex dock New York, on imported bleached sulphite from 3.75 cents upward on the dock, and on foreign easy bleaching from 2.75 to 3 cents ex dock. Quotations ex dock New York and f.o.b. pulp mills follow:

Sulphite foreign—			
Bleached No. 1	3.75	@	4.25
Unbleached No. 1	2.60	@	2.80
Unbleached No. 2	2.40	@	2.60
Easy Bleaching	2.75	@	3.00
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.60	@	3.00
Unbleached news grade	2.50	@	2.75
Easy Bleaching	2.75	@	3.00
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.60	@	2.90
Sulphite screenings, refined	1.50	@	1.75

Domestic Rags

There is much less excitement in the papermaking rag market than there was recently but demand continues active and prices seem to have steadied on well established levels with little or no sign of easiness in any quarter. Roofing rags are moving in a consistent manner although mills appear to be regulating their buying in such a manner as to have checked the upward march of prices. No. 1 roofing is bringing around 2.60 cents per pound f.o.b. New York, and No. 2 stock 2.40 cents. Old thirds and blues are exceedingly firm in price. Repacked blues are fetching 3.50 to 3.75 cents per pound New York, and miscellaneous pack-

Paper Testing Methods (1922)

A large edition of this handbook for paper mill laboratories was exhausted shortly after the type had been distributed. In view of the insistent demand the Technical Association has arranged for a republication and *Paper Testing Methods* is again available at $3 per copy.

The work covers detailed procedure for microscopical analysis, physical testing and chemical analysis of the paper with descriptions of the apparatus employed.

It is the only complete and up-to-date handbook on paper testing published in the English language.

It should be in the hands of every paper manufacturer and paper dealer as well as concerns who are large users of paper.

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ing has sold at as high as 3.25 cents f.o.b. this city. Old white rags are steady in demand and price, and it is stated that the best packings of No. 1 repacked whites have brought up to 9 cents a pound from writing paper mills. New cuttings hold firm and are moving in good amounts. Quotations f.o.b. New York are:

New Shirt Cuttings,		Overall Cuttings, Blue	9.25 @ 9.50
No. 1	14.00 @ 14.50	Washables	5.50 @ 5.75
No. 2	6.50 @ 6.75	New Black Mixed	5.00 @ 5.25
Fancy Shirt Cuttings	7.00 @ 7.25	Soiled Whites, house	3.50 @ 4.00
No. 1 Whites, repacked	7.50 @ 8.50	Soiled Whites, street	3.25 @ 3.50
No. 2 Whites, repacked	4.50 @ 5.00	Thirds & Blues, repacked	3.50 @ 3.75
White Lawns	11.50 @ 11.75	Thirds & Blues, misc.	3.00 @ 3.25
New Muslins, unbleached	12.00 @ 12.25	Black Cotton Stockings	4.00 @ 4.25
Light Silesias	9.00 @ 925	Roofing Rags, No. 1	2.60 @ 2.75
Black Silesias	5.50 @ 5.75	Roofing Rags, No. 2	2.40 @ 2.50

Imported Rags

Importers state there is a ready market among paper mills for practically all the supply of rags they are able to procure abroad. Conditions at primary sources are firming, and an important development is the report that France and Belgium have placed embargoes on the exportation of all kinds of rags, which is likely to lead to a further reduction in available supplies in Europe for American mills. Quoted prices on an ex dock New York basis follow:

Lins., White, No. 1	15.00 @ 16.00	German Linen, blue	5.00 @ 5.25
Ger. Blue Cottons	3.50 @ 3.75	German Linen, grey	6.50 @ 7.00
French Light Blues	3.75 @ 4.00	German S. P. F.'s	6.00 @ 9.00
New Light Prints	7.00 @ 7.50	German Light Prints	4.00 @ 4.50
New Unbleached	10.50 @ 11.00	Dk. Colored Cottons	2.40 @ 2.60

Bagging, Rope, Etc.

Old rope is moving steadily to paper mills and at firm prices, domestic manila rope of No. 1 grade fetching 6.50 to 6.75 cents per pound f.o.b. New York and foreign manila rope 6.25 to 6.50 cents. Old bagging is in better demand although chief interest is shown by roofing paper mills, which are paying about 1.50 cents per pound f.o.b. this city. Old strings are a firm item and are quoted by dealers at 1.30 to 1.50 cents a pound at shipping points. F.o.b. New York prices are:

Gunny No. 1	1.50 @ 1.60	Wool Tares, heavy	1.50 @ 1.60
Foreign	1.40 @ 1.50	For. Manila Rope	6.25 @ 6.50
Wool Tares, light	1.40 @ 1.50	Domestic Rope	6.50 @ 6.75
Scrap Bagging, No. 1	1.40 @ 1.60	Mixed Strings	1.30 @ 1.50
Roofing Bagging	1.35 @ 1.50		

Old Paper

Most grades of old paper are favored with at least routine demand and not much change is recorded in prices. There are several classes of stock, however, which are little wanted by consumers, and prices of these are tending downward. Shavings, for instance, are in a dull market position. New York dealers offer No. 1 hard white shavings at 3.75 cents a pound f.o.b. this city, and are securing few mill orders; while No. 1 soft white shavings are selling only in spasmodic fashion at 2.90 to 3.15 cents per pound New York, depending on the quality of packing. Folded newspapers are steady in price at 95 cents to $1 a hundred pounds f.o.b. New York, and old No. 1 mixed papers are finding a fairly broad outlet among box board mills at a price basis of 75 to 85 cents a hundred pounds New York. Old kraft paper is firm at 2.25 cents a pound f.o.b. this city, and ledger stock is selling at 1.85 to 2 cents a pound New York. Quotations f.o.b. New York follow:

No. 1 Hard White Shavings	3.70 @ 3.90	Ledger Stock	1.85 @ 2.00
No. 2 Hard White Shavings	3.15 @ 3.40	Kraft, No. 1	2.25 @ 2.35
No. 1 Soft White Shavings	2.90 @ 3.10	New Manila Cuttings	2.00 @ 2.25
Box Board Chips	.80 @ .90	New Manila Env. Cuttings	2.75 @ 3.00
No. 1 Colored Shavings	1.60 @ 1.80	Bogus & Mill Wrappers	1.00 @ 1.10
Magazine flat stock	1.60 @ 1.75	News, strictly overissue	1.10 @ 1.20
No. 1 Crumpled	1.30 @ 1.40	Folded News	.95 @ 1.00
Solid Ledger Books	2.00 @ 2.15	No. 1 Mixed Papers	.75 @ .85
		White Blank News	2.25 @ 2.35
		Common Paper	.55 @ .60

Twines

Demand for twines is along strictly routine lines and is marked by no feature. In fact, consumers are buying almost solely against direct requirements, and jobbers also are placing orders with mills principally to cover actual commitments. Prices are holding, due for the most part to the strong price tone in raw material. Quotations are as follows:

Sisal Hay, pure	14.25 @ 15.25	Jute Wrapping twine, A grade	20.00 @
Manila Hay, pure	16.25 @ 17.25	Papermakers Twine	11.50 @
Sisal Lath yarn	13.25 @ 14.25	B. C. Hemp, 18	.39 @ .40
Manila Rope, pure, ¾ inch diameter	16.25 @ 17.25	B. C. Hemp, 24	.38 @ .39
Hardware Rope	14.25 @ 15.25	B. C. Hemp, 36	.37 @ .38
Jute rope, ¼ diam. and over, coils	13.00 @ 14.00	America Light India—	
Sail twine, A grade	20.00 @	No. 6	14.50 @
		No. 7	13.50 @

Chemicals

Papermaking chemicals are in fair movement against contracts but new demand is slow to develop. Quoted prices are well maintained with no changes of importance noted.

NO IMPROVEMENT IN NORWAY PAPER

Hopes Entertained at Beginning of 1923 Unrealized

AT the beginning of 1923 hopes were entertained by Norwegian paper and pulp manufacturers that the year would bring an improvement in the position of the industry. These hopes have not been fulfilled, says Acting Commercial Attache H. Sorenson in a report to the Commerce Department. In paper and pulp circles the opinion now prevails that although production has been maintained at almost normal during the past year, the prices received have not permitted a reasonable margin of profit.

The year commenced well enough, with good sales and partly rising prices during the spring, but as summer approached a slackening both in paper and pulp took place, which continued during the remainder of the year. Only through the doubtful benefits derived from the depreciation of the Norwegian currency during 1923 have the factories been able to keep running in the face of falling prices. The paper and pulp export markets have also during 1923 been adversely influenced by the strong protectionistic trend in tariffs the world over. Nevertheless, the total volume of the pulp and paper exports during 1923 was only a trifle lower than that of 1915, which was a record year from an export point of view.

* * *

Reid Now Better

H. P. Reid, of Toronto, superintendent of the box making and printing department of Kilgour Bros., Toronto, who has been ill for some time, is making progress toward recovery and his many friends hope that he will be able to resume his duties in the not far distant future.

May Take Railway

Applications being made to the Ontario Legislature for an act of incorporation under the name of the Abitibi Railway and Navigation Co., for the purpose of acquiring the railway, works and assets of the Abitibi Transportation and Navigation Co., Limited, and for the construction of a railway from Iroquois Falls to Stinson, formerly Hughes station, in the district of Cochrane, and in a northerly direction from Stinson to the northern boundary of the timber limits of the Abitibi Co. The capital stock of the company will be two million dollars and the head office will be in Toronto.

* * *

Boivin Now in Ottawa

Louis Boivin, who for some time has been employed with the Abitibi Power and Paper Company, recently resigned to take up his residence in Ottawa. He is the inventor of a paper stock regulator which he has perfected after twelve years of work. This regulator is so much in demand that from now on Mr. Boivin will devote all his time to installing it in various mills.

* * *

C. O. Kuder is Dead

Charles O. Kuder, veteran employe of the Thilmany Pulp and Paper Company, Kaukanna, Wis., is dead at the age of 72 years. He has been in the Thilmany mill 37 years.

* * *

Kimberly-Clark Man Speaks

John Hooyman, who has charge of the safety first work for the Kimberly-Clark mills, spoke to the Lions Club on Monday on Safety and Its Application Everywhere.

INTERNATIONAL PAPER CLOSES TWO MILLS

Close Down Mills on Account of Overstocking, Company Announces

THE International Paper Company has closed down its two mills at Watertown, N. Y., on account of overstocking at the present time, Mr. Dodge, president of the company, announced. One of the plants produces ordinary newsprint and a higher grade of special print paper. The shutting down of the mills will not have any effect on the company, as they represent two minor and unimportant properties.

"The competition rendered by foreign manufacturers has not hurt the earning power of this company," Mr. Dodge continued. "Besides being engaged in the paper industry the company is also engaged in various fields which are productive. Earnings of the company in 1923 showed a sharp improvement over the preceding year, when a deficit of $4,715,797 was reported."

In connection with Mr. Dodge's announcement attention was drawn to the fact that the company recently increased the output of newsprint at its mill located at Three Rivers, Que., from 240 tons daily to 310 tons daily. A further increase is expected to be made shortly. The closing of the two Watertown plants shut off papermaking operations by the company in that sector. The company's third plant, that in Glen Park, has not been operated since 1921.

* * *

Chemists Support Plan

The Executive Committee of the American Chemical Society, which has a membership of nearly 15,000, has voted to support the Mellon tax reduction plan, it is announced by the treasurer of the Society, Dr. John E. Teeple of New York.

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USES OF LOCOMOTIVE CRANE BY PAPER CO.

Has Been in Service for Three Hard Years in Washington

THE accompanying illustration pictures the locomotive crane that has been working for the past three years for the Inland Empire Paper Company, Millwood, Washington. The service it has performed in this time is, perhaps, not in the least unusual for locomotive cranes, but a letter recently received from this company, signed by Waldo Rosebush, serves to further emphasize the economy resulting from applying mechanical means for the movement of materials. Mr. Rosebush says:

> "During the there years' service we have had from this crane it has been subjected to exceptionally hard usage. Not only have we used the crane for loading and unloading logs in sixteen foot lengths, from such sizes as the grapple would handle down to logs with but a six inch top, but we have used it in digging several thousand feet of ditch for water mains and sewers, the ditches ranging from tour to eighteen feet in depth and upwards of twenty feet wide at the top.
>
> "In addition to all of the above, we have, during the past two years, pressed this crane into switching service in our yards. More recently we have found this crane capable of driving piles as well as a regularly equipped pile driver."

Substituting machines for hand labor wherever possible is the one certain means of overcoming possible labor shortage, minimizing labor difficulties and, in the larger percentage of instances, radically reducing material handling costs. The crane illustrated here was built by the Link-Belt Company of Chicago.

Waste Paper In Building

A new building material made from waste paper and designed for ceilings and wall linings has been perfected by a Swedish engineer, and production on a large scale soon will be undertaken.

The raw materials are ordinary waste paper such as accumulates in cities, clay and sulphate lye, the cheapness of which warrants an inexpensive finished product. The covering is said to be fireproof and durable; can be applied by unskilled labor, will take paper, paint or stain, and can even be polished.

It is a good nonconductor, and does not respond to changes in temperature.

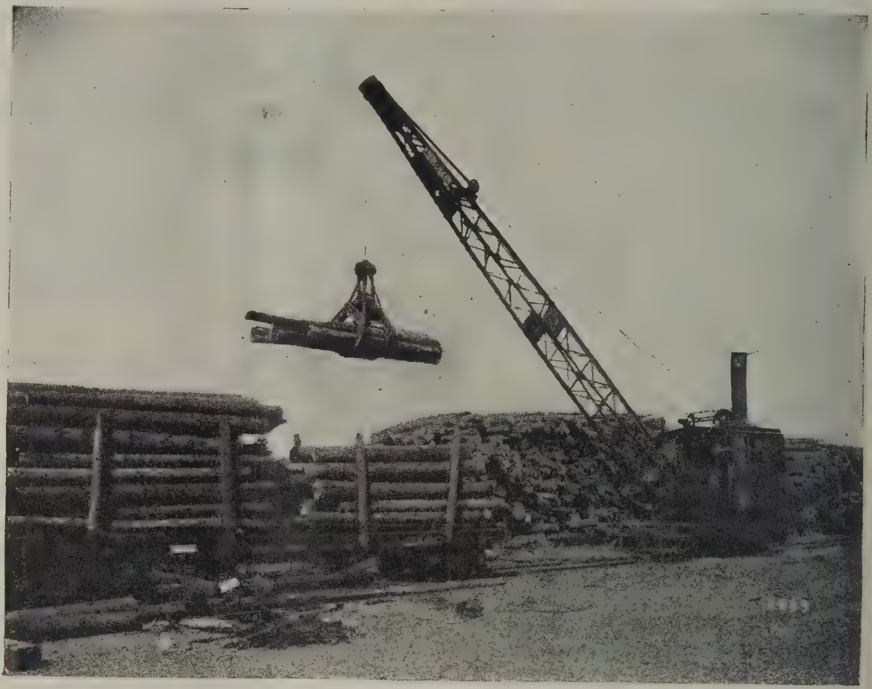
Continental Moves

On February 25th the Executive Offices of the Continental Paper & Bag Mills were removed to the 10th floor of the Pershing Square Building, Park Avenue and East 42nd Street, New York, N. Y. The new telephone is Murray Hill 8410.

* * *

To Change Name

The Eastman Paper Company on March 1, changed its name to Vandewater Paper Company, Incorporated. The officers, directors, management and location of this corporation will remain unchanged.



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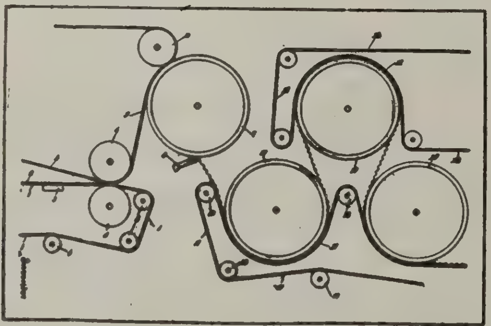

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Dill & Collins Co., 140 N. 6th, (soda fibre, paper), Philadelphia, Pa.
Jessup & Moore Paper Co., Com'l Tr. Bldg. (soda pulp), Philadelphia, Pa.
Parson Pulp & Lumber Co., (spruce bleached & unbleached sulphite pulp), Finance Bldg., Philadelphia, Pa.
Bare, D. M., Paper Co., (soda fibre, also paper), Roaring Spring, Pa.
Glatfelter, P. H. Co., (soda fibre, also paper), Spring House, Pa.
Carolina Fibre Co., (ground wood, dry, sulphite also paper), Hartsville, S. C.
Tenn. Fibre Co., (cotton hull, fibre, dry), Southern Ry & Linden, Memphis, Tenn.
Yellow Pine Paper Mill Co., (sulphite fibre), Orange, Tex.
Sugarland Pulp & Paper Co., Sugarland, Tex.
Ryegate Paper Co., (Pulp), East Ryegate, Vt.
Parks Paper Co., (ground wood), Fitzdale, Vt.
Groton Mfg. Co., (wood pulp), Groton, Vt.

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CLASSIFIED DIRECTORY—Continued

Columbian Paper Co., (soda fibre), Buena Vista, Va.

Hummel-Ross Fibre Corp., (sulphate pulp), Hopewell, Va.

Stamsocott Co., The, Inc., (cotton linter pulp), Hopewell, Va.

Virginia Carolina Tie & Wood Co., (wood), Norfolk, Va.

Chesapeake Corp., (papermakers' pulp), Westpoint, Va.

Washington Pulp & Paper Co., (ground wood), Port Angeles, Wash.

Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.

Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.

Combined Locks Paper Co., (sulphite fibre), Appleton, Wis.

Marshall Paper Co., (wood), Appleton, Wis.

Riverside Fibre Co., (bleached — unbleached sulphite fibre also paper), Appleton, Wis.

Ashland Paper Co., (spruce ground wood), Ashland, Wis.

Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.

Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.

Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.

Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.

Kaukauna Ground Pulp Co., Kaukauna, Wis.

Outagamie Paper Co., (ground wood), Kaukauna, Wis.

Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.

Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.

Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.

Medford Lumber Co., (wood), Medford, Wis.

Mellen Lumber Co., Mellen, Wis.

Island Paper Co., (sulphite fibre), Menasha, Wis.

Ewing Everest Pulp Co., (ground wood), Merrill, Wis.

Grandfather Falls Co., (ground wood pulp), Merrill, Wis.

Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.

Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.

Kimberly-Clark Co. (wood), Neenah, Wis.

Wisconsin Pulp Wood Co., Neenah, Wis.

Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.

Nekoosa-Edwards Paper Co., (ground wood sulphite fibre), Nekoosa, Wis.

Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.

Union Mfg. Co., (ground wood), Oconto Falls, Wis.

Elambeau Paper Co., (ground wood, paper), Park Falls, Wis.

Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.

Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.

Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.

Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.

Eldred, Anson, Co., (ground wood pulp), Stiles, **Wis.**

Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.

Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.

Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.

Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.

Angus Engineering Co., 10 Hanover, New York City, N. Y.

Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.

Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.

Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS

Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.

Dayton-Dowd Co., 307 York, Quincy, Ill.

Connersville Blower Co., Connersville, Ind.

Roots, P. H. & F. M., Co., The, Connersville, Ind.

American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.

Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.

Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.

Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.

Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.

Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.

BLACK-CLAWSON Co., Hamilton, Ohio.

Nash Engineering Co., South Norwalk, Conn.

McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.

Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES

Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.

Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.

Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.

Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia. Pa.

RAGS

American Woodpulp Corporation, New York.

Keller Co., Inc., E. J., New York.

CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill.

ROPE DRIVE

LINK-BELT Co., Chicago, Ill.

SCREENS

Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del.

Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.

Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.

LINK-BELT Co., Chicago, Ill.

Waterville Iron Works (pulp wood chip screen), Waterville, Me.

Union Machine Co., Fitchburg, Mass.

Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.

Jones, E. D. & Sons, Co., Pittsfield, Mass.

Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.

Orrman, H. L. (centrifugal), Dayton, Ohio.

BLACK-CLAWSON Co., Hamilton, Ohio.

Hendrick Mfg. Co., 75 Dundaff, Carbondale. Pa.

Scott, Olin, Est. of, Bennington, Vt.

Appleton Machine Co., (flat pulp), Appleton, Wis.

Eisner, L. H. (woven wire), Appleton, Wis.

Valley Iron Works Co., Appleton, Wis.

International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill.

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS

Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS

Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.

Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.

Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE

Paper

Vera Chemical Co., Stoneham, Mass.

Western Paper Makers Chemical Co., Kalamazoo, Mich.

McMeekam Mfg. Co., David, 1070 Pacific, Brooklyn, N. Y.

Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.

Ducas, B. P. Co., 11 So. William, New York City, N. Y.

National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.

Paper Makers Chem. Co., (combination), Easton, Pa.

Boley, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.

Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.

Simonds Mfg. Co., (Saw), Fitchburg, Mass.

Entwistel, T. C. Co., Lowell, Mass.

Garland Co., M., (Saw), Bay City, Mich.

Standard Machinery Co., (Slab), Owosso, Mich.

MURRAY Mfg. Co., D. J., Wausau, Wis.

Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.

Ryther & Pringle Co., (Pulp), Carthage, N. Y.

Co., (Cylinder; Hot Air), Cohoes,
Cohoes Iron Foundry & Machine
N. Y.

Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.

Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.

Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA

Pulp

Mead Fibre Co., The, (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SPLITTERS

Wood

Grace, C. M. & Co., Huntsville, Ala.

Ripley, Lewis R., Harvard, Mass.

Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.

Ryther & Pringle Co., Carthage, N. Y.

Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.

Multnomah Iron Works, Portland, Ore.

Scott, Olin, Est. of, Bennington, Vt.

Appleton Machine Co., Appleton, Wis.

Valley Iron Works, Co., Appleton, Wis.

Smalley Mfg. Co., Manitowoc, Wis.

SPROCKET WHEELS

LINK-BELT Co., Chicago, Ill.

STOCK REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

STONES

Wood Pulp

Pusey & Jones Co., (Kollergang), Wilmington, Del.

Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.

Lombard & Co., 238 A Street, Boston, Mass.

JONES Bros. Co., Boston, Mass.

Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.

Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.

Empire Pulp Stone Co., Empire, Ohio.

C. & M. Quarries Co., Marietta, Ohio.

Smallwood Stone Co., Steubenville, Ohio.

American Stone Co., Wheeling, W. Va.

JONES Bros. Co., Barre, Vt.

SUCTION BOX COVERS

Menasha Wood Split Pulley Co., Menasha, Wis.

SULPHATE MILL EQUIPMENT

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.

SULPHITE FITTINGS

EASTWOOD Wire Mfg. Co., Belleville, N. J.

SULPHUR

UNION Sulphur Co., New York.

SULPHUR BURNERS

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.

TRIMBEY Machine Works, Glens Falls, N. Y.

CHAIN DRIVE SILENT

LINK-BELT Co., Chicago, Ill.

TANKS

Settling & Pulp Thickening

Chicago Bridge & Iron Works, 2036 Transportation Bldg., Chicago, Ill.

Eagle Tank Co., 2436 No. Crawford Ave., Chicago, Ill.

Johnson & Carlson, 848 Eastman, (Wood), Chicago, Ill.

New York Central Iron Works Co., Inc., Hagerstown, Md.

New England Tank & Tower Co., Boston Postal District, Everett, Mass.

Acme Tank Co., 41 Cortlandt St., (Wood), New York City, N. Y.

Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.

Hendrick Mfg. Co., 75 Dundaff St., Carbondale, Pa.

Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.

Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.

Petroleum Iron Works Co., Drawer 539, Sharon, Pa.

Newport Foundry & Machine Corp., (Siphon), Newport, R. I.

Walsh & Weldner Boiler Co., Chattanooga, Tenn.

Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.

Textile Finishing Mach. Co., Providence, R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill.

DE-INKING PROCESS

CASTLE & OVERTON, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

VALVES

Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.

WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.

Cheney Bigelow Wire Works, Springfield, Mass.

Eastwood Wire Mfg. Co., Belleville, N. J.

Lindsay Wire Weaving Co., Cleveland, Ohio.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

CYLINDER MOLDS

Appleton Wire Works, Appleton, Wis.

BLACK-CLAWSON Co., Hamilton, Ohio.

Cheney Bigelow Wire Works, Springfield, Mass.

Eastwood Wire Mfg. Co., Belleville, N. J.

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Advertisements in this department cost $1.00 for 25 words or less, payable in advance. Additional words, two cents each. This price covers the cost of remailing answers directed to boxes, care of this office. Matter for insertion should reach the office of PAPER not later than the Saturday preceding date of issue.

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POSITIONS WANTED

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Technical assistant to official or technical director; B.S. and M.S. in Chemistry, 34 years of age, married, four years' experience in each of the textile and paper industries. Has handled laboratory, research and development work. Can read German and Spanish. Possesses originality, resourcefulness, capable of hard work and wide awake. Employed at present but available upon reasonable notice. Location immaterial. Address Box 1280, care of PAPER.

GRADUATE MECHANICAL ENGINEER, seven years' experience in United States and Europe in design and construction in pulp and paper mill machinery and as field and maintenance engineer; perfect detail knowledge of De Vains process. Address Box 1260, care of PAPER.

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MECHANICAL ENGINEER, 14 years broad experience with large industrial firms desires responsible position as executive, supervising engineer, plant or mechanical engineer. Construction, office, plant efficiency and maintenance, mechanical processes, power plants, investigations, reports, etc. Will travel part time if desired. Member A.S.M.E., age 32, highest references. Address Box 1285, care of PAPER.

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FOR SALE—Unlimited quantities of finest pulpwood. F.o.b. mill in New York State, $23.75 per cord. Address Box 236, care of PAPER, 1478 Broadway, New York City.

POSITIONS VACANT

WANTED—Boss Finisher for Western mill. Must have experience in writings and bonds. Absolutely essential that this be a first class man. Address Box I. C. L., care of PAPER.

POSITIONS WANTED

SULPHATE CHEMICAL ENGINEER desires position. Technical graduate with mill experience. Prefer minor position with opportunity to work under big men. Address Box 1268, care of PAPER.

POSITION WANTED by young man who is familiar with the paper industry, chemistry, dyes. Write, giving salary and position you have open. Address Box 1278, care of PAPER.

PACIFIC COAST SALESMAN with established business relations covering several years as Pacific Coast representative of Middle West paper mills, desires connection with mills on Atlantic seaboard making writing, wrapping and specialties. Only first class lines considered. Address Box 1279, care of PAPER.

MISCELLANEOUS

WANTED—A paper company to locate a large pulp and papermaking plant in North Carolina, with a million cords of pulp wood deliverable at the plant at $3.75 a cord, a saving of $20,000,000. Lands for plants, fronting **deep water for deep sea** loading. Millions more cords of wood available very cheap. A clear stream of fresh water free for washing pulp. Address Box 245, care of PAPER, 1478 Broadway, New York City.

FOR SALE

Beaters—One N & W 48x48 rolls, 21″-6″. Two iron tub rolls 52″x40″.

Bed Plates—Large lot, all sizes. New.

Calenders—One 7 roll 72″; one 9 roll 72″; one 5 roll 78″; one 7 roll open side 84″. One 7 roll 124″.

Calender Rolls—Large assortment, all sizes; one 14x86″; one 18x84″; one 18x100″ and many others.

Coaters—One 45″ Waldron, double coater, and others.

Cutters—One 38″ Guillotine.

Cylinder Moulds—One 36″72″; one 30″x52″; one 12″x22″.

Drives—One No. 1 Reeves Class E; two No. 3 Reeves Class E, 4 to 1; one No. 3 Class E; one No. 6 Large Reeves; one No. 10 Reeves, F-3 to 1 with extra disc.

Dryers—48x116.

Exhausters—One Sturtevant.

Fans—3 Hunberry; 2 Perkins.

Jordans—One N & W Monarch, with new shell two Horne; two Emerson, large size, one base; one N & W Pony, with extra plug.

Pulleys—One 98″x34″ face, double arm, modern, Iron pulleys; Cone pulleys for Marshall Drives.

Pumps—One dry suction Knowles 12x22x18; one 1000 gal. Blake Tank pump; two Lawrence Mch. Co.'s Class A 8″ high duty; two 6″ Emerson make; one 4″ Centrifugal; one Type 4 Gould 5″ triplex, self contained. Two Lawrence Machine Co.'s Class A, No. 4, double suction pump for high elevation or for low speed. Thoroughly rebuilt and ready for shipment.

Press Rolls—One pair new, one RC 18x80″; one Gun metal 18x81″; one 16x75″; one RC 15½x73½″.

Rag Cutters—Two No. 2 Daniels; one Perkins.

Screens—4-8 pl. New Success.

Slitters—One 86″ P & J.

Winders—One 86″ P & J; one 100″ P & J; one 112″ M & W.

Wet Machines—One N & W with cut offs, mould 30x52″; two spare moulds.

One set Dillion Doctors for 80″ calender rolls.

MILLS MACHINE COMPANY
Lawrence. Mass., U. S. A.

THE CLEARING HOUSE—Continued

MISCELLANEOUS

WANTED—A second hand 80 or 84 inch Fourdrinier paper machine in good condition. In reply state full particulars and price. Address Box 1284, care of PAPER.

WANTED—A 2nd Hand Improved Machine Company's Standard Wet Machine with a single cylinder mould 36"x84". Must be in good condition. Address Box 1281, care of PAPER.

WANTED—A Niagara 2nd Hand Beater of 1500 to 2000 pound capacity. Must be in first class condition. Address Box 1282, care of PAPER.

TECHNOLOGIST in stained paper field, about 30 years' practical experience, specialist in paper, cardboard and paper board fields. Can furnish formulae. Solve manufacturing difficulties and install new improvements, particularly in the following fields—glazed paper, chromo papers, art printing papers, stained paper, marbled paper, carbon paper, waxed paper, etc. Can secure all materials as well as machines. Regular technical advice given.

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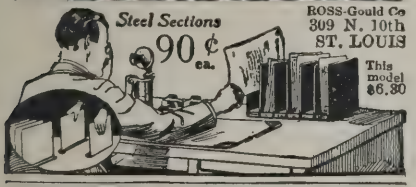

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Ross-Gould Co 809 N 10th Street St. Louis

Tells of His Battle

W. O. Frost of the Maine Department of Agriculture, state leader in the work of controlling the white pine blister rust in his annual report gives the following summary of the work of the year 1923:

"The most conspicuous features of the 1923 eradication season are that 39 towns appropriated $7,115.00; 39 towns spent $6,899.99; 48 pine owners cooperated, spending $8,760.34 and destroyed 1,191,418 ribes; acreage eradicated by owners 35,355, at a per acre cost of 49 cents; acreage eradicated by scouts, 301,098; number ribes eradicated by scouts, 13,862, at a cost per acre of less than two cents; total acreage eradicated in the state, 356,452; total number of wild ribes eradicated in the state, 1,209,280; per acre cost of eradication, six cents estimated acreage of pine protected, 117,008."

* * *

Pennsylvania Mill at Capacity

The P. M. Glatfelter Paper Co., Spring Grove, Pa., is running full at its local mill, with a contract for 11,000,000 pounds of paper on hand for the Government. It is expected to commence delivery on the order early in March. This tonnage for the Federal printing plant is about 3 times as large as any Government order handled in the last three years. The plant is equipped with 5 papermaking machines, with capacity for turning out 100 tons of finished stock every 24 hours. It is expected to continue operations on the same capacity basis, with full working force, for an indefinite period.

* * *

Aeroplanes For Forests

Jack V. Elliott, of Hamilton, Ont., has secured the contract from the Ontario Government to deliver to the Ontario Government on May 1 next thirteen Class A. HSEL type hydroplanes to be used for forest patrol work in New Ontario. Recently the Government decided to make a change in the system of forest patrol. For some years past the contract for northern patrol by airplane had been awarded each year to the Laurentide Air Service, with headquarters at Three Rivers, Que. During the winter Premier Ferguson reached the conclusion that the annual expenditure for this service was too great, and that a change was necessary. He had the department call for tenders with the result that the Laurentide people and Jack Elliott, the latter backed by Hamilton capital, put in tenders. After the tenders were opened the Government decided to operate its own service and commissioned Mr. Elliott to secure the thirteen planes necessary for the work.

* * *

Joseph Kilgour Returns Home

Joseph Kilgour, of Toronto, president of the Canada Paper Company and of Kilgour Brothers, paper bag manufacturers, has returned from a stay at St. Petersburg, Florida.

* * *

Returns After Trip

S. R. Armstrong, manager for the receiver of the Mattagami Pulp and Paper Company, has returned to Toronto after a holiday trip to California and Florida. Mr. Armstrong will spend a few days at his home in Caledonia, N. Y., before going back on the job at the mill.

CAN STRAW SUBSTITUTE FOR PULPWOOD?

Investigation of Canadian Straw Leads to Much Speculation in Matter

THE reported intention of British interests to investigate the use of western Canadian straw for the making of paper has revived the perennial discussion of the possible use of grasses as substitutes for pulpwood. The burning of western straw, instead of its industrial utlization seems to many observers to be a serious waste. Large quantities of straw are reported to be wasted annually in the Canadian prairie provinces, but that straw is not ignored even at present is shown by 1919 census statistics which showed that the United States paper industry spent $3,394,947 in that year for this raw matterial, says the Monthly Bulletin of the American and Pulp Association.

The use of straw, formerly extensively used for the so-called butcher's manila, is now largely confined to the making of corrugated container boards.

As with other vegetable fibers of annual growth, the problems involved in its use are the expense of collecting at a single point sufficient to operate a mill, and of preserving the fiber collected in a short period, for use during an entire year. These problems are in addition to the special problems of manufacture involved in the use of such material.

Nothing has apparently come of most of the reports of glowing possibilities for the use of new papermaking materials according to Dr. C. J. West, of the National Research Council. In a letter to the American Paper and Pulp Association, Dr. West, who is chairman of the Technical Association's Committee on Abstracts and Bibliography, says:

"The best substitute as yet is bamboo, and that, of course, is almost a wood. The grasses with the possible exception of esparto are not making any headway. The reason apparently is because of the small yield per ton of grass fiber, and also perhaps the poor quality of paper resulting from such material. The extended studies by the Imperial Institute on tropical grasses indicate very clearly that a good grade of paper cannot be expected by the present methods of cooking."

A possible exception to the previous experience in the use of grasses, however, may be found in the use of the Florida saw grass. Extensive work has been done on the manufacture of pulp from this marine growth, and a paper mill is now building at Jacksonville to use this pulp.

* * *

John T. Mulroy Dies

John T. Mulroy, former official of the International Paper Company, of Ticonderoga, N. Y., died at his Denver, Colorado home, February 22, aged 65. Mr. Mulroy was a native of Fort Edwards, N. Y. His father died when he was only 13 years of age, the lad taking a position with a paper mill in New York state and by sticking to the business he worked up to the assistant managership of the International. About four years ago Mulroy's health failed and he came to Denver, where some of his children resided. He is survived by his widow, Mrs. Maria Mulroy; a daughter, Miss Elizabeth Mulroy, two sons, one the Rev. John R. Mulroy, pastor of St. Catherine's Catholic church, Denver, and Martin Mulroy, of Detroit; two brothers, Richard and Martin, the latter a Denver contractor.

* * *

A locomotive has the right of way and can generally prove it.

ENGINEERING PAGE

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Volume XXXIII, No. 21

PAPER

March 13, 1924

The Magazine of the Paper Industry

RUSSELL C. HUGHES, Publisher

THOMAS J. KEENAN, F.C.S., Technical Editor

ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

It is getting so a man can't fill the engine with oil, but what he trembles in fear he will be called to Washington to testify.

* * *

It used to be said that the way to reduce taxes was to reduce them. That was before partisanship became a national pastime. It is our opinion that the leaders of the paper industry would prefer to have the Mellon tax plan put through as it was conceived, rather than to have a hybrid, make-shift bill such as has been discussed. But any reduction is something.

The proposed Federal 25 per cent. tax reduction on all incomes, to be applied to 1923 payments, would be a great boon to mankind—that is, if you have an income.

* * *

The stories that Paper is running on the import and export situation are causing favorable comment throughout the paper industry. As we know of nothing more important to the industry just now, we are specializing on this important problem. We would like to see the perpetrators of violations to the Anti-Dumping Law punished. We would like to see the present ruinous German competition eliminated, and that same competition placed on a sane, even basis. We would like to see—as a result—the paper business of this country get better and put on a thoroughly prosperous, instead of a precarious, foundation.

* * *

We have great hope in W. B. Bullock, of the American Paper and Pulp Association, in his campaign to go to the bottom of the dumping problem. He is one of the hardest working dynamos at the association headquarters. He is not the coating on the surface of the paper, he is the base.

* * *

The big annual convention is just one month away. It is time to make those necessary arrangements to be present as well as think up excuses for the wife.

Everybody can learn something each week. If we were not so modest we would say one good way to do so is to read Paper regularly. But your heads and managers and superintendents of mills must pick up the good points brought out in the story of the Grandfather mill at Merrill, Wisconsin. Here is a mill without labor trouble. It is not a technical article, but it gives much information on the technic of handling men. Be sure and study it.

* * *

Rudolph Seiber's article on the "Weight of Wood and Quantity of Pulp," which is translated for Paper from the Swedish is valuable to American papermakers. It gives much information that is new and much that refreshes the memory of paper technologists. It is worth studying.

* * *

We don't mind saying frankly that we are endeavoring to get Dr. Arthur S. Klein, one of the most famous European paper authorities, to act as foreign editor of Paper. Dr. Klein is as much at home in Italy's paper mills as he is in Sweden's mills. He jumps from Germany to France and then to Denmark. And everywhere he is recognized as the peer of the most advanced thinkers in paper matters in the world. And we feel that we will be successful in this quest. Just naturally the best minds along paper lines should and do gravitate to Paper.

* * *

Our parting word this week is: Don't hesitate to hurl that brickbat or that bouquet at Paper. We want every person connected with the industry to feel free to "take my pen in hand and let you know——" etc., etc.

RUSSELL C. HUGHES,
Publisher.

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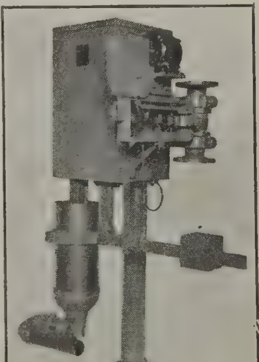

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PAPER
The Magazine of the Paper Industry

Imports and Exports

Third of a Series of Articles on a Situation That is Vital to the Life and Welfare of the Paper Industry

The German Situation

Another Phase

The assertion that Germany is the real key to the paper marketing problem is given much substantiation in this article. While it has long been thought that the real solution of the import and export trouble was in Germany it has not been openly so stated very frequently.

Germany is to blame, the authorities interviewed say. And the matter will not adjust itself until the Reparations problem is solved in Germany. As long as it remains unsolved the American paper industry cannot hope for much improvement.

Here is an article that goes deeply into the matter. It should be carefully read and digested whether you agree wholly with its sentiments or not.

What are your views on this subject?

EVERYWHERE questions were asked by PAPER of men who have studied the serious import situation, regarding the real cause of the trouble, the answer was the same.

It all resolved down to one thing—Germany.

There is a pronounced tendency in America to play fair, to be generous to a fallen foe, to even overdo philanthropy of purse and thought and spirit. In recent years, when Germany has been blamed for anything, the reaction is that somebody is trying to blame Germany for something she is not guilty of. Of course this holds true in the matter of the paper industry.

Nevertheless, in the cold analysis of the facts, invariably the cause for the flood of paper imports from abroad has gone back to Germany.

"If Germany will become stable in finance and industry, there will be nothing to fear from abroad." Thus spoke one of the leading exporters in the country, who refuses to permit his name to enter this discussion. He went on to say that he had no fears whatsoever regarding Austria, Hungary, the Scandinavian countries or any other country—if Germany was stabilized. And he gave as the simple reason for this that other nations than Germany are losing money on their paper sent here.

How that country strikes a blow at the heart of the American paper industry is an interesting one. It was a revelation to PAPER.

It was first brought out that wood in Germany is practically stolen or purchased from the government or private persons at little or nothing. The fall of the mark has made this partly possible and the connivance of the German government, it was said, helped the thing along. Last year owing to the precipitate fall of the mark, many manufacturers in Germany bought wood from the State at 50 cents a cord. The result is that during the year she was able to flood the market at prices 30 per cent or more below the actual value of the paper. Some of these facts are verified in an article by Dr. P. C. A. Schenck, now in Germany, appearing in the Forestry Department.

The Labor Cost

Then it was explained that the labor cost in Germany is infinitesimal, a thing that is trifling. The mark has gone down, wages have gone up, but wages didn't go up with anywhere near like the rapidity the mark fell.

Furthermore there was no demand at home, consequently almost all the paper made was made for export and at prices that would leave a tremendous margin of profit for the manufacturer.

It was further brought out that instead of being economically poor, Germany is economically in a very strong position. Mortgages have been paid in marks at a tiny portion of the value when the mortgage was drawn. The industrialists have been building and extending for several years, borrowing as fast as possible and then paying off in marks that in the meanwhile dropped in value to nothing. New mills costing $10,000,000 are paid off with ten tons of paper.

In other words is was explained that five per cent of the industrialists of Germany have beggared 95 per cent. of the population, and this is the amazing shame of it all.

Above all these reasons, the German government is apparently in league with or controlled by the German industrialists and do not charge any export duty, either as a means of raising money for reparations duty or for current expenses.

Paper is made in Germany as fast as possible with the raw material costing very little and frequently stolen altogether, made by men drawing trifling wages, rushed out of the country without export duties and sent to America as fast as possible to get gold for it. Much of it is sent here on consignment to be sold at any price, and this "any price" is bound to bring a profit.

Even England protects herself against this unfair competition by levying an import duty of some five per cent.

Germany the Key

It was stated that by impossible conception can the present situation be changed until Germany is forced to meet her obligations and compete on a parity with other nations. Germany owes billions and pays nothing. There can be no permanence or hope for the American paper industry until the reparations payments are fixed and Germany acknowledges them and buckles down to pay them. And this means, it was emphatically asserted, that Germany must be made to take from her mind this little formula: "We have lost the war but we can win the peace." And one authority in the matter stated to the interviewer from Paper that the only argument the German nation understands is the bayonet.

This authority on imports and exports and who, it may be stated, has studied the matter for years, says that even a partial carrying out of the Versailles Peace Treaty would remedy the entire situation. This treaty was signed by Germany. One section provides for the collection of a 26 per cent duty on all Germany exports over and above the regular tariff, this money to be placed in a general reparations fund. The imposition of this tariff would instantaneously remedy the situation, and eliminate the present bankrupt competition.

This authority was firm in his declaration that the least this government could do was to refuse to admit German goods without a certificate that the 26 per cent. export duty has been paid, as is required by the Versailles treaty. Even though the United States has not agreed fully with the Versailles treaty, as an act of comity to the other nations it should enforce this phase of the treaty.

The imposition of this export duty would at once end the period of depression in the American paper industry, it would put German competition on an equal basis or more nearly an equal basis with this country, the Scandinavian countries and others would follow suit and charge a price for their product that would bring a profit, the German indemnity would become a reality and prosperity would follow. Such is the view.

Looking Ahead

The work of the Reparations Commission in Germany and France is being highly praised by those wise ones of the paper industry, who look far ahead. They see some hope, if the plan of the commission is carried out. The entire source of worry is now that the nations will not ratify or stand back of the plan. Without going into detail the Reparations Commission calls for a financial plan with a bank in another country than those involved in the war, which would serve the same purpose in Europe that the Federal Reserve Banks do here. The one drawback seems to be that perhaps the nations will not approve the plan and then the situation is just where it started.

There is no hope, whatever, is the opinion of these men who have studied the matter, that there can be any material improvement until Germany is forced to do business on a proper basis. For Germany, it was frankly stated, has no commercial morality. And while many of the practices of Germany in a commercial way regarding exports are not illegal they are far from ethical.

In 1913 Germany exported 327,000 tons of paper. In 1923 the figure was about 700,000. This is an increase of almost 100 per cent.

A Specific Cost

When bond paper can be imported from Germany, held here until a call comes from another land, like Cuba, and then sent to Cuba at seven cents a pound when the nearest the domestic bonds can be quoted is nine cents a pound, as has been the case, then the American paper industry is up against a formidable proposition. This, it was explained to Paper, has been done, and many similar cases. The accusation was made that bond paper has been sent here in rolls as newsprint. Reports and rumors, however, carry no weight. Before action can be taken in a legal way, the Anti-Dumping Units must have proof.

Because every possible method has been taken to get goods out of Germany so payment can be made in gold or the currency of some more stable land, as fast as the paper is made it is shipped to America and other countries. Anything to get it out of Germany, any price, any conditions—but get it away from that land where money means exactly nothing at all. The result of this attitude is large cargoes on consignment, hoping for the best. The same conditions apply to pulp.

It was brought out that the moment taxes must be paid, either internally or in the matter of exports, this unfair German competition will cease. At the present, it is not fair to labor, it is not fair to other countries. It is not fair to ourselves.

* * *

Paper Production In Pennsylvania

The State Department of Forests and Waters, Pennsylvania, has completed a survey of the extent of the pulp industry in the state, showing that $50,000,000 is invested in this branch of business in the state, with an annual production valued at $20,000,000. During the past year, a total of 235,760 tons of pulp was produced at the different mills, establishing a new record for the state. The industry employs about 7,000 persons, with annual wages and salaries aggregating $12,000,000. There are twelve pulp mills in the state, using a total of 446,662 cords of wood during the past year, or an increase of 39,630 cords over the figures of 1922. Of this amount, 70 per cent was imported from Canada or other points outside of Pennsylvania, with the other 30 per cent of pulpwood coming from the forests in the state.

PAPER BOOTLEGGERS ARE BUSY

And W. B. Bullock Is Hard At Work Trying To Catch Them

THE story of how the paper bootleggers are raining the American paper market with improperly classified entries of foreign paper will be told at the American Paper and Pulp Association convention, at the business session, Thursday, April 10, when Dr. Baker will report on the results of the Association's investigations of this subject.

Beginning with the special import conference in November, the Association has been quietly prosecuting its inquiries into the activities of the bootleggers of foreign paper, and some surprising developments have resulted.

A formal protest has been made this week against the admission as printing paper of "Made in Germany" second sheets for typewriter use, letter sized paper, wrapped and sealed in ream packages. The paper paid duty as printing paper thereby coming in under conditions which makes it impossible for the domestic manufacturers to compete with the German offers. The paper is being sold by the importers at 16 cents a ream, and an interesting sidelight is that the importers' price is so low that it is possible for New York stationers to offer this paper as a "bargain" at 35 cents a ream, and still undersell the domestic manufacturers.

The customs authorities have been given specific evidence of the dumping of Canadian kraft at prices from 1½ to 2 cents below the Canadian home market for the same paper.

The importation of parchmentized paper as wrapping has also been protested by the American Paper and Pulp Association, which some time ago announced its temporary discontinuance of its Information Service to permit Warren B. Bullock, in charge of that department, to devote his time to investigations of customs abuses.

* * *

Short News Items

The Pioneer Paper Co. has moved from 52 Japan street to 55 New Montgomery street, San Francisco, Cal.

Blake, Moffitt & Towne are about to begin construction of a four-story, 187x215 foot paper warehouse at 242 S. Los Angeles St., Los Angeles, Cal.

The Archer Paper Co. has been incorporated in Chattanooga, Tenn., with a capital stock of $150,000. by John Stagmaier, John W. Marshall and others.

The Florida Paper Mills Co., Jacksonville, Fla., subsidiary of the Grass Fibre Pulp & Paper Corp., Leesburg, Fla., is clearing right of way switch about ¾ mile long from the Florida East Coast Railway Co., and is now taking bids on steel work for the main plant, and also about to take bids for construction of this main plant.

The Mobile Paper Mills have been incorporated in Mobile, Ala., with a capital of $200,000, by Jos. M. Walsh, E. D. Angell, G. L. Smith and others, to manufacture paper and by-products.

Weight of Wood and Quantity of Pulp

Pulpmakers Seek Method of Valuing Wood by Its Weight—Amount of Moisture in Wood Influences Yield of Pulp, Capacity of Digester Being Affected

It is trite to say that wood is the most important raw material for making paper. Its quantity at the time of purchase is determined in various ways, according to its volume, cubic foot, cord, etc. The quantity of finished pulp made from this wood is always expressed in terms of weight, by kilogram or ton. The simplicity of of measuring the volume of a mass of wood, the possibility of carrying out this measurement at any place without the need of instruments, and finally the fact that a considerable part of the wood serves as raw material for sawwood, which is also part of the mass, have led to the general practice of buying pulpwood on the volume basis. No one at the present time buys pulpwood by weight.

To the pulpmaker the volume of the pulpwood is no indication to him of the quantity of wood that he has for conversion into pulp. What is important to him is the proportion of absolute dry wood substance that is available. Hence it is undoubtedly advantageous for him to buy the wood after first taking into consideration the amount of moisture that it contains. It is rather easy to determine what a solid or cubic meter of wood represents. But does it follow that the same amount of wood will always be obtained when buying on the cubic meter basis? Of course not.

Volume of Wood Varies With Its Moisture Content

The volume of wood varies, as is well known, with its moisture content. Wet wood contracts on drying; dry wood swells up when it absorbs water. Hence the quantity of wood that is purchased without any knowledge of the proportion of water that it contains, may mean an entirely different mass of wood substance than another similar volume of wood, so that its value for pulpmaking may be quite different.

This condition is generally taken into consideration in purchasing the wood by indicating whether the wood has been freshly cut or stored for sometime, and its value is then based on the practical experience that has been gained with similar wood under similar conditions. However as the amount of moisture in freshly cut wood varies and inasmuch as this moisture is subject to a certain amount of reduction on storage of the wood, the moisture content of a wood, judging by experience gained with similar woods in the past, can give only an approximate idea of the real proportion of moisture that is contained in the product.

In the accompanying article by Rudolph Sieber, which is a translation from Svensk Pappers-Tidning, 15 *and* 17, 1923, *the author brings up for consideration a subject which has been studied by American paper technologists for a number of years past. Experiments looking to a means of measuring pulpwood by weight instead of volume have been conducted by the paper and pulp section of the Forest Products Laboratory at Madison, Wis., the News Print Service Bureau and the Technical Association of the Pulp and Paper Industry. It is to be hoped that the publication of Sieber's article will lead to a re-investigation of methods which have been previously tried by workers in the United States as a basis of calculation for bone-dry wood to replace the cord system is badly wanted.*

Difficulty of Valuing Wood By Its Weight

The valuation of a shipment of wood by weighing a sample of it and estimating the proportion of moisture that it may contain is fraught with all sorts of difficulties. Furthermore, it is hardly to be expected that any change will take place in the time-honored custom of determining the value of a mass of wood by its volume.

There are, however, many reasons why it is convenient and necessary to know the weight of a unit volume of the wood. It is useful for instance in figuring the yield of pulp, and it is of importance in making calculations to determine the consumption of heat during the digestion process. The cellulose content, the proportion of other woody constituents, the specific heat and all other physical and chemical factors and characteristics are based on the unit of weight. There is still another good reason why it is necessary to know how much the wood weighs per unit volume.

Variation in Density of Wood

It is common knowledge that the density, the specific gravity (weight per unit volume) of a wood varies in accordance with its habitat, character of the soil, climate, rainfall and other conditions. On account of this it is impossible at first glance to obtain an accurate and satisfactory idea of the weight of the wood per unit volume. In fact an absolutely accurate figure, which will hold good for every case, will never be found. Nevertheless for the aforementioned purposes it is possible to use an average figure of approximate accuracy which will be satisfactory in the great majority of cases.

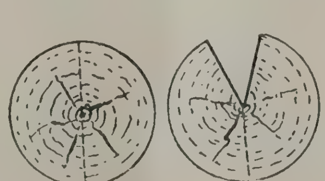

Fig. 1—Wood Sample Shrinkage

In the technical literature of the paper industry a considerable amount of data may be found pertaining to the weight of wood per unit volume. But not in all references is information given regarding the moisture content of the wood. Very often the data refers to the air-dry wood, a term whose significance is either not exactly understood, or extremely narrow in scope. A superficial study of the available figures on this subject leads to the conclusion that a value of between 0.4 and 0.5 must be assumed as the average specific weight of absolutely dry wood. In the case of trunk wood—and this is the only kind of wood that is being considered in this article—this figure seems to vary between certain limits.

It would undoubtedly be of considerable advantage to secure accurate data on the specific gravity of wood, ground under different conditions and in different climates. It is only when such values are available that it is possible to arrive at an accurate average figure which can at least be applied without any too great error to a particular group of woods, if not to all wood.

The Results of Investigations

The author made a number of investigations to determine the relation between weight and volume of wood that is used in the manufacture of wood pulp. He naturally employed wood of Swedish origin in his investigations, a pine wood. The age of the wood was between 65 and 150 years as determined by the rings of growth. The diameter of the wood was from 80 millimeters to about 180 millimeters.

(While the results that were obtained in this research may have a trace of local colors, nevertheless the net values are interesting and informative and the method employed by the well-known paper technologist may prove of suggestive value to investigators in this country. The remainder of the article dealing with this subject is reproduced herewith in somewhat abbreviated form *Trans.*)

Method Used in the Investigation

Short pieces of wood, approximately 300 millimeters long, were cut from various samples, the trunks selected being as round as possible. The samples were cut from the middle of the logs, the end pieces not being used in the testing. The samples of wood were carefully freed of all bark, and then turned on a lathe so that a perfect cylinder was obtained, the cylinder being then sawn in half in the direction of the vertical axis by means of a band saw. The half cylinders were then measured and weighed. This part of the operation was carried out with great accuracy.

The two pieces of wood were then allowed to remain exposed to the air for some time and it was noted that they lost more and more of their water content. The final drying was carried out in a drying chamber which was maintained at a constant temperature of 100° Cent. by means of a water jacket. The wood was completely freed of water in this manner, the samples being dried to constant weight.

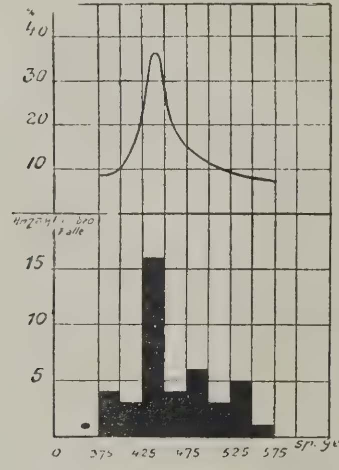

Fig. 2—Specific Gravity of Wood

In the course of the drying process conducted at the ordinary temperature the weight and the dimensions of the samples were determined from time to time. Inasmuch as the wood was tested directly after it had been taken from the water or after it had been on dry land for only a short space of time, the specific gravity of the wood determined in this manner, was somewhat less than the maximum values.

Reduction in Volume

The reduction in the volume of the wood as the samples lost moisture was also determined at the same time. Because the cylindrical pieces of wood had been cut in half, it was seen, as preliminary tests had shown, that the shrinkage in the wood did not take place through the formation of numerous fissures distributed over the entire circumference of the log. The shrinkage took place about as is depicted in Fig. 1, which indicates that there was a hollow space gradually formed in the cylinder. It is true that when the wood commences to dry out in the air, secondary fissures or cracks are formed, but these almost always close up again in the drying chamber. In the determination of the volume of the wood all the hollow spaces, in addition to the principal split in the wood, must be taken into consideration.

In this investigation the specific gravity of the wood is determined exclusively of the hollow spaces in the wood. Hence the specific gravity is not the actual density of the wood substance itself but of the mass of wood as it exists with the various hollow spaces that have been formed in it.

Results of the Experiments

The results obtained in the examination of forty-two different pieces of wood may be summarized. In the first place the accompanying curve sheet (Fig. 2) shows in graphic form how often the specific gravities of the wood fall within certain limits. In the lower half of the figure the ordinates are the number of observed instances in which certain values of specific gravity were obtained and in the upper half of the curve, the ordinates are the percentage cific gravity, the maximum value of which lies between 0.425 and 0.450 when the wood is examined in the absolutely dry condition.

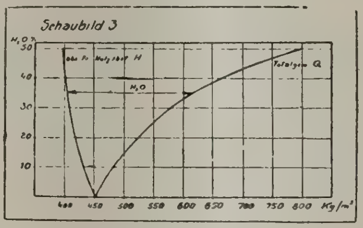

Fig. 3—Relation Between A and H

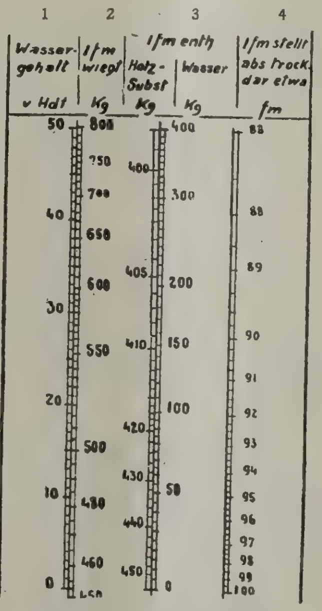

Fig. 4—Rapid Calculating Graph

The numerical values are shown in the accompanying tabulation. The figures given therein represent the averages of a number of tests of woods for moisture so that the woods are really classified according to their moisture or part of the total number of observations. The top curve shows the distribution of the observed values of spewater content.

TABLE I

Water Content in per cent.	Volume Vn. wet cubic centimeters.	Weight Qn. wet grams	Specific weight Qn./Vn.	Volume in dry condition Vt. Ccm.	Vn-Vt	Increase in volume over dry volume in percent.
42.7	37,810	26,524	0.701	33,681	4,129	12.25
36.8	47,890	28,683	0.600	43,120	4,770	11.05
33.5	44,116	27,200	0.616	39,210	4,906	12.50
27.0	58,521	32,648	0.558	52,387	6,134	11.70
22.7	95,275	86,008	0.543	86,008	9,267	9.75
17.5	93,145	48,272	0.517	86,319	6,826	7.90
14.1	21,463	10,057	0.469	20.314	1,149	5.67
1.8	8,970	4,010	0.460	8,920	41	0.46

The factors which are used in this table and the following formula possess the following significance. Vn is the volume of the wood in the wet condition; Vt is the corresponding volume of the wood in the dry condition; *a* is the increase in the volume of the wood when the latter absorbs water in per cent of its absolue dry volume; *s* is the shrinkage which takes place when water is evaporated from the wood in per cent of the original volume of the wood.

Determination of Formulas

The following formula may then be written to connect the aforementioned terms:

$$Vt\left(1+\frac{a}{100}\right)=Vn \qquad (1)$$

$$Vn\left(1-\frac{s}{100}\right)=Vt \qquad (2)$$

From these formulas expression can be obtained for *a* and *s* in terms of each other. Hence the following equations may also be written:

$$a=\frac{s}{1-\frac{s}{100}} \qquad (3)$$

$$s=\frac{a}{1+\frac{a}{100}} \qquad (4)$$

All the quantities are hence known in order to obtain the weight of a solid

---

1. Water content in %.
2. Weight of one cubic meter in kilograms.
3. One cubic meter contains wood substance water in kilograms.
4. One cubic meter contains absolute dry wood in cubic meters.

meter of wood when this wood contains a certain percentage of moisture w figured on the total weight of the wood Q as well as an idea of the weight of dry wood substance H which is contained in the wood. The equations which give this information are as follows:

$$Q = \frac{453}{1 - \frac{W}{100} \cdot 1 + \frac{a}{100}} \qquad (5)$$

$$H = Q \quad 1 - \frac{W}{100} \qquad (6a)$$

$$\text{or} \quad H = \frac{453}{1 + \frac{a}{100}} \qquad (6b)$$

In these equations both Q and H are expressed in terms of kilograms. The relation between Q and H and the percentage of water in the wood is seen from the accompanying curve (Fig. 3).

Quick Calculation of Moisture Content

It is often necessary to obtain a quick estimate of the magnitudes of Q and H, when a wood of given moisture content is being examined. Furthermore it is not at all infrequent that the pulp manufacturer is interested in the absolute percentage of water in kilograms weight in a solid meter of such wood and also in the amount of space that the wood will occupy after it has been dried.

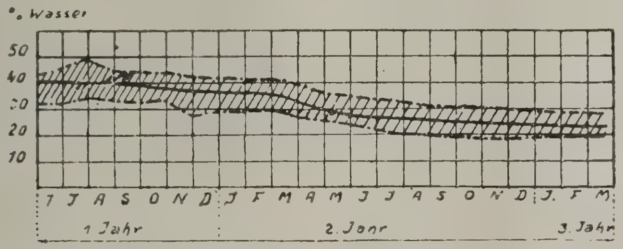

Fig. 5—Variation in Moisture of Wood

The graph shown in Fig. 4 is given as an aid in making such determinations. This will give results possessing sufficient accuracy for all practical purposes. If still more accurate results are desired, they may be obtained by using the foregoing equations.

Mechanism of the Wood Drying Process

The mechanism of the wood drying process, the different steps, and the various actions that take place are just as interesting to the pulp manufacturer as the determination of the percentage of moisture contained in the wood. This is because the amount of water that is left in the wood has considerable influence on the yield of pulp obtained per unit volume of the digester. Furthermore the amount of water in the wood entering the digester also determines the strength of the acid that is added to effect the digestion as well as the amount of heat that is required. For it is evident that a somewhat different quantity of heat is required for digesting dry wood than for treating wet wood.

It is known that the quick drying of wood is obtained only when the wood is freed of its bark layer before it is stored. Wood that is covered with a layer of bark dries out very slowly, and it is only in the process of drying when the bark shrivels up and falls off that wood begins to lose its moisture with any degree of rapidity. Naturally the moisture in the air during the season when the drying takes place is also of significance.

Water Content of Wood Floated Down to the Mill

The water content of the logs that are floated down streams to the mills is of course somewhat different and depends on the length of time that the wood remains in the water. In accordance with a series of observations made over a period of several years, wood, which is felled in the winter season and which reaches the mill at the beginning of the summer and has therefore been in contact with water for a period of one and a half to two months, gives chips which contain from 36 to 40 per cent moisture, (figured on the total weight of the wood).

If the wood is taken from the water at the end of the summer, that is after having lain in the water for a period of three to four months, then the chips that are made from this wood will contain as high as 42 to 46 per cent of water under ordinary conditions. Then again if the wood is allowed to remain in water over the winter and also comes in contact with ice during that time, the chips from this wood will contain as much as 48 to 50 per cent moisture. Higher figures for the water content of the finished digested wood from the cookers, except in certain isolated cases, have not been observed, at least so far as average figures are concerned.

Results Obtained With Pine Wood

In the course of this investigation a number of determinations of the specific gravity of the actual wood (cellulose) substance were carried out. The following values were obtained for pine wood: 1.487, 1.551, 1.512, 1.489, 1,490, 1.554. The average value was 1.54.

In the determination of the figures which have been just given and also of those which were mentioned in the earlier part of this article, it was found that when the water content of the wood was approximately 60 per cent, the wood of average character had a specific gravity of one, that is, it was just light enough to float on the surface of water. Wood of still higher water content—up to 60 per cent of the total weight— will sink in water.

The drying out of stored wood takes place in the manner described above. The accompanying curve sheet (Fig. 5) shows how the water content in the finished digested wood chips decreases as the time of storage of the wood, which is employed for this purpose, increases. Besides the average values, the maximum and minimum observed values are also shown. The data on which the curves are drawn were obtained during daily observations of the water content of wood chips which were made in the Kramfros mill. The curves show that the water content of the wood begins to decrease quickly for the first time in the second summer, and the wood attains an air-dry condition only in the second year.

Influence of Water Content of Wood on Yield of Pulp

It is known that when wood is employed in the moist condition, the yield of pulp, which is obtained per cubic meter of digester capacity, increases if other conditions are maintained constant.

It has been shown that when wood containing 40 per cent moisture is digested the yield of pulp is approximately 10.5 per cent more than is obtained with wood containing 20 per cent moisture, other conditions being equal.

Practical Experimental Figures

In what follows there are given the results of a number of experiments that were made on this subject. The experiments were intended to furnish comparative figures only. They show how, when all other conditions are maintained constant, the quantity of wood chips that can be filled into a into a space of one-tenth of a cubic water content of the wood changes. Just how far it is possible to go in the application of these figures in a practical way, for example in the determination of the total quantity of wood that can be contained in a sulphite digester, will be discussed by the writer at some future time.

The experiments were carried out in a simple manner. Wood chips which are ready for the digestion process are filled into a space of one-tenth of a cubic meter. This is always done under the same conditions, in exactly the same way and with the application of pressure which is maintained constant as far as possible. Then the weight of this volume of wood chips is determined. After the wood has been weighed, a sample is taken for the determination of the moisture content.

For purposes of calculation such tests as give water determinations that differ only a little from one another may be grouped together. The first group contains for example all those tests with wood chips, whose moisture content varies between 42 and 44 per cent. The next group contains figures which are limited at between 40 and 42 per cent moisture content and so on. In the tabulation, which follows, the average water content of tests which fall in these various groups as given in column 3. The next column contains the weight of a cubic meter of the wood chips made from wood of the aforementioned moisture content. From these two figures it is possible to calculate the quantity of absolutely dry wood that is present in the wood chips. These figures are shown in column 5 The sixth column shows the total weight of a solid meter of wood with corresponding moisture content. It is possible therefore to calculate what fractional part of a solid meter of wood chips is present in each cubic meter at a given moisture content. This means the percentage of moist wood. Finally the last column in the table gives the fractional part of a solid meter consisting of absolutely dry wood.

Discussion of the Results

The figures that are found in the fifth, seventh and eighth columns of the tabulation are expressed graphically in relation to the water content of the wood chips. The curves show that the quantity of wood filled into the unit volume increases as the moisture of the wood itself increases. The discrepancies which appear in the curves are caused by certain variations in the behavior of the wood.

* * *

Newfoundland Unfortunate

Newfoundland had an unfortunate experience in connection with her pulpwood and pit prop operations, which during 1921 and 1922, were started to relieve the business depressions and unemployment situation. According to evidence brought out before the Royal Commission investigating these and other matters on the Island, the Government lost fully $1,250,000. One witness testified that much of the wood cut disappeared before the representatives of the Government or of the purchasing contractors could take charge of it, and he thought that probably 30,000 cords had gone in this way. The cost of the wood per cord was $15, while the price realized in the final sales did not bring more than half that. The general defense of the policy is that it was launched to relieve a terrible condition of distress, and as yet no one seems to have played a dishonorable part insofar as the management is concerned.

POTDEVIN EXHIBIT AT THE EXPOSITION

To Operate a Sheet Coating Machine for Applying Glue

POTDEVIN Machine Co., in Booth 28, will operate a sheet coating machine for applying glue, paste, wax and other compositions to paper or cardboard sheets and a recently perfected machine making and printing paper bags in 3-colors.

Postage stamp bags, made in the latter machine at the rate of 100,000 daily will be distributed to visitors.

Photographs and specifications of paper waxing and paper converting machinery built to special order will also be shown. The booth will be in charge of Mr. Walter V. Hunter, Assistant to the President and Mr. Charles Schaefer, Manager of the Gumming Machine Department.

* * *

British Imports of Paper-Making Materials Increase

Gross imports of woodpulp into the United Kingdom during 1923 totaled 1,113,461 tons, an increase of 22.5 per cent over 1922 imports and of 92 per cent over 1921 imports. There was little change in the quantity of dry bleached chemical pulp received as compared with 1922, imports for the last two years amounting to 21,867 tons and 22,134 tons, respectively. Imports of dry unbleached chemical pulp, which amounted to 397,256 tons, increased 25.5 per cent as compared with 1922, and those of mechanical groundwood (wet), which comprised over half the imports, show an increase of 22 per cent as compared with 1922 and 85 per cent as compared with 1921. The greatest increases were in esparto and other vegetable fibers which totaled 216,243 tons, an increase of 26 per cent and 190 per cent, respectively, over 1922 and 1921. (Alfred Nutting, clerk in American consulate, London, January 24.)

* * *

Interallied Agreement Reached

The paper and pulp manufacturers of the occupied region of the Rhineland are to deliver, by way of reparations, to Belgium, France, and Italy during January, February, March, and April, 1924, a total of 900 tons of air-dried pulp, in accordance with specifications set forth in an agreement between their representatives and the Interallied Rhineland High Commission. In consideration of these deliveries, the High Commission is to grant immunity from seizure, except for intentional fraud, the free entry of packing cases from unoccupied Germany, export licenses, and permits to ship to unoccupied Germany in quantities based on similar shipments during 1922. Concessions are also made in the interallied tax applying to shipments destined to unoccupied Germany. (Consul Francis J. Dyer, Coblenz, January 3.)

* * *

Twin Babies Die Same Night

Paul H. and William A. Nash, twin sons of Douglas E. Nash and grandsons of the late Lewis H. and Anna Archer Nash, formerly of Brooklyn, died last week. Paul succumbed to pneumonia early in the night after being ill three hours. William then became ill, dying five hours later. The boys were born on Christmas Day. Their father is treasurer of the Nash Engineering Company.

FORMAL CALL OUT FOR CONVENTION

President Henry W. Stokes Makes Official Announcement

THE formal official call for the Forty-Seventh Annual Convention of the American Paper and Pulp Association has been sent out by Henry W. Stokes, president of the Association, and in his announcement Mr. Stokes says in part:

"There will be a business session the morning of the tenth, the President's luncheon at 1 P. M. and the banquet at night.

"All of the leading railroads of the country have granted special rate for our meetings and we hope that everyone attending our meetings will secure railroad certificate which when validated will allow reduced return fare.

"A strong and worth while program is being arranged both for the business meeting in the forenoon and for the banquet in the evening. A change is being made in the program for the banquet which, we think, will appeal to our members and their guests.

"Requests for reservations should be mailed not later than March 31. The tickets for the Annual Dinner will be $10 in addition to a registration fee of $5. The registration card will entitle holder to attend the meetings of the American Paper and Pulp Association and the Paper Industries Exposition at the Grand Central Palace.

"The usual 'zone system' in seating arrangements for the Banquet will be followed. Those in the third zone last year will be seated in the second zone this year; those who were in the second zone last year will find their places this year in the first zone; while those who occupied seats in the first zone last year will go back to the third zone this year."

* * *

Have Handsome Exhibit

The Crown-Willamette Paper Company paper mill at Lebanon, Oregon, placed an exhibit in the Educational Exposition held in February at the Oregon Agricultural College in Corvallis, Oregon.

The exhibit which was housed in a booth made of cedar shingles manufactured by the Super-Shingle Company of Lebanon, consisted of a white fir block of wood and samples of the wood taken from each phase of the changes it would undergo in the process of making wrapping paper.

The Lebanon exhibit attracted considerable notice at the exposition and it was awarded the third prize.

* * *

New Paper Mill in Sweden

The Korsnas Saagverks A.-B. will in the near future, according to dispatches from Sweden, start operations on the construction of a paper mill near Karskar with a capacity for annual production of 4,500 tons of wrapping paper. It is expected that the mill will be finished in July, 1924. Further, it is reported that plans are being considered to build a new sulphate pulp mill in Sandviken in the Hernosand district, with a calculated yearly capacity of 15,000 tons. No final decision has, however, as yet been taken. (Acting Commercial Attache Harry Sorensen, Copenhagen, January 21.)

* * *

Use logic to train and co-ordinate the emotions, not to subdue them.—*Tree to Trade.*

Power Transmission by Belting*

Superintendents Hear Splendid Discourse on Important Subject at February Meeting

By J. E. RHOADS

THE keen competition which is so universal in all lines of business makes necessary careful study and vestigation of production costs. One the most effective ways of cost reection is through increase in producon. Economizing of power is another ctor which in certain industries is of eat importance.

I want to also attempt to explain ne of the principles entering into wer transmission by belting, whether be of leather, rubber, canvas or other terial. There are perfectly proper d legitimate uses for nearly every nd of belt and there are a few types drives where leather belting will not rk as satisfactorily as rubber or some ner fabric. They are usually either nveyor drives or transmission drives ere the belt is subject to strong acid, ong alkali or some other chemicals which leather fiber is not resistant. was long thought that leather belts re unsuitable for wet conditions, but ce the use of thoroughly waterproof nent and proper methods of treatnt leather belts run in all kinds of t conditions with satisfaction and nomy. Where oily conditions are t with leather belt of the right kind s proven to be the best thing. It y be said in a general way that the blem of the engineer is first to den his drives so that they will be reaably economical and then to choose type of belting best adapted for the ditions.

Power transmission by belting had been carefully studied until within last few years. As you look at a t pulling hundreds of horse-power oothly and effectively year in and r out the problem appears a simple . A little study, however, shows t there are a lot of factors involved. e scientific work done by individual nufacturers and others has been ed at finding out, by actual test, the ct of these various factors. Of se some are inherent in the belt it-, such as the nature of the surface, width and thickness, the weight or sity, the flexibility of the belt, its ticity, its resistance to stretch, and strength. Another group of factors e to do not with the belt itself but n the conditions under which it is rated. In this group are included speed of the belt, the tension under ch it is run, the arc of contact on pulleys, the kind of pulley used and humidity and temperature prevail-. All of these variables have their ing on the amount of power the belt will transmit and the efficiency with which it will do it, or on its durability.

AN EDUCATION

Because Mr. Rhoads knows his subject thoroughly and because there are tremendous losses in mills owing to the improper power transmission by belts, this is a story that should be carefully read by every man in the mill from the president down. Mr. Rhoads is a manufacturer of belting, but to read the article you would think he is merely a power engineer. He handles his subject both impartially and profoundly. There is a real possibility that what he says may save any mill money. So don't overlook this article.

The Surface

First let us consider the nature of the surface. It is one of the most important factors for upon it depends the friction on the pulley. An efficient leather belt has a surface with a tacky, clinging quality. It is not slippery and is not usually highly glazed. On the nature of this surface depends largely the difference in behavior between leather and fabric belts, the better grades of rubber and cotton belts will work fairly well up to a moderate load while any appreciable overload causes them to slip badly, though this sometimes is not noticed because they slip without jerking. An accurate speed counter will, however, prove the loss when they are slipping and the power loss is directly proportional to the slippage. There is something about the surface of a good leather belt that enables it to stick to its job, when an overload is applied, without undue loss of power or what is much more serious, loss of output.

To compare the surfaces of different belts we measure the coefficient friction. If a belt of leather or any other material be laid on a flat table and a block of smooth castiron placed on its surface and attached to a spring balance, the pull required to slip the block on the belt can easily be measured. The coefficient of friction is the ratio of this pull to the weight of the block. If the block weighs 20 pounds and it takes a five pound pull to move it the coefficient of friction is five-twentieths or .25. A better sample of belt might require a 10 pound pull and the coefficient of friction would be .50. This value does not depend on the area of contact, but as between leather and iron it does depend not only on the surface of the leather but also on the speed of slipping. This curious fact is largely accountable for the leather belt's property to carry overloads, it is not possessed in like degree by fabric belts. With leather, as the slippage increases the gripping power also increases.

The Need of Width

The statement above, to the effect that the amount of surface in contact does not effect the grip, would lead one to suppose that a narrow belt would carry as much load as a wider one. In practice this is impossible, or at least inadvisable because the narrower or thinner belt cannot, over a long period of time, maintain the tension necessary to carry the heavier load. In theory, however, it is possible and we have proven it in our laboratory in two very interesting ways. First, with a belt having a very irregular surface, so irregular that less than half of its area touched the pulley. It carried just as much load as a belt of the same type with a smooth surface. In the other experiment we devised a means of testing a certain belt carefully, having the whole surface or width in contact with the pulleys and then removing half of the surface with a very small reduction in the cross section of the belt. By maintaining the same tension and speed the belt with only half of its width in contact with the pulleys carried exactly the same loads, at almost exactly the same slippages, as were shown by the first test, when the whole width was in contact with the pulleys.

Belts May Stretch

The tendency of a belt to stretch is very undesirable when excessive and we will distinguish it from the natural elasticity. This may be very small at the tensions ordinarily used but it may have an important bearing. A belt is thrown onto the pulley, or put on with clamps, at a tension, let us say of 36 to 40 pounds per inch of width per ply for each strand. The tension on both strands is equal, when the pulleys start to turn and the load is applied the belt must have a tight and a slack side, the difference in the tensions of these two sides is the effective pull and that is what transmits the power. As the elongation of a given portion of belt depends on the tension it is obvious that the belt is stretched more on the tight side than the slack side. A section of belt is then longer when passing onto the driving pulley than when passing onto the driven pulley. The contraction occurs chiefly on the driving pulley just before the belt leaves that pulley and the elongation occurs on the driven pulley just before the belt leaves it. This behavior is called creep and as the load increases on a given belt the amount of creep increases and the fibers on the surface of the belt creep over the pulley surface through a larger part of the arc of contact. With normal loads and an efficient belt this creep usually amounts to one and one-half per cent, with overloads it is higher. When a point is reached at which all of the surface of the belt in contact with a pulley is traveling at a speed slower than the pulley surface we have real slippage, as well as creep. It is natural that some belts will creep less for a given load than others and when they do they either save power or increase production, or both.

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*Given before Superintendents Association, nazoo, Mich., February 2.

Another factor of the greatest importance is belt speed and the power transmitted by a given belt is nearly proportional to the speed up to about four thousand feet per minute. It would be proportional at all speeds were it not for the effect of centrifugal force. Centrifugal force tends to throw the particles of the belt away from the pulley, when passing over it, thus lessening the tension which holds the belt to the pulley and lessening its capacity. As this force is proportional to the square of the speed it is obvious that if the speed is doubled there will be four times the tendency for the belt to fly away from the pulley. With belts of ordinary density this force becomes so great that at speeds above about fifty-five hundred feet per minute the power actually lessens with further increase of speed, unless the belts are re-tightened to what are excessive initial tensions. As the centrifugal tension varies with the weight of the belt it is desirable, other things being equal, to use belts that are light for very high speed drives.

An Example

To waste a minimum of power in friction on bearings it is clearly desirable that the required effective tension be obtained with the least possible tension in the two strands of belt. For instance, to transmit one horsepower at a belt speed of one thousand feet per minute requires an effective tension of 33 pounds. You may have one belt that is tight or inefficient with a tension on the tight strand of 45 pounds and on the slack strand of 12 pounds, giving a difference of 33 pounds. This gives a pull on the bearings of 57 pounds. Another belt of high efficiency may have a tension on the tight strand of 2 pounds and on the slack strand of 35 pounds, or a total on the bearings of 37 pounds. This would give only about 65% as much loss in bearing friction as the former belt. In tests we have had a ratio of more than one hundred to one in the tension of the two strands. This, of course, is abnormally high, but indicates what may be possible.

The effect of arc of contact is striking, the power delivered being about proportional to the arc of contact up to one-hundred eighty degrees and beyond that point increasing at a somewhat lower ratio. It is, however, very desirable to secure as large a contact with the pulleys as possible. The newer type of gravity binder drives are most useful for accomplishing this, especially where center distances are short and pulleys very unequal in size.

The Matter of Tension

Tests have indicated that where the tension is applied to a belt of given thickness, in proportion to its width, that the horsepower will be also proportional to the width, under similar conditions of speed. The natural flexibility of a belt effects the ease with which it bends around small pulleys and the thickness, of course, enters into this too. Naturally the thinner and more flexible the belt the less will be the power lost in internal friction and the better will be the contact on the pulleys, especially if they are of small size. Rubber and canvas belts as a rule do not compare favorably with the best leather belts in this respect. Their surface usually is better when they are new and often hardens or loses some of its pulling power with age. With leather belts, however, the pulling power often improves for some time and maintains a high efficiency through a very long term of service. Maintenance of this quality is of the greatest importance. The test of time on thousands of drives has proven to many of the largest companies and engineers that for efficiency in power transmission and economy per unit of output there is nothing like leather.

There are certain types of punch presses used in sheet metal work which give the operators much trouble from slipping belts and this is true whether rubber, canvas or a cheap grade of leather belt is used. If the slippage is stopped a very great increase in production is possible because that slippage occurs just at a critical time in the stroke of the machine. One plant reported an increase from twenty-five hundred pieces per machine daily to forty-nine hundred pieces after putting Tannate belting on. Due to the same property a very large Southern plant making hard wood maple flooring increased their output on their Woods flooring machines from about seven thousand feet per day to about twelve thousand feet per day. You know that if a rubber belt gets wet it will not pull and this is a great cause of lost production. The Tannate under almost soaking wet conditions is practically uneffected and in fact our very careful tests have shown that after soaking
teen hours in water it will, under i
tically the same conditions, pull t
or four times the load that a ru
belt will under the same tension
speed. Its increasing use for p
mills and other wet places is an i
esting confirmation of the value of
property and even for screen diaph
in pulp mills it has given most rem
able service, as compared with ru
This condition is about the wettest
that can be found.

* * *

PAPER INDUSTRY NO
BOOMING MIDDLETOW

200 Million Pounds of Paper M There Each Year

THE paper industry is beginning to re
its proper share of the credit for the a
ing development and growth of Middle
O.—a growth that has carried the popul
from 23,500 to an estimated 27,000 in the
three years.

A fact which has been overlooked by
is that the dozen or more large paper
panies of the city, have afforded a most
stantial background for the improvement
which have been worked out.

More than 200,000,000 pounds of pa
produced in Middletown each year.
this large output indicates a most subst
investment and well-founded assets w
when properly directed, will go a long
in placing a city on a higher basis.

And the paper industry of Middleto
headed by men of progress and vision, a
example J. A. Aull, of the Sorg inte
the Gardners and Harveys and num
others.

Recently, a modern seven-story ba
building went up in Middletown—the
and Merchants. Who is at the head o
institution? The answer is J. A. Aul

In the southeastern part of the city,
is a new industrial building—one
would do credit to any concern in the
pany. It was erected by the Gardner-H
Paper Company.

There is a large paper mill now n
completion—one of the largest in the
It is the Smith Mill of the Sorg concer

These are some of the outstanding bu
and industrial strides taken by the city
past year. Paper plays the leading r
them.

Visitors to Middletown are given ca
comment on the new Y. M. C. A. bu
and Manchester hotel. Both are im
structures and one's first impression is:
large for Middletown."

They may be too large at the presen
but they fit in with the Middletown s
of building for the future—a plan whic
the hearty endorsement of the paper int

There also is a new high school in M
town. And a new hospital. They li
have been built with the future in min
recall to residents of the city the $2,0
fund which was raised within the pas
years for public improvements.

That practically any kind of paper c
obtained from the Middletown mills is
that is known generally to the trade.
grades of wrapping, offset, boxboard,
bond, etc., is unwound from the machi
the various mills. The metallic roar of
is one of the features of life in the

* * *

Building Double Houses

Crane and Company of Dalton, Mas
erecting three double houses at Dalt
employees, as part of a housing plan to
in providing homes for employees.
houses will be ready early in the sprin
will cost about $7500 each to construct.

How English China Clay Is Produced

Necessity for Care in Mining and Preparation of English China Clay Is Dwelt Upon at Length

By S. P. BUNN

Grant's Walk, St. Austely, England

IN recent years there have been many improvements introduced into the production of china clay, the most important to papermakers being those having for their object the improvement of the finished article. A factor that has always contributed to the cleanliness of English china clay has been the existence of an abundant supply of water in the china clay mines of Cornwall and Devon, the thorough washing of the china clay with clean water having always been one of the essential processes in the production of the commodity.

The English virgin clay is never of so hard a character that it cannot be broken up by streams of water, and the fact that any impurities in the virgin clay are capable of extraction by gravity without the introduction of any chemical processes, account to a large extent for the retention of the qualities peculiar to English china clays which are not possessed by the clays of other countries.

Through the subjection of English china clays to the cleansing qualities of water from the time it is separated from the quartz crystals and sand in the pit to the time it is placed, in a muddy consistency, on to the drying pan of the kiln, there is little chance of any outside impurities finding their way into the product. True, there are degrees of purity in the finished article according to the extent of the process of elimination of foreign matter, which is, more or less, according to the extent of the refining troughs, or "micas," over which the china-clay passes in suspension to the settling tanks.

For the papermaking and bleaching clay trades, the degree of refinement is higher than is necessary for china clay intended for the china and porcelain trade, china clay for papermaking particularly, having reached a high standard of perfection.

A High Standard

A still higher standard of purity and refinement than is secured by the ordinary process of washing and gravity, has been secured in recent years by the introduction of mechanical chemical and electrical proceses, which turn out what is known as colloidal clay. This product is very much more expensive to produce than the ordinary china clay and is used for special purposes, in the papermaking, soap, alum, ultramarine, rubber, and other trades which require a clay of a highly refined character. There are three processes by which this very fine quality is secured: one by means of grinding mills, which reduce the china clay to a very fine powder; another process produces a very fine quality by the introduction of chemicals into the clay after it has passed into the settling pits; and a third in which the elimination of all coarse matter and the conversion of the clay into a very pure state is secured by an electrical process.

The English china clay industry has developed very considerably on the scientific side since 1914, and the success of the scientific investigation and research that has been going on during this period has produced results which are not only enabling the industry to recover old markets but to extend its sphere of business. Especially is this the case in the various branches of the papermaking industry, for now it is possible for china clay suitable for the papermaking industry, and actually being used in papermaking, to be sold from 26/- per ton, F. O. B. Fowey, up to £3, £4, and £5 per ton, according to its filling, bleaching, and coating qualities and the expense of the various processes of refinement to which it has been subjected.

The strength of the English china clay industry, despite depressing factors in Europe that have prevented the recovery of markets to the pre-war volume, is seen in the total deliveries made in 1923 of 820,393 tons, compared with 737,486 tons in 1922, and 864,369 tons in the best post-war year of 1920. The growth of the American markets for English china clays, especially for papermaking, has largely contributed to this highly satisfactory result. Such is the spirit of optimism that prevails, that 1924 is expected to beat all records, since 1912.

Waste in Pulp and Paper Industry

The Pacific Coast

By B. T. McBAIN

Assistant General Manager, Nekoosa, Edwards Paper Company

THE writer just returned from a trip over the entire American Pacific Coast Pulp and Paper Manufacturing Territory; he found business in general very good and some of the mills running even parts of Sundays to keep up with their orders. He found considerable foreign paper coming into the various ports and a very considerable lowering of prices today compared with Eastern prices as in earlier days when Western prices were very greatly governed by Eastern prices and the freight rates.

He found mills being built, old mills being rebuilt, and general evidence of prosperity in the industry.

He also found new mills being built on paper on almost every corner, figuratively speaking, and each and every one expressing confidence that their particular new mill would be built.

But what he found of greatest interest was the keener interest being taken in the conserving of their natural resources and in the Saving of Waste. Mills which in the past were wasting everything are now installing save alls of various makes and designs to stop the waste from the bunghole where before they were only seeing what dripped from the spigot.

Mills which heretofore refused to use small logs are either equipping or have already equipped for handling the smaller pulpwood always wasted in the past.

Mills where four men have been employed per ton of production are seeing the error of their ways and putting in labor saving devices.

Why? New mills built on the Coast, designed by people heretofore unknown on the Pacific Coast, are proving to be competitors of the real sort and are not only making paper with two or even less men per ton, but are producing a better sheet at considerable lower cost.

Mills heretofore keeping their executives at home and hardly taking the trouble to read the Pulp and Paper Trade Magazines, some even cancelling these publications in an effort to save money, false economy to be sure, are now regularly sending these men of high caliber over the papermaking districts of the United States to gather such additional data as they may to economize.

These are the things he was most pleased with—the evident desire, if not need, for saving Waste—Waste in everything from wood to transportation.

The Story of An Utopian Mill

It Sounds Impossible But it is True in the Grandfather Paper Mill at Merrill

By EDWIN C. HART

A PAPER mill operated on the golden rule plan! Thus they speak of the Grandfather paper mill at Merrill, Wis. The Grandfather Company's plant may not boast of a record in the output of paper, nor in value of its holdings, nor in the number of employees, but those connected with the company will challenge any mill in the country to show a better espirit de corps.

One hour and thirty minutes after the spruce logs, which are piled high on the banks of the Prairie River, have been shunted into the peeling room of the Grandfather mill there emerges a product of white material on which dreams are made. This substance is newsprint, and what may be imprinted on its surface is only rivaled in interest by the story of its making—the inseparable stories of Grandfather mills and of William J. Sullivan, their manager for nineteen years.

In this mill capital and labor work hand in hand in such harmony that professional strikers failed to make one man stop work during a strike that closed all other timber industries in Merrill. And in this mill, which does not know the meaning of an industrial relations committee as such, one man is given the credit for this unusual loyalty. "Bill" Sullivan is so interested in his 65 fellow workers that he feels hurt if one of them does not report the birth of a son to him.

What "Bill" Says

"We fight for our men, and they fight for us," says Sullivan. "Though we like to hire young men, we feel that an old man's loyalty is just as valuable to us as it was when he was a young ox for work, and we don't believe in turning them out on a pension. I will tell you why our labor turnover is practically nil and why we discharge perhaps one man a year.

"The mill must go on. To this end we have two shifts working twelve hours each and though the men set their own pace and hence are not subject to what the sociologists call 'fatigue of forced spirits' we have an additional crew which cuts in regularly and gives everyone a weekly layoff.

"If I go out into the paper room the men do not jump up and start madly polishing the brass. If they are sitting down they are doing so because they have performed a job requiring great skill in a snappy manner and they can judge to an instant when their attention will be needed again at the machine. They and I both know that 'soldiering' is unknown in our mill. It's like hiring a bunch of high school boys to shovel the snow off your walk; they fool around a lot, maybe, but they get the job done quicker than one of your so-called steady workers.

"As Ellis Parker Butler says in a recent article in the *American Magazine*, "Get into the right rut—then stay there, but don't forget the oil!' The oil he is speaking of is play."

This absence of any spirit of being driven naturally results in the highest type of work. There is no such thing as a night boss and the mill runs merrily on turning out 500 feet of paper ten feet wide every minute.

The Vacation Plan

"Instead of firing a man," continued Mr. Sullivan, "we tell him to take a vacation for a day or a month. The walk home from the mill and the clear thoughts that come during the vacation generally are all the discipline we need.

"One year we had to run on the Fourth of July. We asked for volunteers. Two youngsters gave their word that they would work—but when the band began to play they disappeared. It wasn't only that it embarrassed the company with important work to be done, but they had given us their word and they had broken it. So I put them out for one year's vacation.

"Toward the end of that period they would drop around at the office and tell me, 'Two more months, Bill and we get our jobs back again.' And on the day, one year after they had been discharged I hired them again and they have justified my faith."

When the timber cruisers' union struck for the eight hour day instead of the existing ten hour period, the men at the Grandfather mill who were working twelve hours refused to strike. Most of them joined the new union and Bill Sullivan saw to it that they kept their dues paid up, but the strike never entered the precints of Grandfather, although other mills shut down all summer.

Later the men organized an association among themselves which charges the same dues and whose protection covers all that the state accident compensation law covers, and in addition any misfortune that may be met with outside the mill.

Life Insurance Policy

When a man comes to work for the Grandfather mill he is given a life insurance policy for $300 at the end of three months. Every year he remains with the company his policy is increased $100 in value until a maximum of $1,000 is reached in seven years. This is a form of bonus which the company finds very popular.

A friendly attempt is made to have all the men own their own homes.

"Give me a home owning class of workmen and I defy red Bolshevism to touch them," said the late Randall Parrish. Bill Sullivan has been putting this principle to work for him for many years. Not only do most of the men own their own homes in Merrill, but all of them have A-1 credit rating in any of the stores in the city.

A story to illustrate the problems that confront an employer of men is told by Mr. Sullivan:

"I heard that a certain employee of ours had no more credit down town. So I called him into my office and learned that his wife was extravagant and spent more than the pay check brought in. She was a very poor manager, kept no sort of budget or expense record, but just bought frosted cookies and finest butter and fancy shoes with no thought of the mounting bills. I asked her to come down to see me.

"When she came I explained to her that our men must have a good name in the stores. Then I said:

"'I am going to manage your hom one month. You will not even know you are going to have to cook for di each day. I will do all the orderin telephone each day and your husband give me his pay check. If you want thing you must come and ask me for

"The month rolled along. The r kids in that family probably ate more meal than ever before; they had gi snaps instead of ladyfingers, dairy b instead of fancy creamery. If a boy ne a pair of shoes, Mrs. X brought him d to my office and I told her to go and the ones he had repaired.

"Thirty days later when I handed what I had saved out of that mon check to the husband, they both refuse believe it. They really hadn't believed their large family could live on suc small cash outlay. Best of all, they it and since then the wife has taken in managing her home on a better busi basis.

"I suggested that they buy a home, s time later, but they both laughed at I persuaded them to start buying it on easy installment plan and before they it paid for they sold it for a nicer hon which they own today. Those are the of men we are proud of. Men of fam who pull together."

Appeals to Pride

Another way that this economic wi keeps the men turning out 32 tons of p a day is the careful stimulus given man's pride in his skill.

During the war automatic devices changing the rolls, winding a lead, had to be installed, but as soon as regular staff of men got back on the they took out those automaton-working vices. A man who possesses a knack a skill to work with his hands is too uable to turn into a mere machine ten the owner claims. This dexterity also tects the men in making it easy for t to get a job if they ever go to ano mill where these automatic contriva are not in use.

Other up to date methods in the Gr father mill are seen in the safety gua machinery and more especially in the trically operated grinders. This was a step in the manufacture of paper and be credited to this mill. Hitherto grinders had been attached to the wa wheel, but as the power plant for Grandfather plant is 14 miles away, e tric transmission of power was the feasible scheme.

The company, which was organized years ago, still is capitalized at $300, but it would be difficult to estimate value of the good will which its mana ment has built up.

* * *

To Make Paper Boxes

The Fall River Paper Box Company, River, Mass., recently organized, will ma facture paper boxes on a nominal scale. company is headed by Alexander Shapiro.

The Paper Mill Superintendent Dropped into the Sales Manager's Office—

"Charlie," he began, "just what do you think the Paper Exposition is worth to us—what can it do for us?"

On the desk lay an announcement of the

— SECOND ANNUAL —

PAPER INDUSTRIES EXPOSITION

Grand Central Palace, New York — — Week of April 7th

"I think," said the Sales Manager emphatically, "it is worth thousands of dollars in money—worth the most careful plans for an extensive exhibit—worth sending as many of our people as we possibly can to attend for several days. I think it will show us scores of ways to do better work—put out better products, and at the same time cut down production costs."

"That's quite an endorsement, Charlie" said the Superintendent.

"I spent the entire week there last year, and you know," the Sales Manager smiled significantly, "I've been promoted here twice since then."

"I see the point. What applies to you personally can apply to the organization as a unit, eh?"

"Exactly. The manufacturing department will get new ideas about the handling of materials, the latest machinery and equipment, processes—in fact about every single operation in the plant. It certainly is thorough. The sales department will establish desirable contact with the very people who make our success possible—buyers of paper who attend in great numbers. An attractive exhibit, featuring our products, places us definitely, in the minds of those people, among the leaders where we belong."

"Have we contracted for space."

"We have. I saw to that."

"Good. I'll see that all the boys go. And say young man," the Superintendent smiled, "I'm going to be there myself. I'm not going to let you fellows edge in ahead of me!"

The Paper Exposition Is to Be on the Main Floor of the Grand Central Palace This Year.

Write for diagrams, cost of space and all particulars.

PAPER INDUSTRIES EXPOSITION Grand Central Palace, New York City

The Editorial Page

A Suggestion to Congress

WERE the honorable legislators of the United States Government not so deeply engrossed in the favorite indoor sport of operating the mud-guns and assailing men's reputations, they would have time to heed the suggestion made in this issue of PAPER to help the paper industry of America.

For it contains a suggestion that has tremendous importance.

As far as can be learned no suggestion has ever been made before that the enforcement of one clause of the Versailles Peace Treaty would change the entire outlook in the American paper industry—as well as in various other industries.

The simple carrying out of that treaty in this respect, means prosperity for the industries of England, America and France, it means that reparations would be paid, that Germany would be forced to acknowledge her obligations and that she would be forced to compete almost on an equal basis. It sounds too good to be true.

The most dogmatical critic must admit that Germany is the key to the situation as regards paper. Her present method of doing business is threatening to financially injure other European countries which are forced to sell paper and pulp at a loss to get rid of their product.

She has refused to face her obligations. She is trampling down her own labor. She is not taxing herself as she should. She is simply endeavoring to win the peace.

The imposition of the fair and just collection of the 26 per cent. authorized by the Versailles treaty, which would go solely for the payment of reparations would on paper alone be a mighty item. As long as that tax is not placed, as long as Germany is allowed to compete with bankrupt methods, methods that are not ethical or businesslike, there is no hope for improvement in the paper industry in America. Our imports will consistently and greatly increase. The exports will go down instead of up. It is not encouraging for the average forward-looking paper manufacturer.

If Congress could pause in its daily occupation and could spare a minute to think along this line, it would see the fallacy of the present situation. It would see that no American industry could compete with Germany, without a tariff wall, or some guarantee of safety.

It isn't as if the American paper industry fears all foreign competition, even though tariffs seem to be far from equable in the various industries. The average foreign competition is not feared. America is willing to take her chance with Norway, Sweden, South America, England, France and other countries. But the situation in Germany is so peculiarly a war situation, an impossible bankrupt situation, devoid of principle or common sense, that America cannot compete. America must buy her wood to make into pulp, America must pay not only fair, but high wages to her workmen to do the labor, America must pay high freight rates to transport it to its destination. There can be no parallel whatever. And, therefore, America cannot successfully compete with Germany.

And who would want a condition in this country whereby she could compete? America doesn't want labor to work for little or nothing. America doesn't want to buy or sell her timberlands for nothing or a meagre trifle. America, collectively, wants fairness for all.

Consequently the entire problem resolves itself down to the suggestion of the 26 per cent. tax to be paid towards reparations. Under this plan Germany could still export paper, but Germany could not sell paper at prices that make America's prices look fantastic and exorbitant.

As a suggestion it looks distant and ephemeral. If Congress would take it seriously, the whole world would take it seriously and one of the most progressive and sensible steps that has been considered since the end of the world war, would be taken.

But, after all, we suppose it is too much to expect. Congress is too much of the earth, earthy just now.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Brooklyn, N. Y.—E. J. Trum, Inc., 55 Third Street, manufacturer of paper boxes and containers, has completed plans and will soon break ground for a new plant at 764-76 Fourth Avenue, to be three-story, 100x150 ft., estimated to cost approximately $125,000, including equipment. William Higginson, 15 Park Row, New York, is architect.

Seattle, Wash.—The Puget Sound Pulp & Paper Co., has tentative plans under consideration for the construction of a new plant on site near the city, to consist of a number of units, with machine shop, electric substation and other miscellaneous buildings, reported to cost close to $4,500,000, with equipment. Negotiations are under way with the city for power supply from the municipal system.

Chattanooga, Tenn.—The Tennessee Paper Mills, Inc., is pushing construction on its new power house and expects to have the structure ready for service in the near future. The installation will consist of coal-pulverizing machinery, in addition to regular station equipment, and boilers will be arranged to use fuel of this character. The electrical section will be composed of two 500 kw. direct-connected generators, with auxiliary apparatus. The plant will cost approximately $75,000.

Godbout, Que.—The St. Regis Paper Co., will soon commence the construction of a new hydroelectric generating plant, estimated to cost in excess of $125,000, including machinery. A local site has been secured. It is said that contract for general construction will be placed at an early date.

Norwich, Conn.—The Atlantic Carton Corporation, manufacturer of paper cartons, containers, etc., has acquired local buildings heretofore occupied by the Shetucket Co., manufacturer of textiles, and will use it for a new plant. The property consists of several mill structures, with power house, and will be remodeled and improved to accommodate the new industry. It is proposed to remove the present works to this location and install considerable additional machinery for large increase in capacity.

Jacksonville, Tenn.—The Old Hickory Paper Co., recently organized to take over a portion of the local Old Hickory powder plant of the Government, is reported to have plans in progress for a number of new units, to cost in excess of $500,000, including machinery and operating equipment.

Chicago, Ill.—The J. W. Butler Paper Co., has leased property at 163-69 North Market Street, consisting of an entire building, totaling about 65,000 sq. ft. of space, and will use for expansion. A number of improvements will be made to accommodate the business.

Brooklyn, N. Y.—Fire recently damaged a portion of the machinery and stock at the plant of the E. W. Paper Novelty Corporation, 239 Alabama Avenue. The estimated loss has not been announced. The departments will be replaced.

Buffalo, N. Y.—The Cellophane division of E. I. du Pont de Nemours & Co., Wilmington, Del., recently organized to manufacture special paper products, has active construction in progress at its new works, comprising a portion of the property used for the fibresilk branch of the company, River Road, Buffalo. The machinery installation is under way and a large force of mechanics is being employed. It is expected to have the new mill ready for service in the near future.

Hartford, Conn.—Fire recently damaged a portion of the building of the Cole Wall Paper Co., 148 Church Street. The estimated loss has not been announced. It is planned to rebuild.

Eau Claire, Wis.—The Dells Paper & Pulp Co., is closing miscellaneous contracts for completion of its new two-story mill, 80x100 ft., including roofing, steel sash, etc., and plans to have the structure ready for occupancy at an early date. It will cost about $400,000, including machinery. L. A. DeGuere, Wood Building, Wisconsin Rapids, Wis., is architect and engineer.

New Orleans, La.—The New Orleans Corrugated Box Co., Inc., has awarded a general contract to Joseph Framherz, New Orleans, for the construction of a new building at Burdette and Oleander Streets, to cost about $17,000. It will be used for warehouse and general distributing service.

Merritton, Ont.—The Niagara Falls Paper Co., Toronto, has preliminary plans in progress for the construction of a new local pulp and paper mill, consisting of a number of buildings, machine shop, power house and auxiliary structures, with reported cost placed in excess of 350,000, including equipment. It is proposed to commence work during the summer.

Newport, R. I.—The Newport Carton Co., is perfecting arrangements with the Industrial Development Co., for the construction of a new plant on the Commercial Wharf, to be occupied under lease. It is expected to cost about $30,000, including equipment.

Louisville, Ky.—The Kentucky Waste Paper Co., is reported to be perfecting plans for the reconstruction of its local building at 915 North Thirty-sixth Street, recently destroyed by fire, with loss estimated at $35,000. The new structure will cost approximately a like amount.

Middletown, Ohio—The W. B. Oglesby Paper Co., has taken bids on a general contract for the construction of a new three-story and basement plant building, 100x100 ft., to be equipped primarily as a heater and rotary unit. A portion of the structure will be reserved for storage service. It is estimated to cost close to $100,000, with equipment. Thomas H. Scott, P. A. Sorg Building, is architect.

Port Arthur, Ont.—The Nipigon Corporation is planning for the early purchase of machinery and operating equipment for a pulp and paper mill, reported to cost in excess of $300,000. C. W. G. Gibson, 80 Homeward Avenue, Hamilton, Ont., will be in charge of purchases.

Port Huron, Mich.—The Dunn Sulphite Paper Co., recently organized with a capital of 10,000 shares of stock, no par value, is having plans prepared by Billingham & Cobb, 404 Press Building, Kalamazoo, Mich., engineers, for its proposed local mill, to consist of a main unit with auxiliary structures, equipped for an initial output of from 15 to 18 tons per day. It is expected to call for bids at an early date. It will cost approximately $275,000. The new company is headed by Charles F. Clippert, R. G. Lambrecht and Charles F. Bornam, 680 Delaware Avenue, Detroit.

Eaton, Ind.—The Eaton Paper Co., is considering tentative plans for the erection of a new one-story building, 60x150 ft., to be used for distributing and warehouse service, estimated to cost about $23,000. Merle Peck is company architect.

Oakland, Cal.—The Globe Register Co., 2412 Reading Road, Cincinnati, Ohio, manufacturer of blank books, business registers, etc., has acquired property on Horton Street, Oakland, as a site for the construction of a new plant for Pacific Coast trade. Plans will be drawn at an early date, and bids asked. The estimated cost is reported at $50,000, including equipment.

Bogalusa, La.—The Union Bag & Paper Corporation, Woolworth Building, New York, will commence the immediate erection of its proposed new local plant for the manufacture of paper bags, containers, etc. It will consist of a number of buildings. The company purposes to secure paper for production from the local mill of the Bogalusa Paper Co. It is expected to have the new works ready for service late in the summer. It is said that an appropriation of close to $200,000, has been arranged for the plant.

Lewiston, Ida.—The Chamber of Commerce is in negotiation with a company which plans for the construction of a pulp mill in this vicinity, whose name is temporarily withheld. A site is under consideration. The plant is expected to cost in excess of $150,000, with machinery.

Bridgeton, N. J.—The Illinois Glass Co., will commence the erection of a new building at its local plant for the manufacture of paper boxes for company service, as well as for other similar works in this section. It will cost about $80,000, with equipment.

Albany, N. Y.—The Albany Perforated Wrapping Paper Co., has plans under way for the construction of a pulp mill on tract of timber property, totaling more than 55,000 acres, recently secured at Sheet Harbor, N. S. The mill will consist of a main unit and auxiliary structures, with power house and machine shop, and is estimated to cost approximately $260,000, including equipment. It is expected to commence work during the spring.

Philadelphia, Pa.—The G. A. Bisler Co., Inc., 245 North Sixth Street, manufacturer of paper boxes and containers, has filed plans and will commence the immediate erection of its proposed four-story plant addition at Fifth and Brown Streets, to be 135x146 ft., estimated to cost approximately $208,000, with equipment. A general contract has been awarded to the William Steele & Sons Co., 219 North Broad Street.

Philadelphia, Pa.—Edward D. Hemingway, head of the Hemingway Co., 243 Elbow Lane, paper products, has taken title to the four-story factory at 828-30 North Hancock Street, and will use the structure, it is stated, for enlargements in the plant. It aggregates 37x105 ft., and has heretofore been held by James E. Smith.

New Companies

Newark, N. J.—The Regal Card & Paper Co., has been incorporated with a capital of $50,000, to manufacture paper products. The incorporators are Benjamin Silber, A. and Samuel W. Bloom. The company is represented by Jacob I. Kaplan, 21 William Street, Newark.

Needham, Mass.—The Moineau Box Co., has been incorporated with a capital of $25,000, to manufacture paper boxes, etc. Alderic I. Moineau is president; and Edrick S. Tucker, Needham, treasurer.

Baltimore, Md.—The District Waste Paper Co., 445 Guilford Avenue, has been incorporated with a capital of $35,000, to deal in waste paper. The incorporators are R. Walter Crothers, Harvey O'Connor and William E. Mantz, Jr.

Brooklyn, N. Y.—Rothenberg & Kornfeld, Inc., has been incorporated with a capital of 60 shares of stock, no par value, to manufacture and deal in paper products. The incorporators are M. Rothenberg, S. Kornfeld and A. L. Salkin. The company is represented by Bernstein & Salkin, 52 Broadway, New York.

Brooklyn, N. Y.—The Paper Package Co., has been incorporated with a capital of $10,000, to manufacture paper specialties. The incorporators are S. Levy, S. Hoffman and B. Horowitz, 2916 West Thirty-sixth Street, Brooklyn.

Chattanooga, Tenn.—The Archer Paper Co., has been incorporated with a capital of $150,000, to manufacture paper products. The incorporators are John W. Marshall and John Stagmaier, both of Chattanooga. The last noted is president of the Tennessee Paper Mills, Inc., now operating a local plant.

Newark, N. J.—The New Wall Paper House, 30½ New Street, has filed notice of organization, to deal in paper products. George Honigblum, 595 Stuyvesant Avenue, Irvington, N. J., heads the company.

Chicago, Ill.—The National Paper Co., 935 North Western Avenue, has been incorporated with a capital of $20,000, to manufacture and deal in paper products. The incorporators are John D. Hardlicka and Joseph T. Moudry.

Everett, Mass.—The Packard Paper Box Co., has been incorporated with a capital of $15,000, to manufacture paper boxes and containers. Isaac Friedland is president; and Joseph Canter, 51 Felton Street, Waltham, Mass., treasurer.

Danville, Ill.—The Halls Wall Paper Co., 4 West Main Street, has been incorporated with a nominal capital of $4,300, to deal in paper products. The incorporators are Ernest R. Halls and C. J. Cook.

Long Beach, Cal.—The Western Paper & Envelope Co., has been incorporated with a capital of $220,000, to manufacture paper products. The incorporators are Bert P. Boles, J. Q. Garwood and Frank H. Jacques. The company is represented by the last noted, with offices at 516-17 First National Bank Building, Long Beach.

St. Louis, Mo.—The Burford-Bohlinger Paper Co., has been incorporated with a capital of $25,000, to manufacture paper products. The incorporators are Alfred P. Bohlinger, Jr., St. Louis; and Wesley C. Burford, Webster Grove, Mo.

Boston, Mass.—The Commonwealth Wall Paper Co., has been incorporated with a capital of 100 shares of stock, no par value, to manufacture and deal in wall paper and kindred products. Charles D. Golub is president; and Samuel Blackman, 36 Cunningham Street, Roxbury, Mass., treasurer.

Matawan, N. J.—The New Jersey Waste Products Co., has been incorporated with a capital of $10,000, to deal in paper products. The principal incorporators are Michele and Umberto E. Sardella, 21 Main Street, Matawan.

Financial

New York, N. Y.—The H. Fishman Paper Co., Inc., 2631 Third Avenue, has been placed in receivership, with Percy Michelbacher appointed in this capacity. The company deals in paper products, and is stated to have assets of about $40,000, and liabilities totaling approximately $20,000.

New York, N. Y.—The American Woodpulp Corporation, 347 Madison Avenue, has filed schedules in bankruptcy showing liabilities of $221,774, and assets of $321,587.

Buffalo, N. Y.—The American Tissue Mills, Inc., has secured a verdict for $13,693.92, with interest from Feb. 18, 1921, against the George Irish Paper Co., 25 River Street, Buffalo. The American company, with plant at Holyoke, Mass., brought suit against the Irish Paper Co., for breach of contract, holding that such company had refused a shipment of paper which it ordered. The defendant claimed that the stock was not in accord with specifications.

Augusta, Me.—Judge F. J. C. Little, referee in bankruptcy for the Cushnoc Paper Co., has authorized an issue of trustee bonds in an amount of $150,000, the proceeds to be used primarily for the purchase of pulpwood for use at the plant.

Augusta, Me.—A group of Maine pulp and paper companies, including the Oxford Paper Co., S. D. Warren Co., Eastern Mfg. Co., Orono Pulp & Paper Co., Maine Coated Paper Co., Nekonegan Paper Corporation, and others, have joined in a protest made to the State Public Utilities Commission, against the Maine Central Railroad Co., for its increase in rates for hauling pulp wood, a new schedule having gone into effect on Feb. 5. It is held that the advance is not justified.

La Tuque, Que.—The Brown Corporation, operating a local sulphate pulp mill, affiliated with the Brown Co., Berlin, N. H., manufacturer of kraft wrapping paper, etc., is disposing of a bond issue of $2,000,000, a portion of the proceeds to be used for general operations and expansion.

Baltimore, Md.—The Chesapeake Waste Paper Co., has arranged for an increase in capital from $25,000 to $50,000, for expansion.

Detroit, Mich.—The McRob Envelope & Paper Specialties Co., has filed notice of dissolution under state laws.

Alexandria, Ind.—The Alexandria Paper Co., has filed suit in the supreme court at Montreal, Que., against the Chicoutimi Pulp Co., of that city, asking damages of $160,344, for alleged breach of contract.

Trade Opportunities

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Sydney, Australia, in the market for a printing machine to handle reels of paper, Reference No. 9213. Also, of a concern at Ahmedabad, India, in the market for a quantity of paper.

The Chicago Association of Commerce, Domestic and Foreign Commerce Department, 10 South La Salle Street, Chicago, Ill., has received an inquiry from a company at Osaka, Japan, in the market for a quantity of parchment paper, No. 2748. Also, from a company at Pittsburgh, Pa., desiring a quantity of paper boxes of special design, No. 2757. And from a store at Ishpeming, Mich., in the market for flat paper bags, 11 in. x 11 in. in size.

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has information regarding a company at Shanghai, China, in the market for a quantity of paper, including newsprint, kraft, writing, transparent, check, legal and bond, Reference No. 9159. Also, of a concern at Puerto Cortes, Honduras, desiring to purchase fiber building board, Reference No. 9171. Full information on application.

The Domestic and Foreign Commerce Department, Chicago Association of Commerce, 10 South La Salle Street, Chicago, Ill., has received an inquiry from a company at Osaka, Japan, desiring to purchase a quantity of parchment paper, No. 2739.

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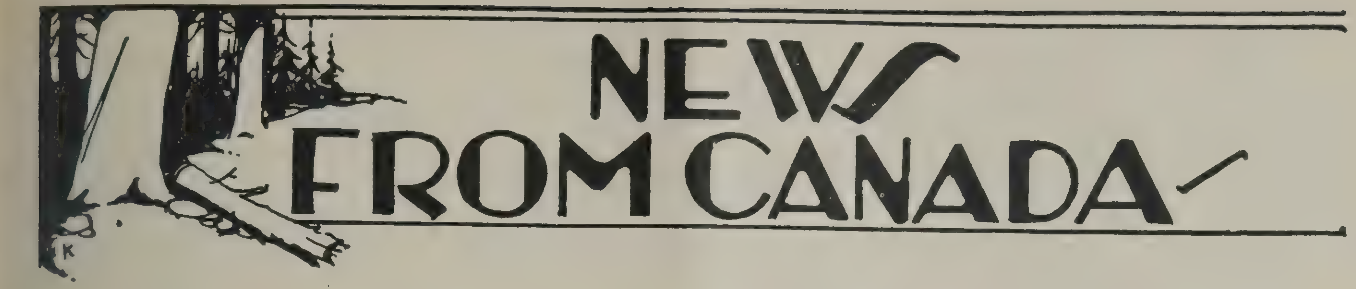
Pejepscot Paper Co. Close to Capacity

The Pejepscot Paper Co., Brunswick, Me., has been advancing operations at its three mills and production is now close to capacity, only one of the paper machines being idle. Operations have been resumed at the Lisbon Falls plant, following a shut down of about six weeks, and also at the Bowdoin mill, at which operations were similarly curtailed. It is expected that the plants will be maintained on the present schedule for some time to come.



MORE DEVELOPMENTS IN BECKER CASE

Action Over Bill of Exchange Is Latest Movement Noted

NEW developments continue to take place in the case of Becker & Co., Ltd., of England and Canada.

In the King's Bench Division, in London recently, Mr. Justice Roche heard an action brought by the Clydesdale Bank, Ltd., of St. Vincent street, Glasgow, against Becker and Co., Ltd., of Ludgate-hill, London, claiming £19,507 on a bill of exchange.

Mr. Theobald Mathew, for the plaintiffs, said the claim was by the bank endorsees for collection of the bill and as holders for value. The drawers of the bill were the Chicoutimi Pulp Co., of Canada. It was drawn on July 14th, 1923. The acceptors were the defendants, who accepted on July 30th. Upon presentation the bill was dishonored. The bill represented the price of woodpulp which was shipped by the Chicoutimi company to Becker's and which was delivered to persons who were not holders of the bills of lading. The Clyesdale Bank were the holders of the bill of exchange and the bills of lading. At the request of the Hochelaga Bank, of Canada, the Clydesdale Bank discounted the bill and paid for it £19,000 odd; and they therefore sued as endorsees for collection and holders for value. Counsel did not think there was any defence to the claim on the bill, but he understood that defendants suggested they had a set off or counterclaim.

Mr. Neilson, K. C., for the defence, said there was no question on the bill, but the Clydesdale Bank had received £9,500 on account of the bill.

Mr. Mathew agreed.

Mr. Neilson said subject to that he offered no defense to the claim. There was, however, a counterclaim. This arose out of a bill for £45,000 odd which was about a year earlier in date and in which the plaintiffs and defendants were concerned. This bill formed part of a financial transaction with which Messrs. Becker were concerned with other interests including two Canadian banks, one being the Hochelaga Bank and the other Molson's Bank. The object of the financial transaction was to provide more capital for the Chicoutimi Pulp Co., in which Messrs. Becker were interested and which they founded. Defendants' case was that the Clydesdale Bank improperly protected this bill and they were claiming damages from the Bank for alleged breach of duty. It was the first bill Messrs. Becker had ever had dishonored and was the initiation of all the firm's subsequent troubles. Counsel added that he could not proceed with the action without evidence from Canada that he had not yet got, and he further desired to consider whether the Hochelaga Bank should not be joined as necessary parties to the action.

Mr. Mathew contended that there was nothing in the counterclaim. The bill for £45,000 was, he said, presented when it became due. Messrs. Becker were told it would be protected if it was not paid. Messrs. Becker paid that bill and there was an end of the matter. Nothing was done and nothing was heard about it till Sir Frederick Becker swore his affidavit in the present proceedings. Having regard to the amount of the claims, however, counsel did not think he ought to agree to its being tried on the correspondence alone.

His lordship accordingly gave judgment for plaintiffs on their claim for an amount to be agreed, and adjourned the hearing of the counterclaim.

* * *

Present Bankruptcy Petition

In accordance with forecasts of a reorganization of the Chicoutimi Pulp and Paper Company, and apparently, it is said, as a preliminary to such a move, a petition in bankruptcy was presented in Montreal last week against that company by Canadian Fairbanks-Morse Company, Limited, who claims $3,400 against the organization. The petition was set as returnable in a fortnight and iterim receivers were appointed. These receivers, who took immediate control of the operations of the company are: Eugene Trudel, liquidator, Quebec; D. B. Brodie, Quebec, and Arthur Ross, Montreal. In financial circles this move is taken to mean that developments will shortly arise tending towards reorganization after liquidation, or sale to the Price interests, as reported.

* * *

To Erect Pulp Mill

G. E. Farlinger, of Sioux Lookout, Ont., who was in Kenora a few days ago, made the announcement that it is the intention of the Farlinger Compay, Limited, to erect a pulp mill at Sioux Lookout at a early date and that eventually they will add a paper mill to turn out the finished product in the shape of newsprint. Engineers will be engaged at once to survey and plan the work for the development of water powers on the English River. The company is capitalized at $2,500,000 and will contract to furnish light and power to the town. The Farlinger Lumber Company is taking out about 300,000 ties this winter, besides a heavy cut of logs for lumber, and will run their mills to capacity during the summer.

* * *

No Action Taken

No action was taken by delegates to the Associated Boards of Trade gathered in session at Cobalt this week, with regard to a resolution from the Cobalt board favoring an embargo on pulpwood, and the subject was dropped after a short debate, in which the balance of opinion was against any such measure. The Boards favored some steps being taken towards compensating the settlers to whom money was owing by the Mattagami Pulp and Paper Company, which has been in the hands of a receiver since 1921.

HANSON WANTS EVIDENCE ON EMBARGO

Detailed Report of the Events In The Canadian Embargo Matter

R. HANSON, a member of the Canadian House of Commons from one of the eastern Canada districts that is recognized as in the pulpwood territory, has filed a request for all correspondence on the embargo between the Canadian government and the American Paper and Pulp Association and individual pulp and paper manufacturers of the United States. Hanson is said to be desirous of having the embargo imposed against shipments to the United States, despite the fact that, when the pulpwood commission held a sitting in Fredericten, his home town, the bulk of the witnesses testified against the embargo. At the present time, Hanson is involved in a libel case against the *Fredericten Daily Gleaner*, which accuses him of using improper legal practices. Hanson is a member of the Conservative party, which the newspaper also represents. Hanson's party chief, Arthur Meighen, has lately emerged in favor of the embargo, and has made several speeches in different parts of Canada in favor of the ban on pulpwood exportation to the United States.

The opponents of the embargo seem to have lost some ground in recent weeks. It has been mentioned in some quarters that Canadian farmers would all look with favor on the embargo providing a minimum price per cord were agreed on and enforced by the government. That an agreement to this effect would be reached is an opinion advanced by one pulpwood operator who has been shipping large quantities of pulpwood to the United States each year. The contention has been advanced that the people who sell pulpwood should prefer to sell the wood to Canadian mills and thus aid in furthering Canadian industry.

The passing of the order-in-council by the Canadian government under which contracts made this year or previously for the supplying of pulpwood for exportation to the U. S. were immune if the embargo were imposed, has been used in favor of the embargo, and it is possible that the government will reconsider its stand. It must be admitted that when the question was originally discussed in the Canadian parliament, the preponderance of sentiment was in favor of the embargo, as a means of conserving pulpwood and forcing the establishment of pulp and paper mills in Canada.

* * *

Maxwell In Charge

Hon. James Lyons, Minister of Lands and Forests for Ontario, has announced that Capt. W. R. Maxwell has been engaged to take charge of the forest fire protection flying squadron in Northern Ontario. He will establish depots in the north for the thirteen aeroplanes recently purchased by the Government and will have complete charge of the service at a salary of $4,500 a year. A sum of $55,000 has already been spent on the new service.

* * *

One-half the world doesn't know how the other half lives. This is a great disappointment to one-half the world.

Rossing Plant Busy

The rossing plant which was established some time ago by the Heyland & Thompson Lumber Company at Landrienne, Ont., about 157 miles east of Cochrane, is busy at the present time and is rossing about fifty cords of pulpwood daily. The company have made arrangements for rossing pulpwood at several other points along the Canadian National Railway, and particularly in the La Sarre district in Quebec, where they are having 100 cords rossed each day. The company have bought up a considerable quantity of unpeeled spruce and balsam which is being delivered alongside track, the prevailing prices being $5 to $6 per cord, according to freight haul. They have also undertaken to supply the Abitibi Power and Paper Company with 20,000 cords of pulpwood, and between Jan. 1 and March 1 shipped about 24,000 cords, one-third of which went to the Abitibi Company at Iroquois Falls, and the remainder to mills in Southern Ontario and Pennsylvania. The demand for rough unpeeled pulpwood at the present time is fair, but owing to the deep snow and lack of frost, many settlers had great difficulty in getting their product out to the railway tracks.

* * *

Discuss Reorganization

At the adjourned annual meeting in Montreal of the Saguenay Pulp and Paper Company the difficulties of the organization were again outlined by the President, Senator Beique, and reorganization plans discussed. According to the president, there is no question of liquidation, and in regard to an offer from Price Brothers interests he made it clear that there has, as yet, been no offer direct from such interests, and until such time he felt such offers could hardly be considered. C. G. Heward, K. C., was elected to the board of directors, taking the place of Hall Caine, who had been the nominee of Sir Frederick Becker on the board. The financial statement showed a deficit of $183,826 for 1923, as compared with a deficit of $419,579 in the previous year. Earnings at $1,502,522 compared with $1,477,390 in the previous year.

* * *

Typothetae Men Entertained

Delegates to the meeting of United Typothetae District No. 16 at Hamilton, Ont., last week were entertained at a banquet tendered them by the well-known paper house of Buntin-Gillies, Limited, when the chief speaker was A. L. Lewis, of Toronto, who spoke on "The Printer and His Problems." The question of the printer charging a sales tax on his output, which has been the subject of interviews with the Government, was up for discussion at the Typothetae meeting.

* * *

Conference Held

A conference was held in Toronto last week between the text book committee of the Canadian Pulp and Paper Association and a representative of the Westinghouse Electric Company, Limited, for the purpose of checking up on the description of the Westinghouse Electric Drive which is to appear in the fifth volume of the text books of the pulp and paper industry.

* * *

Saskatchewan Is Busy

J. H. Anderson, a veteran western lumberman, told the Canadian Pulpwood Commission during its sitting at Prince Albert in Saskatchewan that that province was in the eve of a big development in the pulp industry. Charles McFadyen, forestry inspector, gave evidence as to the timber resources of that province, saying that 113,000 out of a total of 256,000 square miles in the province were timber lands and he estimated that there were 25,000 square miles of merchantable timber.

ST. REGIS COMPANY TO BUILD NEW MILL

Work Will Be Started In Early Spring On $5,000, 000 Mill

According to announced plans the St. Regis Pulp and Paper Co. will build a $5,000,000 mill at Cape Rouge, Que., work on which will be started early in the spring. The company has taken options on a number of pieces of property. It is said that the new mill will be the most important operated by the company, and that though at first the expenditure will be under $5,000,000, the ultimate expenditure will be $8,000,000. The company has 37,000 acres of freehold land on the Godbout River on the north shore of the St. Lawrence, and 14,000 acres along the Transcontinental Railway, near Escolena, Abitibi.

Commenting on the reports of new pulp and paper enterprises in Canada, the Montreal Gazette says: "There is some talk here and there of the establishment of new pulp and paper companies in this country. If any such projects get beyond the stage of discussion this year it will be interesting to note their reception by investors. While it may well be that the fears one occasionally hears expressed as to the possibility of over-production are without foundation, the fact remains that the old established companies have programmes of expansion in operation and in prospect, which may be counted on to take care of the increase in consumption and the decrease in United States production for some years to come. Therefore it would seem that investors in the Canadian pulp and paper industry of Canada, and the country in general have more to lose than to gain through a too rapid growth. A counter argument to the theory that there might be over-production of newsprint is that in the throes of a presidential election the United States will use much more newsprint this year than normally and thus bridge the gap.'

* * *

Has 25th Birthday

The Ratcliff Paper Company, York Street, Toronto, jobbers in coarse papers and other paper lines and one of the best known paper distributing houses in Ontario, has just celebrated its twenty-fifth anniversary. The firm was founded a quarter of a century ago by Fred L. Ratcliff and S. J. Douglas, both well-known paper men. Mr. Douglas withdrew from the firm some years ago and Mr. Ratcliff, who is now abroad, has remained as president of the company since the dissolution of the partnership. T. E. Gain is the vice-president and Norman J. Ratcliff is secretary. Another interesting feature in connection with the firm is the celebration of the fiftieth anniversary of his wedding by Thomas Barker, sales manager of the company, who has been in its employ since its foundation. Mr. Barker, who is one of the most popular of Ontario paper men, was the recipient of gifts from the company and fellow employees in celebration of the event.

* * *

Herbert L. Thomas Dies

The death took place at Clifton Springs, N. Y., a few days ago, of Herbert L. Thomas, of the purchasing department of J. R. Booth, Limited, Ottawa and Hull, who was well-known in the paper industry in Canada. Deceased, who was born in Bristol, England, came to Canada about twenty-seven years ago, after graduating in arts at the London University. During all that time he had been in the employ of John R. Booth. He was being treated at Clifton Springs, N. Y., for nervous breakdown.

* * *

Anyone who could prove the charm of love to a woman was always popular. Don Juan was the original psychoanalyst.

Talk of New Mill

Much interest has been created in N
Brunswick by widespread reports that a la
modern paper mill is to be added to the
dustries in the vicinity of Edmundston,
B., which seems to be based upon the
ported sale of about two acres of land n
the Maine end of the International Bri
across the St. John River, between Edmu
ston and Maine, and the securing of opti
of considerable land in the same vicinity. T
leads to the belief that the location of
projected big paper manufacturing plant
to be at Madawaska, Maine, and according
reports the Fraser Company, Limited, wh
head offices are now located at Edmunst
and the Brown Corporation, whose parent
ganization is in the United States, but
now controls several large pulp industries
Canada, are interested in the transacti
Some reports have it that the Brown Corp
ation have entered into an agreement to t
over the output of the Fraser Company's p
mill at Edmunston, and will erect a mill
Madawaska to manufacture it into pap
another report is that the proposition invol
an alliance of the Fraser and Brown inter
and the erection of a jointly owned mill wh
would take the output of the present pa
mill at Edmunston.

* * *

Pioneers In Research

The Canadian Pacific Railway was
Pioneer in initiating research for the utili
tion of western flax straw. Its efforts
this direction date back to 1916. About
date the company engaged at considerable
pense the services of the Arthur D. Li
Co., whose report and research work on
possibilities of manufacturing pulp and st
from western flax straw still remains the
complete investigation of this problem
has yet been made. The result of this w
clearly showed that a high grade pulp c
be made from this material from which
high grade paper was made, and actu
utilized for some time in the executive off
of the company. This corporation has
only co-operated with the National Resea
Council in this matter, but actually coll
the materials used in tests carried on by
Bureau of Standards at Washington. The
forts thus made now seem likely to bear f
in the near future. One important paper c
pany has plans well advanced for the use
western straw in papermaking.

* * *

New Plant To Open

E. W. Backus, head of the Keewatin Po
Company, Limited, and Minnesota and O
rio Paper Company, who was in Winn
a few days ago, stated that his new pulp
paper plant at Kenora will be opened du
the latter part of this month. It is st
that this will be the largest paper mil
the world. Mr. Backus stated that the p
would turn out ten tons of paper a day.

* * *

To Start Soon

It is expected that the newsprint mill
the Backus-Brooks Co. at Kenora, Ont.,
be in running order within a short t
Good progress has been made on const
tion and the machinery is now being insta
The pulp mill is being operated to capa

* * *

They Start Early These Days

Small Elizabeth—What is the age
innocence, mother?

Mother—You're too old to underst
darling.

* * *

Commissioner Enright's determina
to make war on unnecessary nois
ought to cause consternation in New
political circles.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

THE WEEK'S NEWS ABOUT FORESTRY REPORTED FROM SIX STATES

Paper Men Active Forestry Leaders Throughout the United States in Conserving the Timberlands

AN important forestry referendum will be submitted to the people of Wisconsin, where the paper manufacturers have sponsored the formation of the Wisconsin Forest Protective Association, the balloting being held the coming fall. The constitutional amendment which will be voted upon follows:

"The state may appropriate moneys for the purpose of acquiring, preserving and developing the forests of the state; but there shall not be appropriated under the authority of this section in any one year an amount to exceed two-tenths of one mill of the taxable property of the state as determined by the last preceding state assessment."

A previous decision of the state supreme court had ruled state forestry activities as works of internal improvement, a ruling which the proposed amendment would rectify. The amendment has been ratified by the legislatures of 1922 and 1923, and having been ratified by two successive legislatures is now ready for submission to the electorate.

The Forest Protective Association, of which D. C. Everest of the Marathon Paper Mills Company is president, is now arranging for a joint session with the lumbermen of the region, looking toward the establishment of a better system of state fire prevention.

The outstanding fact in connection with this movement for truly progressive forestry legislation is that the manufacturers are assuming the leadership.

Minnesota Makes a Change

W. T. Cox, for twelve years state forester of Minnesota, has been dismissed by the State Board of Forestry, without the announcement of any charges against him. A sharp editorial in American Forestry declares the action is purely politics, and deplores the change. The Minnesota forestry situation is of intense interest to the paper industry, because of the extensive development of paper mills in the Lake states.

A New Forester in Alabama

A new state forester has begun work in Alabama, under the law establishing this new department, as of Feb. 15, 1924, the incumbent being Maj. Page S. Bunker, whose first duty will be the handling of the problems arising from the relief of taxation of forest lands assigned to the state until the timber is cut by the forest owners.

Insurance Increases in Connecticut

Connecticut has the tallest fire lookout in New England, but instead of being in the woods, it is in the heart of the state's capital. The Traveler's Insurance Company has made available to the state its tower, the highest structure in New England, and so located that from its 527 feet of height a fire on any portion of a quarter of a million acres of woodland can be spotted.

Pennsylvania Sets New Record

Pennsylvania tree planting during 1923 was the largest in the state's history, passing the 5,000,000 mark. Upon maturity the trees so planted will produce two hundred million board feet of timber.

Association Conference in Texas

Extension of the forestry movement in Texas, particularly in the regions where the paper industry is getting a foothold, was discussed recently by the Texas Forestry Association when aggressive action toward reforestation was urged. Speakers pointed out that the state itself should take the lead in the movement, and not depend too largely upon Washington, and the federal service.

OVER-CUTTING IN GERMAN FORESTS APPARENT

Verification Given to Article in Another Part of Paper

GERMANY'S financial situation is resulting in over-cutting of the German forests, hitherto held relentlessly in reserve for future utilization, according to Dr. P. C. A. Schenck, now in Germany, but a former head of the Biltmore forest school in North Carolina. According to Dr. Schenck, excessive taxation is foregoing an era of cutting, beyond the capacity of absorption of the domestic market. As a result, exports of lumber and other forest products are growing, and throwing on the American market large quantities of pulp and paper that would otherwise be consumed in Germany. In a letter to friends in America, Dr. Schenck says:

"There is a great multiplicity of taxes, such as the ground tax based on the productive capacity of the soil. Every owner is forced to contribute to the forest organization of the country, to the forest protective staff of the state or town government, to old-age insurance; collect taxes from the pay-rolls of his employes, pay a subsidy to the public press amounting to one half of the values obtained from timber sales, and pay in addition a sales tax on his entire turnover."

Dr. Schenck then says that these are merely a preamble for the real taxes, for the state and general government. The total of the taxes paid monthly or bi-monthly, is 1.5 per cent of the value of the forests, which do not yield more than 2 per cent.

The result of these taxes is a cutting of the timber beyond the reproductive capacity of the holdings, the timber and pulpwood market is overstocked, with the resultant prophecy that an increasing amount of pulp and paper will be thrown on the American market.

* * *

The Oil Scandal Mentioned

The oil scandal at Washington is being mentioned by the New York State Forestry Association as an example of the need for continued activity of all those interested in the nation's resources. Had those involved in the oil cases had their way, the National Forests would have been transferred from their present control by the Department of Agriculture to the department which authorized the leasing of the naval oil reserves.

R. S. Kellogg

President,
Newsprint Service Bureau,
342 Madison Ave., New York

Says:

MY DEAR KEENAN:

There have been two really discriminating reviews of "Pulpwood and Wood Pulp in North America," that is, reviews that indicate the authors of them really read the book and grasped its purpose; one of these was by Prof. Lee of the New York University School of Journalism and the other by yourself, which I greatly enjoyed reading this morning. More than any other reviewer you have realized that the fundamental purpose of the whole thing was to drive home the necessity for forest production and to promote a consideration on the basis of facts, of the measures which are essential thereto.

I am asking Mr. Hughes to send me a few extra copies of the magazine, which contains your review.

R. S. KELLOGG.

Enter the Pine Sawfly

Just as we were congratulating ourselves upon the adaptation of Jack Pine to the paper industry, on an economic basis, comes news of the destructive Jack Pine Sawfly activity in the Lake States region. The sawfly goes under the rather impressive scientific name of Diprion abiatis, and the fact that the second half of his name is not capitalized is no indication that he can't do the business when it comes to forest depredation.

Raphael Zon, head of the Lake State Forest Experiment Station, says that in some stands as high as a third of the trees have been killed, although he adds the more encouraging statement that the damage in the average stand is not so severe. Dr. Graham, forest entomologist at the University of Minnesota, has found an average of 38 unopened cocoons to a square foot of litter, or 1,500,000 an acre. Every evidence points to a general outbreak of the sawfly which makes imperative the development of control measures. A general study is planned for the present year by the Bureau of Entomology, the University of Minnesota, and the Lake States Forest Experiment Station.

Scientists have occasionally predicted that the end of the world would come when destructive insects and plant diseases gained the supremacy. There is scarcely an agricultural crop known to man that does not have its enemies, in the form of insects, diseases or fungus growths. Again we must admit the importance of research and experiment to offset the ever increasing hoard.

* * *

Problem for Industries

Raphael Zon, Director of the Lake States Forest Experiment Station, maintained by the Forest Service, United States Department of Agriculture, declared in a recent interview in Washington that one of the major forestry problems in the Lake States is the artificial reforestation of about 20,000,000 acres of waste land that once supported forests. Director Zon says this is an urgent necessity and, in his opinion, a joint problem for the public and the interested industries.

"The basic problem in forest rehabilitation in the Lake States," stated Dr. Zon, "is protection of forests from fire. Without such protection forest reproduction is impossible. But adequate protection can not be assured without keeping the forests green by cutting only a part of the mature timber and leaving a part to form the nucleus of the new forests."

Director Zon also stated that experiments will probably be undertaken on a small scale by the Forest Service to determine if it is possible to increase the rate of growth of black spruce on about 12,000,000 acres of swamp land in the Lake States by partial drainage, in which a part of the water will be removed from that area.

* * *

Lumbermen Adopt Resolution

The appearance of O. M. Porter, secretary of the Woodlands Section of the American Paper and Pulp Association before the Northeastern Retail Lumbermen's Association for a talk on the retail lumberman's share in the forestry program of the nation was followed by the adoption of the following resolution:

"Whereas, the promotion of reforestation is vital to the retail lumber industry of the future we would conserve the source of supply of the material we have.

"Therefore be it resolved that we recommend to the Board of Directors the initiation of a program of co-operative action on the part of our members for the promotion of reforestation in the several states of our association territory."

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

J. STRACHAN
Donside Paper Mills,
Aberdeen, Scotland

Paper Which Spoke

During the great war, when newsprint was made in England with a furnish two-thirds waste paper, most mills found it difficult to keep hard stock consistently cleared. Until they got used to it the printers complained bitterly about occasional letters of the alphabet appearing on the unprinted sheet.

One mill got the usual complaint on this subject and the customer got the usual reply—that there was a war on, and in any case they didn't charge extra for the print.

The printer wrote again stating that, "under the circumstances no serious objection was taken to occasional letters but a line had to be drawn at whole words—see enclosed sample which speaks for itself."

The enclosed sample was had and showed several complete words. The printer had ringed one of the words with blue pencil—it spelt "damn."

Wisconsin Forest Men Meet

The next meeting of the Wisconsin Forest Protective Association, by order of the President Mr. D. C. Everest, will be held at the Congress Hotel, Chicago, Illinois, in the Francis First Room on Wednesday, March 12th at 3 P. M.

Matters of great importance to the Pulp Industry will be considered. A full attendance is expected and plans will be laid for a program for this Association to follow.

Mr. Ernest E. Hubert, President of the Madison, Wisconsin section of the Association of American Foresters, is expected to be present, also Mr. Raphael Zon of the Government Forestry Station, who will give a survey of what his department is doing in the line of forest protective work.

* * *

New Inventions in Industry

It is often said that there is nothing new in the Industry today; but we believe that there is nothing perfect in the Industry today and a casual investigation of the *Patent Office Gazette* will disclose that there is something new in almost every Industry offered almost every day.

One of the latest things offered in Wisconsin is the new beater roll invented by Casper E. Youngchild, Superintendent of the Nekoosa Mills of the Nekoosa-Edwards Paper Company, which increases the capacity of beaters about 25 to 35 per cent by hydrating the fibers that much faster than by the old method, thus saving equipment, time, labor and power, as well as producing a better grade of paper for wrapping purposes, as the sheet is given better folding and tearing qualities without reducing the pop or tensil strength test as shown by the Mullen tester.

Coolidge Receives Delegation

Support of President Coolidge for the McNary-Clarke reforestation bills, now pendin in Congress, was expressed at a conferenc with a delegation which included R. S. Kellogg, chairman of the Forestry Program Committee, formed largely through the initiative of America's paper industry. Othe members of this committee, as well as lumbermen and others prominent in the movemen for a forestry policy, were in the delegation which Mr. Coolidge received.

At this conference the President expressed himself as favoring the purposes of the bills as embodying the minimum present requirements of a general forestry policy.

The paper industry's part in the genera movement has been of highest importance, and the National Chamber of Commerce was represented at the hearing by its resident vice-president, as spokesman for the organization which conducted a nation-wide referendum on the proposals of its forestry committee, of which Dr. Hugh P. Baker, secretary of the American Paper and Pulp Association was vice-chairman.

* * *

A New Move in Forestry

A new move in industrial forestry has been made by a co-operative arrangement between the Manufacturers Association of Connecticut and the state forester, for the utilization of the Connecticut timber susceptible of use for small dimension stock. The manufacturers organization offers to take the manufacturers' specifications submitted to them and by handling through the state forester get a better market for Connecticut wood now being wastefully used. For instance, Connecticut manufacturers are importing hickory plank from Memphis, when fine second growth hickory of the grade desired is being chopped into cordwood by farmers who have not enough in quantity to warrant their seeking a market for the wood as lumber The method being followed is exactly the same as that being used in some portions of New York state by county organizations for the collection of pulpwood from small cutters for consolidated marketing to the paper and pulp mills.

* * *

Metal Counter Roll Plugs

Showing that the tendency even in the paper industry is to get away from wood in every way that it is possible to do so, is the invention of some of its employees taken over by the Nekoosa Edwards Paper Company of Port Edwards, Wisconsin.

Gilbert Marvin and Joseph Wipfli, seeing the tendency of events, have invented a metal counter roll plug to take the place of the heavy wooden plugs now used in all counter rolls of wrapping paper produced. That our readers may have an idea of the number and weights of wooden plugs used in the wrapping paper industry, let it be known that of the 6000 tons of wrapping paper per day made in the United States, 90 per cent is in counter rolls and there are an average of about 70 rolls to the ton, 5400 tons per day and 70 rolls average to the ton makes an average of 378,000 rolls per day and two plugs per roll or 756,000 plugs per day, weighing about 2¾ ounces per plug or nearly 200,000 pounds, or 100 tons of plugs per day.

The new metal plugs do not weigh more than 25 per cent of the old wooden ones and it is expected that pressed metal manufacturers will produce them at a price below the cost of the wooden ones, making a saving not alone to the paper mill; but to the customer and final consumer as well.

Wisconsin again leads in something new for the paper industry.

NEW DEVELOPMENTS IN PAPERMAKING

Stripping Paper

A new method of removing or stripping sheet material from a surface, as for example the drying drum or the felt of a paper making machine has been patented in England according to the World's Paper Trade Review.

The device which is seen in the accompanying illustration comprises the following essential parts. The hollow doctor 1 has a passage 6 in the toe 2, down which a fluid such as air, which may be heated, from a hollow portion 4, passes to strip the web 10 from the cylinder b, the fluid forming a cushion at 11 between the doctor and the cylinder. Additional jets 15, 16 and 17 may be provided to direct the web away from the doctor 1. The doctor may extend across the drying drum, or two doctors 1, as seen in figure 3, may be used, in which case a ribbon of the web is threaded through the drier in the first place. The doctors 1 may be used in vacuum drying apparatus, as in figure 2, wherein the vacuum is maintained by suction at 20, and steam is employed as a fluid for the doctors.

FIG.2.

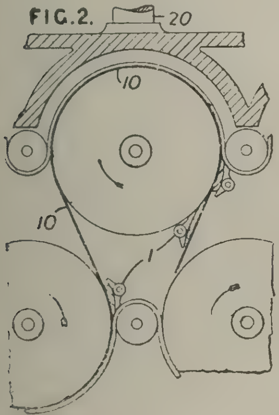


FIG.1.

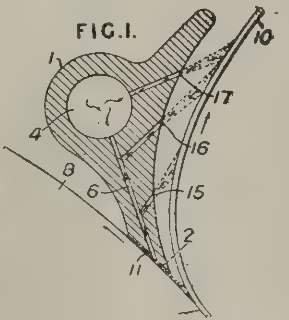
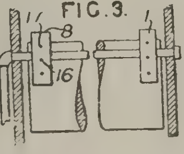


FIG.3.



* * *

Paper For Music Rolls

Perforated paper of a durable nature, capable of withstanding atmospheric changes and therefore suitable for music rolls, cards for sorting and classifying machines, etc., is made by treating paper, preferably before perforation by a process which is patented in British Patent No. 201,463. In case the paper is intended to make rolls which will be employed in tropical climate, it may be advantageously coated with a thin film of a molten wax or a wax emulsion. British Patent No. 203,567.

* * *

Binder From Sulphite Waste Liquor

United States Patent No. 1,467,321 is concerned with a process for the use of the waste liquors recovered from sulphite cellulose mills as a binder for foundry cores. Ammoniated sulphite-cellulose waste liquor is neutralized and concentrated. Any lime present is precipitated by treatment with just sufficient sulphuric acid or ammonium sulphate and the liquor filtered. Any excess of acid is removed by adding ammonia, and the magnesium present is precipitated with ammonium phosphate. The liquor is then mixed with sixty times its weight of sand and baked at 450 degrees C, a small proportion of petroleum oil being added before baking. The product is very suitable for use for cores in foundry casting, possessing considerable tensile strength and not being affected by the presence of water. Hitherto it has been impossible to obtain a binder rendered insoluble by a degree of heat which did not carbonize the organic materials present.

Making Marbled Paper

A new process of producing a marbled paper or a paper whose surface is covered with designs is described in German Patent No. 388,095. The designs are produced by using a machine wire which is made in relief to give a corresponding design on the surface of the paper. The paper web is then subjected to a pressure on a second flat wire.

The wire which produces the design on the surface of the paper is made in about the same manner as the waterproofing wire which gives a distinct waterproof in bond papers. The wire which is fastened to the same in the form of the design must be as strong as possible but at the same time it must not interfere with the taking up of the pulp by the wire. The wire itself may be pressed out in relief so that a design made of separate wire need not be employed. In this case the design is pressed into the wire.

The paper stock is fed on to the designed cylinder wire and the stock on the wire is sprayed with a little water. The stock which lies on the higher portions of the wire are then shoved aside by means of a suitable device and the stock in the depression on the wire remains unchanged. Then the wet web which has the form of the design is brought to another part of the machine and combined with another flat paper web. This gives a marbled or designed paper consisting of two parts, the flat under-layer of paper and the design fixed to the same.

* * *

Compact Thick Paper

In the manufacture of compact, thick paper by the process which is patented in German Patent No. 381,144, the paper is sized with liquid rosin which is obtained from fir or pine wood and then the paper is dried at a temperature of 100 to 120 degrees C. The rosin size is applied in the form of a solution or emulsion in organic solvents or solutions of soap. Freshly prepared rosin yields a superior paper, it is claimed.

* * *

Vulcanized Fiber

Vulcanized fiber is prepared from paper which has been made from cotton linters in the usal manner. It is essential that the cotton linters should not have suffered any or little chemical deterioration. The fiber that is made in this manner is stronger and possesses a greater resistance to bending than the regular type of vulcanized fiber. The process is patented in German Patent No. 376,384.

* * *

Paper Pulp Production

The water-soluble constituents of the ashes, which are obtained from the combustion of fuels, particularly peat, brown coal and other kinds of coal, when burnt alone or in admixture with dried filter-sludge ,can be utilized, with or without the addition of certain acids or alkalies, for the digestion, under atmospheric pressure or increased pressure, of cellulosic materials, such as straw, esparto, bamboo, flax, hemp and wood. The finely powdered ashes may be added direct to the digester, or an aqueous extract of the same may first be made. The quantity of ash required is generally the same as that of the caustic lime that is commonly used for the same purpose.

The addition of certain acids to the ashes results in the production of light yellow to deep brown pulps. By adding certain alkalies pulps are obtained which are capable of giving a bulky and highly absorbent paper. "Ash" lye is particularly suitable for removing lignin from mechanically disintegrated materials. Lignin residues from pulps which have already been chemically treated. Wood pulp prepared by this process has a high content of long fibred cellulose, and is suitable for the manufacture of strong printing papers. The exhausted digestion liquor may be used for the production of a highly nutritious cattle food or as a source of alcohol.

For further details regarding this process see British Patent No. 203,601.

News From New York State

SMALL HOPE FOR CREDITORS OF CARTHAGE SULPHITE

Appraisal Filed Has Little Upon Which to Base Hopes for Return

WATERTOWN, N. Y—No hope for creditors of the Carthage Sulphite Pulp and Paper Company, of Carthage, realizing upon their claims is held out in the appraisal of the property, filed Wednesday in United States Court at Utica. Instead it is conjectured by those advised on the subject, that the entire plant may be turned over to the bond holders, who alone, with a small coterie of creditors, are secured in their investments.

Appraisers estimate the value of all assets of the company at $605,342. Against this, having preference over the bills of the many creditors, stands the mortgage of the bond holders, totaling some $560,000. There are also to be settled with before the majority have a chance, five secured creditors with claims of $34,103.81. Lastly come the unsecured liabilities, 237 of them, with bills aggregating $405,992.75, and whose chances of realizing even a small percentage is believed by many familiar with the finances of the situation to be nearly nil.

James F. Akin, of Ogdensburg, Charles Burroughs, of Potsdam, and Frank L. Moore of this city made the appraisal. Largest of the single assets which they accord the bankrupt company is its water power in Carthage, valued by this trio of experts at $211,869.

They find 736 horse power of the first class, which they value at $40 per horse. There are 203 horse power of the second, or non-constant class, worth $15 each, and both are rated at a 75 per cent factor. The reproduction cost of $58,601 is reduced and the power capitalized at 10 per cent by the appraisers, giving it a value of $211,869.

The plant itself, the building and the like, is estimated at $44,591; the ground wood building at $8,356 and its machinery at $28,970; machinery and equipment in the main building, $69,970; flume and power development, $14,400; truck and furniture, $3,536, and miscellaneous equipment, $8,000. The machinery in the sulphite mill, which was damaged by fire last year, is listed at $24,152. Of the other assets found by the appraisers, supplies are rated at $51,023; paper on hand at $2,400; accounts, $21,692; life insurance to be received, $23,445; Black River Regulating District, $500; fire insurance held by the United States Mortgage and Trust Company, $42,012; one sixth interest in the Mt. Louis, Province of Quebec, property, $25,000.

Property in Canada would be covered by creditors in the Dominion and it is said that United States claimants could not hope to benefit from it. The first claim of the bond holders, however, will take practically all of the principal assets, and the priority of the secured creditors will apparently account for most if not all of the balance.

In his petition to Federal Court, Charles E. Norris, of Carthage, as receiver for the company, shows the grand total of indebtedness faced by the concern to be $1,000,500. This includes the bonds, duly secured by mortgages upon the real estate, water power and plants; the preferred creditors and the "floating" debts represented by the $440,000 claim.

Of the assets a portion is uncertain, namely, the fire insurance upon the burned sulphite mill, which has never been adjusted, but against which the Watertown National Bank has filed claim for $10,000 under an assignment. There is also the life insurance on paid up policies due in November, 1924, and $42,012 held by the United States Mortgage and Trust Company as trustee of the bond-mortgage, to insure replacement of the sulphite mill or retirement of bonds which might fall due.

Concluding his report, Mr. Norris advises that it is impracticable to operate the plant and that any attempt to do so would result in further losses to creditors; that it is impossible to borrow sufficient funds to properly finance the company, either for temporary or permanent operations, that carrying charges are a burden and that the best interests of creditors will be conserved by an immediate sale and disposal of the assets of the bankrupt.

Of the many unsecured creditors appearing upon the schedule, which is made a part of the receiver's report, appear the following:

Bagley & Sewall Company, $3,877.43; Carthage Coal Company $12,719.65; Carthage National Bank, $26,298.67; Dexter Sulphite Pulp and Paper Company, $8,653.40; Diana Paper Company of Harrisville, $7,417.65; L. D. DeCant estate, city, $1,454.43; H. F. Farfrington & Co., city, $3,292.47; Great Northern Junk Company, city, $1,578.39; R. F. Hammond Inc., New York, $92,724.95; Haskins & Sells, city, $2,199.69; National Exchange Bank, Carthage, $12,500; Northern New York Utilities, Inc., $47,542.53; Northern New York Coal Company, city, $1,805.96; D. J. Renaud & Son, Carthage, $1,260.83; Ryther & Pringle Company, Carthage, $3,188.88; H. I. Starkweather, Carthage, $1,777.29; W. C. Stebbins estate, city, $1,778.56; West Carthage Iron Works, $1,099.55; West End Paper Company, Carthage, $1,237.23; Frank P. Wilder, Carthage, $1,251.72; Watertown National Bank, $15,000.

The five secured creditors are: Dilts Machine Works, Fulton, $2,327; Ambrose Gormley & Company, Carthage, $513; tax collector, Morristown, $15.57; Village of West Carthage, $17,043.88; Westinghouse Electric Company, $14,203.

Federal Judge Cooper has directed all interested parties to appear before him March 7, at Albany to show cause why the suggestions of the receiver should not be carried out.

BAGLEY & SEWALL MACHINE BREAKS RECORD

Algonquin Company Machine Turns Out 96 Tons in 23 Hours

WATERTOWN, N. Y.—All records in the United States and Canada, and probably in the world, for the production of paper by one machine were broken on Wednesday of last week by the Bagley & Sewall paper machine installed about nine months ago in the plant of the Algonquin Paper Company at Ogdensburg.

In 23 hours the machine, one of the newest of the Bagley & Sewall machines, turned out 96 tons of standard newsprint running at a speed of 760 feet a minute. The machine is one of the largest in the country, being 204 inches wide and turning out a sheet that trims 194 inches.

While other paper machines have operated at a much faster speed—some of them at more than 1,000 feet a minute, the sheets are not so large, and the high speed is not maintained for a long period of time. The Algonquin machine has been averaging about 730 feet a minute and on other days has turned out as high as 93 tons a day. The new record was the best ever made by the machine, however, and according to officials of the Bagley & Sewall Company no paper machine in the United States or Canada has ever turned out 96 tons of paper in a day. It is believed also that there is no machine in Europe which has ever attained that capacity.

Richard Gray, representing the Bagley & Sewall Company, leaves next week for Vancouver, Wash., to set up a machine for the Columbia River Paper Corporation. The machine is a 136 inch machine and will be the first unit in a new paper mill, which eventually will have two or three machines. A sulphite mill has been in operation about three months, and a large sawmill has also been constructed in connection with the mill. It will require about three months to set up the machine.

* * *

BAGLEY & SEWALL TO SELL MACHINE IN CHINA

Watertown Company Receives Word Upon Return of Salesman

WATERTOWN, N. Y.—Edward S. Lansing, of the Bagley & Sewall Company returned last week from New York where he signed for his firm a contract by which the Watertown concern will deliver to a paper manufacturing concern in Hankow, China, a paper mill machine to be made at the Bagley & Sewall plant in this city during the next few months. Delivery is to be made by next June. The machine is the 88-inch design for making straw board In the Chinese republic today there are but ten or twelve papermaking machines in spite of its many millions of people, and the Bagley & Sewall Company made three of these.

The Hankow Company makes the straw board for boxes. Heretofore this product has been made by hand. So cheap is Chinese labor that the work can be done by hand at a profit. The papermaking machine will reduce the costs even more, however. The Bagley & Sewall Company has made a score or more of machines for Japanese concerns, but this is the first machine they have made for a Chinese firm in a dozen years or more.

The order means increased activities at the Bagley & Sewall plant in Watertown.

There is no doubt as to the industrial activities in the Far East at the present time, and American trade, tired of waiting for a revival in Europe and a resumption of sound conditions there, is turning more and more to the Eastern market for its business, just as the Bagley & Sewall Company did in this instance.

The local concern will begin work on the new contract immediately.

* * *

NORWEGIAN PULP AND PAPER IN 1923

Hopes That the Year Would Bring Relief Not Carried Out in Actuality

HOPES of Norwegian paper and pulp manufacturers that the year 1923 would bring an improvement in the industry were not fulfilled. The opinion now prevails that although production was maintained at almost normal during the past year, the prices received did not permit a reasonable margin of profit.

The year commenced well, with good sales and partly rising prices during the spring, but as summer approached a slackening both in paper and pulp began and continued to the end of the year. Only through the doubtful benefits derived from the depreciation, the Norwegian currency during 1923 were the factories able to keep running in the face of falling prices. The paper and pulp export markets during 1923 were adversely influenced by the strong protectionistic trend in tariffs the world over. Nevertheless, the total volume of the pulp and paper exports in 1923 was only a trifle lower than that of 1915, which was a record year for exports. In the case of chemical wood pulp and cardboard, the figures are the highest on record. Pulp and paper exports during the first 11 months of 1923 were valued at 247,000,000 crowns, as compared with 229,000,000 crowns in 1922. (The average value of the crown in 1923 was $0.167 and in 1922 it was $0.175.)

The production and export of chemical wood pulp was very large, but prices, which during the first six months of the year continued to rise, fell steadily after July. This drop, however, was not very definitely felt by Norwegian mills because the crown continued to depreciate during the year, thus absorbing most of the price drop in sterling and dollars. A prolonged strike in the Swedish industry and a subsequent strike in Norway caused a considerable reduction in stocks, so that at the close of 1923 the amount of chemical wood pulp on hand was estimated to total only about 10 per cent of the year's production of bleached and unbleached sulphite.

* * *

Take Group Insurance

More than a thousand employees of the Tate Paper and Color Industries, Inc., an organization with five plants in New York and New Jersey, have joined with their employees in acquiring group life insurance from the Metropolitan Life Insurance Company, according to an announcement today by the latter.

George Tate, the president of the company, carried on the negotiations for the group policy from his general offices, at Glens Falls, N. Y. Two of the factories are at Plattsburgh, N. Y., and three are at Hackensack, N. J. Under the agreement, the company will share with the workers in the payment of the premiums.

The insurance provided will be in the form of straight life certificates for $1,000 for each of the 850 men employees and for $500 for each of the women and girls.

AUSTRIA INCREASES PULP PRODUCTION OF

Paper Production Up to 80 Per Cent of Output Before the War

POSSIBLY the best indication of the growing improvement in the Austrian paper industry is the increase in production for 1923 over the preceding year, says Assistant Trade Commissioner E. M. Zwickel in a report to the Department of Commerce. The manufacture of chemical wood pulp increased by 2 per cent, mechanical ground wood by 14 per cent, cardboard by 5 per cent, and paper by only 1 per cent.

Production of wood pulp exceeds that of pre-war years, while paper production, based on the first six months figures, is about 80 per cent, and cardboard 60 per cent of that of 1913, according to a statement of the Secretary of the Austrian Association of Paper, Chemical and Mechanical Wood Pulp and Cardboard Manufacturers.

A further indication of the recovery of the Austrian paper and allied industries is shown by the export figures. During the first 11 months of 1923, paper exports amounted to 85,230 metric tons (more than during the entire year of 1922), cardboard exports 26,400 metric tons, and paper products 5,580 metric tons.

* * *

The Belgian Paper Industry

In spite of competition from low exchange countries coupled with rising production costs in Belgium, the Belgian production of paper has made a favorable showing during the past year, and had it not been for a strike in one of the larger mills pre-war production would probably have been attained. As it was, a total of 118,800 metric tons of paper were produced during the first 11 months of 1923, the output each month ranging from 75 to 84 per cent of normal. In spite of the comparatively good showing made by the mills, exports were 57 per cent below pre-war normal and imports were considerably above not only 1913 but 1921 and 1922. The present unfavorable situation in the export trade is laid to the competition encountered from low-exchange countries.

* * *

Bovard in Australia

William M. Bovard, is at present in Melbourne, Australia, where he is installing and organizing a printing and wax paper factory. This work will probably consume the greater part of a year. Mr. Bovard is a graduate of Princeton and was formerly assistant production manager of the Taylor Logan Paper Company, of Holyoke, Mass. During the war he was in charge of the paper section of the Ameriacn University Experiment Station, Chemical Warfare Service, Washington, specializing on a porous paper for gas masks. Later he became chief chemist of the Emerson Laboratories at Springfield, Mass., after which he became technical director of the Package Paper & Supply Corporation at Springfield. For the convenience of any of his friends who might wish to get in touch with him the postal address is Box 190, General Post Office, Melbourne, Australia.

* * *

Newsprint Imports During January

Imports of newsprint into the United States during January amounted to 215,187,033 pounds, valued at $8,234,614, of which receipts from Canada amounted to 190,483,207 pounds, valued at $7,418,173. The other important sources of supply were Sweden, 9,916,457 pounds, valued at $317,437; Germany, 6,632,139 pounds, value at $223,559; and Finland, 4,978,409 pounds, valued at $168,109.

TRADE LEADERS ENDORSE GRAPHIC ARTS

Charles Francis Throws Full Weight of His Endorsement to Exposition

ENDORSEMENTS of the Third Graphic Arts Exposition, to be held in Milwaukee, Aug. 18 to 23, have been given enthusiastically by leaders of the industry throughout the country, men who have written their names at the tops of the profession. They believe that the exposition and the fifth annual convention of the International Association of Printing House Craftsmen are events which will do much to promote the great printing industry and industries allied with it. They see expansion of markets, advancement of methods, interchange of valuable ideas and they urge that every craftsman who can do so attend and that manufacturers and dealers give the exposition liberal support.

It is also announced at exposition headquarters at the Hotel Pfister in Milwaukee that replies have been received from more than 100 representatives of foreign countries and principalities expressing a keen interest and indicating that the international character of the event is constantly growing.

Charles Francis of the Charles Francis Press, Printing Crafts Building, New York City, is one of the enthusiastic backers of the exposition. He heads his statement "Taking Your Own Medicine" and brings out the point that while advertising in this country is absolutely dependent on the printing, lithographing and allied industries, still these great industries have themselves failed thus far to see the great value of their own "medicine"

* * *

To Be at Exposition

The S. K. F. Industries will exhibit at the Paper Industries Exposition occupying space No. 17 at Grand Central Palace, April 7th to 11th.

A range of Skayef Self-Aligning and Hess-Bright Ball Bearings will be shown also step operation of ball bearings and Atlas Steel Balls.

Ball Bearing Housings for Table Rolls, Dryer Felt Rolls and Fourdrinier Wire and Press Felt Rolls will be shown also a large Skayef Self-Aligning Ball and Spherical Roller Bearing.

Interesting models showing the anti-friction qualities of ball bearings will instruct and amuse while engineers will be on hand to answer questions about the application of ball and roller bearings to Paper Machinery.

The headquarters will be at the Waldorf-Astoria and the following men will be present:

R. H. De Mott, general sales manager; H. E. Brunner, chief engineer; G. H. Spencer, pulp and paper department; J. C. Gayler, pulp and paper department and R. C. Byler, advertising manager.

* * *

To Make Patterns

The Duraform Co., Inc., New Haven, Conn., was recently incorporated to make and deal in paper pleating patterns. Harrison A. Selfridge, M. Kipp and Malcolm P. Nichols, all of New Haven are the incorporators of the company, which is capitalized for $10,000.

* * *

To Make Boxes

The Packard Paper Box Co., Everett, Mass., recently organized to make paper boxes has an authorized capital of $15,000. Isaac Friedland, president, and Joseph Canter, 51 Felton street, Waltham, Mass., head the organization.

Through the Middle West

WISCONSIN FOURTH IN PAPER PRODUCTION

Facts Reveal That This State Is Progressing Fast In Making Paper

STATISTICS just made public by John D. Jones, Jr., Commissioner of Agriculture of Wisconsin, indicate that Wisconsin now ranks fourth among the states in the production of paper. Eleven per cent of all the paper manufactured in the United States comes from Wisconsin, these figures show.

The commissioner's report says that 16,218 men and women are employed in the industry in Wisconsin. The total capital invested in papermaking in Wisconsin is given as $118,908,660 and the value of the annual product is $88,546,541. Annual production of pulp in Wisconsin is 624,738 tons and value of which is given as $88,546,827. The annual payroll for those employed in the industry is $20,725,388.

It requires 1,086,616 cords of pulpwood to supply the pulp and 204,895 railroad cars are required for use by the industry each year.

Figures of the state department show that a large part of the output of Wisconsin's mills is print paper. The annual production of print paper in Wisconsin is 277,368 tons. The production of other paper is as follows: Wrapping paper, 186,288 tons; paper boards, 151,645 tons; tissues and toweling, 67,800 tons; bonds and writing paper, 44,445 tons; special papers, 68,355 tons.

Wisconsin is making the equivalent of 612 pounds of paper for each resident of the state, whereas the national per capita production is said to be 140 pounds. There are sixty mills in Wisconsin devoted to the manufacture of paper. They are located principally in the Fox River and Wisconsin River valleys where there is excellent water power. The first paper mill was established in Milwaukee in 1848. This mill was taken over by D. E. Cameron the following year and he boasted that his production of 112 reams a week was sufficient to supply all the newspapers of the state.

* * *

Safety Contest Ends

The safety contest between the Greens and the Yellows in the Kimberly mill of the Kimberly-Clark Company ended in a tie on March 1 and it has been decided to continue the contest another month.

The contest has been marked by unusual enthusiasm. The green division has been holding meetings in the clubhouse at which there is a singing and speaking program. Posters around the mill call attention to the contest and the spirit of competition has even communicated itself to the village where each team has its backers.

The yellow division recently put on a mock trial at the clubhouse. M. G. Hoovman, safety director, was placed on trial. He was "arrested" for neglect of duty and was ushered into the hall with a heavy iron ball chained to his leg. He was found "guilty" and "convicted."

Both sides have had several near-accidents, but none serious enough to be classed as an accident.

* * *

Spruce Coming In

Spruce pulpwood is beginning to arrive from Minnesota for the Grandfather's Falls Paper Company's mill at Merrill. A total of 10,000 cords has been contracted for delivery between the present time and midsummer and additional crews have been engaged to assist in the unloading.

Wisconsin Mill Notes

The first meeting of a class in foremanship training was held at the Appleton vocational school this week and attended by about 25 paper mill employees, all that can be accommodated.

* * *

The Consolidated Water Power and Paper Company is preparing for the spring breakup of ice at Wisconsin Rapids by cutting a channel to ease the strain on the dam and permit the ice to go out freely.

* * *

The sulphate process of making pulp was explained by R. M. Radsch, superintendent of the sulphate mill of the Thilmany Pulp and Paper Company of Kaukauna before the Industrial forum at the Appleton Y. M. C. A. this week.

* * *

Judson G. Rosebush of the Northern Paper Mills of Green Bay, presided at the recent meeting of the Central Region of the Y. M. C. A. at Chicago.

* * *

Construction work for the Peshtigo Paper Company having been completed, Harry M. Schmitt, who was in charge, has removed to Oconto, where he will engage in engineering work.

* * *

The George A. Whiting bowling team of Neenah, made up of paper mill men, recently established the highest record of the season when they rolled a score of 3,032 in three games.

* * *

The girls' club of the Kimberly mill of the Kimberly-Clark Company is an active organization with a basketball team, hiking club and ukelele club. About 40 girls are members and they attend all the mill's athletic contests in a body, their cheering being a feature of the games.

* * *

To Build Addition

According to reports in circulation in Menominee there is a possibility the Marinette and Menominee Paper Company may build its addition, which is to cost in the neighborhood of $200,000 at Oconto Falls, instead of in Menominee. The possibility of a change in plans is said to be due to failure to agree with the city on the vacation of a strip of land the city wishes to acquire. The city has made a tentative offer of a strip to be vacated in exchange for another strip to be acquired for use in straightening a street, but this is understood to be unsatisfactory to mill officials.

* * *

To Buy Power

The Northern Paper mills of Green Bay have been successful in completing a deal for purchase from the White Rapids Paper Company of Oshkosh of the White Rapids power and a large acreage of land, according to papers filed with the register of deeds here. The power is one of the largest on the Menominee River, engineers estimating that about 10,000 horse power could be harnessed there. The deal involves several miles of river front. It is understood that the Northern mills have a plan for the development of the power and its transmission to Green Bay where it would be used in operating the company's paper mill.

NEENAH MILL WINS THE CHAMPIONSHIP

Beats Out Kimberly In Playoff—Much Interest In Games

THE Neenah Mill of the Kimberly-Clark company at Kimberly, Wis., won the championship of the company's four teams in the basketball tournament conducted in the clubhouse here with teams entered from each of the cities where the company has properties. After a series of elimination games Neenah won the right to play Kimberly, and won an exciting game 16 to 14. The Niagara team humbled Niagara Falls 32 to 12.

Kimberly started off with a free throw, but Neenah followed with several baskets and when the half ended Neenah was in the lead 9 to 7. Early in the second half the Kimberly mill men caught up, but at this stage of the game Chapelle, Neenah's star, caged three baskets in rapid succession. Boettcher shot two through the hoop for Kimberly and two minutes before the final whistle blew Neenah was leading 16 to 14. Neither team was able to score in the last two minutes of play.

In the first game of the evening Niagara, Wis., has little trouble with the Niagara Falls, N. Y., team of the Kimberly-Clark company. The Wisconsin men played rings around the easterners although the New Yorkers fought hard up to the end. The superior teamwork of the Wisconsin players was apparent.

The Kimberly clubhouse was crowded to capacity both nights of the tournament and many were unable to crowd in to see the intersectional contests.

In the elimination contests the night before the play for the title, Kimberly defeated Niagara Falls, 29 to 18 and Neenah won from Niagara, Wis., 27 to 17.

* * *

Given Gold Watches

George Weyenberg of Kimberly and Edward Reuter of Appleton were present with gold watches Saturday night by the Kimberly Clark Company in recognition of saving a fellow workman, Michael Thiel, from possible death.

While at work in the paper mill last Thursday Thiel's arm became caught in a small canvas feed belt and he was thrown about sixteen feet over a calendar stack of a paper machine. His cries for help caused Weyenberg and Reuter to rush to his assistance and rescue him from further injury and possible death in the paper machine.

Presentation of the watches was made by S. F. Shattuck and M. G. Hooyman of Neenah, the latter being safety director of the mill.

This is the first time an award of this kind has been made at the Kimberly mill and is in accordance with the company's plan of rewarding those responsible for similar acts. It is the second case of its kind in the company's history. The first watch was given to an employee of the company's mill at Niagara.

* * *

200 Cars of Pulpwood

More than 200 cars of pulpwood have been distributed among paper mills of the Fox River valley this week, the Interlake Pulp and Paper Company of Appleton receiving a large share of it. The shipments of pulp started earlier this year than usual, much of it coming from a new district in Minnesota. Practically all of the wood shipped here last year was rafted across Lake Superior to Duluth and Ashland.

CLAIMS PAPER CAN BE MADE OF SUGAR CANE

Trying To Interest Capital In Mill To Make Paper of Waste Sugar Cane

CLAIMING to have perfected a process by which paper can be made from waste sugar cane and other grasses that grow wild in Florida, Capt. H. E. Ellis, of Miami, Fla., is endeavoring to interest paper men of Dayton, Ohio, and the Miami Valley in the proposed erection of a $500,000 mill in Florida.

Capt. Ellis, it is said, is the man who brought over from Europe the process invented by Dr. Carl Kellner, of Vienna, for producing bi-sulphate. He established two bisulphite mills in America.

He says he has been experimenting for seven years with the raising of napier grass, roselle hemp, sun hemp and bamboo and now is in a position to report that the sugar cane refuse is better adapted than any of those products for the manufacture of paper.

His sugar cane process, Capt. Ellis reports, makes an ideal mechanical pulp and a chemical pulp as well for newsprint paper or any other grade up to No. 1, book stock.

He points to the fact that a government investigation shows that about 4,000,000 cords of spruce are used each year in this country and Canada for lumber and the making of woodpulp and that at this rate, the supply will last only about 10 years.

He offers his sugar cane process as a substitute for the diminishing lumber supply. Capt. Ellis says that a free site for a mill has been offered him in Hileah, Fla.

* * *

Superintendents to Meet

The Officers and Committees of the Northwestern Division of the Superintendents Association are getting busy and arranging for their Spring Convention.

On November 18th the Committee met at Stevens Point, Wisconsin and decided to hold the Spring gathering at Marinette, Wisconsin, on Friday and Saturday, May 2nd and 3rd.

Mr. A. G. Stone of Marinette was selected as general chairman and has arranged to appoint his committee members immediately. As soon as they have accepted a list of those who will put on the event will be published.

Marinette and Menominee Mills, also those at Peshtigo and Octonto Falls are expected to be open to Association members on the days mentioned and a real live program for the two days is promised.

* * *

Fire At Paper Mill

Cinders left outside the Atlas Paper mill were responsible for a small fire at the mill on Sunday. The cinders, by heating through the mill, ignited a quantity of paper inside the mill. The blaze crept up the wall to the second floor and there set fire to more paper. The heat caused the sprinklers to discharge and because of the sprinkler system and with the help of chemicals used at the mill the fire was practically extinguished when the Appleton fire department arrived.

* * *

Was Instantly Killed

Max Haid, 74 years old, employed in the Outagamie Paper Company's mill here for 20 years, was instantly killed when he was buried under a quantity of paper stock he was removing from a machine. He was not missed for an hour when a searching party found his body.

* * *

Almost Instantly Killed

Louis Goldstein, part owner of the Massachusetts Waste Paper Company of Blackstone, R. I., was almost instantly killed recently while working in the baling plant when crushed by one of the power balers.

Dayton Convention

Great preparations are being made by the General Committee in charge of the Dayton, Ohio Annual Convention of the National Association of Pulp and Paper Mill Superintendents set for three days May 22, 23 and

The General Committe is composed of: H. W. Server, chairman; F. H. Henry, arrangements; John J. Maloney, reception; B. T. McBain, resolutions; H. D. Martindale, registration; Thomas E. Keogh, transportation and Tom Harvey, visitation.

The American Paper and Pulp Mill Superintendents Association is an Associate member of the American Paper and Pulp Association. Mr. Nelso R. Davis, superintendent of S. D. Warren Company Cumberland Mills, Maine, is the president, while Peter J. Massey of Chicago, is secretary-treasurer.

A very instructive program has been arranged for including papers by:

Howard S. Taylor of Dayton, Ohio, president of the Technical Association of the Pulp and Paper Industry and a general paper mill engineer of that city.

B. S. Summers of Port Huron, Michigan, a chemical engineer of high standing and for years making a specialty of paper making fibers for various purposes.

C. L. Cecil, a forest engineer of Duluth, Minnesota, will show the superintendents where they must look for their future supply of raw material, if there is to be any supply at all.

E. P. Gleason, general engineer of the Nekoosa Edwards Paper Company of Port Edwards, Wisconsin, will read a paper on paper drying, the one big subject now before the paper industry next to wood supply and waste.

George P. Hambrecht, United States Director of vocational education, will talk to the convention on his wonderful work for labor among those who have not been able to get all the education they want.

There will be many other subjects taken up, among them the Report of the General Standards Committee of Fifteen for Sulphite, Sulphate, Soda and Groundwood Pulps and a Kraft Pulp and Paper discourse by B. T. McBain, general superintendent and assistant general manager of the Nepco Mills at Port Edwards, Wisconsin.

The mills in Ohio district will have open house for the visitors and it is expected at least 50 per cent of the membership of some 1000 will be present.

* * *

On Visit to Wisconsin Mills

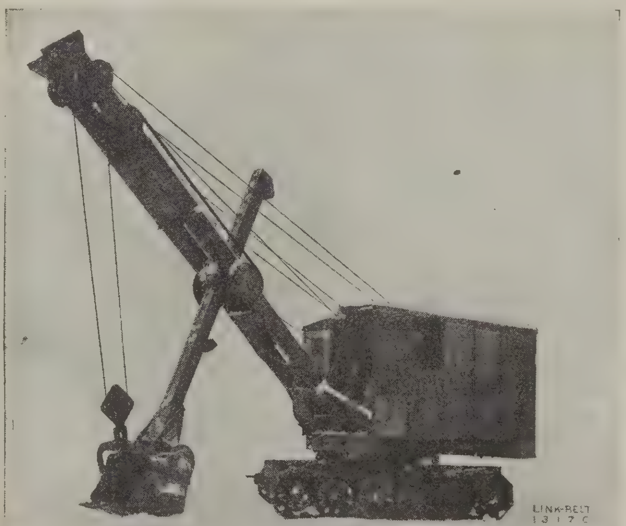
Mr. Walter E. Graves, Mill Manager of the Floriston California Mills, and Mr. George Frogner, General Electrical Engineer of all mills of the Crown Willamette Paper Company visited the mills in the Northern Wisconsin River Valley during the week of February 18th and the Port Edwards and Nekoosa Mills of the Nekoosa Edwards Paper Company on Monday February 25th.

Mr. Graves is a Pacific Coast man and has been with the Crown Willamette Paper Company and its predecessors for 21 years. Mr. Frogner is originally a Wisconsin man but for the past ten years has been connected with the big Pacific Coast concern.

* * *

W. P. Fletcher Dies

William P. Fletcher, president and owner of the W. P. Fletcher Box Company, manufacturers of paper boxes at Stoneham, Mass., died in St. Petersburg, Fla., where he was spending the winter. He was born in Woburn 63 years ago, was for a time employed by the Woburn Paper Box Company and then started in business for himself, constructing the present large factory in 1891.



Type of Speedy New Crane

LINK-BELT ANNOUNCES NEW GASOLINE SHOVEL

Develops Shovel Attachment In Connection With Crawler Crane

LINK-BELT COMPANY of Chicago has recently developed a shovel attachment for use in connection with their gasoline crawler crane. This shovel boom-attachment is interchangeable and provides their crane with a far greater field of usefulness. Either attachment (shovel or crane boom) can be specified as original equipment, but however specified, the interchangeability of the booms makes the machine either a gasoline crawler shovel with crane boom attachment or a gasoline crawler crane with a shovel attachment.

The dipper is ¾ yd. capacity and is made entirely of manganese steel. It has been modeled after the famous "Mesaba" type of dipper used so extensively on the Mesaba Iron range. The standard dipper stick is 15 ft. long. The extremely husky boom is 24 ft. center to center.

All crowding motion is performed by a rack and pinion actuated by a very vigorous combination of the hoist and hold rope used on the ordinary clam shell bucket hoist. The full power of the 60 H. P. gasoline engine can be used in the crowding motion, making it, in this respect, superior over the usual steam machines with their small crowding engines.

FINANCIAL PAGE

ROSEBUSH BUYS CONTROL OF OUTAGAMIE COMPANY

Big Paper Mill Capitalist Acquires Valuable Property

Announcement has been made of the purchase by Judson G. Rosebush of Appleton, Wisconsin, vice-president of the Nekoosa Edwards Paper Company of Port Edwards, Wis., of the Outagamie Paper Company of Kaukauna, Wisconsin.

Mr. Rosebush acquired control of the Company by purchasing the interests of eight stockholders He was vice-president of the company before the new organization in which the capitalization of the company was increased from $400,000 to $675,000.

Mr. Rosebush is one of the largest paper mill capitalists in Wisconsin. In addition to his interests in the Outagamie Company and the Nekoosa Edwards Paper Company he is president of the Patten Paper Company of Appleton, Wis., treasurer and general manager of the Northern Paper Mills Green Bay, Wisconsin; president of the Inland Empire Paper Company of Spokane, Washington, and also has large interests in other paper companies.

* * *

Over Half Million Profit

The United States Envelope Company reports net earnings for 1923, after deductions for taxes, charges and depreciation, $585,480. This is equivalent to $17.45 a share on common stock after allowing for preferred dividends and compares with a net of $435,874 for 1922, which was equal to $12,83 a share after allowance for preferred stock dividends. The surplus account as of December 31, 1923, stood at $2,129,031 which compares with $1,963,551 at the close of the fiscal year for 1922.

* * *

Packard Company Starts

The Packard Paper Box Company of Everett, Mass., has been incorporated with a capital of $15,000. The incorporators and officers are: president, Isaac Friedland; treasurer, Joseph Canter, 51 Felton Street, Waltham, Mass., and clerk, Ethel Beller.

Late Market Prices

Tuesday, March 11, 1924

	Bid	Asked
American Writing Paper	2	2½
International Paper Co	37	37¼
Union Bag & Paper Co	57⅞	58

* * *

Now Reorganized

Stockholders of the Continental Paper & Bag Mills, a corporation operating mills at Rumford, Me., at a special meeting held during the week at Portland, Me., voted to sell all of the assets of the company to a new corporation to be organized in Delaware and to be known as the Continental Paper Bag Mills Corporation.

The reorganization will not only include the holdings of the existing Continental company, but also the mills at Rumford, Me., of the International Paper Company in which about sixty per cent of the output has been used by the Continental concern in its own plant. The International company's plant at Rumford has been devoted to the manufacture of bag and wrapping manilas.

Deeds for the transfer of the property are in process of preparation. It is understood that there will be but little, if any change in the management of the Continental interests with the reorganization. The reorganization will go forward rapidly and is expected to be completed as soon as the charter to the new company is issued.

* * *

Pay Extra of 25 Cents

Texas Gulf Sulphur Company today declared an extra dividend of 25 cents in addition to the regular quarterly dividend of $1.50. These dividends are payable March 15, to stock of record March 3.

Clarence M. Wooley was elected a director to succeed the late John A. Black.

* * *

A laugh is just like sunshine,
It freshens all the day,
It tips the peak of life with light,
And drives the clouds away.
The soul grows glad that hears it
And feels its courage strong;
A laugh is just like sunshine,
For cheering folks along.—Anon.

Short Notes

The Sunset Paper Mills, Inc., has been chartered in Los Angeles, Cal., with a capital stock of $500,000, by Charles Gordon, San Francisco, and M. C. Cooper, Peter C. Brown, Bruce F. Brown, Harvey M. Brown, Murray G. Brown and Ralph W. Brown of Los Angeles.

The Crown Paper Box & Label Co., lately incorporated in Dallas, Tex., with Leo Singer, president, has a plant and will manufacture cardboard boxes and do printing.

The building of the Kentucky Waste Paper Co., 915 N. 36th Street, Louisville, Ky., has been damaged by fire to the extent of $30,000.

The National Fixture Co., of Columbia, S. C., is in the market for both set up and folding paper boxes, paper shipping cartons and tissue wrapping paper.

The Albany Paper Co. has been incorporated in Albany, Ga., with a capital stock of $15,000, by John C. Mason, B. W. Simon and I. C. Gortatowsky.

* * *

New Firm Formed

The Federal Abrasive Works, Inc., of Westfield, Mass., manufacturers of abrasive paper, has been incorporated with a capital of $50,000. The incorporators are Henry F. Chandler, Percy E. Lyndon and William S. Chandler, all of Brookline, Mass.

* * *

A Splendid Report

Eastern Manufacturing Company reports for 1923 net earnings after deducting interest, expenses and depreciation, $674,845 equal to $22.39 per share, as compared with $151,988 or $5.04 a share for the previous year. Sales last year reached $10,543,337 which is better than $1,200,000 gain over 1922. The balance sheet gives total assets of $13,639,259 with plant account and timberland holdings amounting to $5,456,370.

* * *

New Firm Formed

The Poquonock Paper Company has been organized at Windsor, Conn., and incorporated with an authorized capital of $300,000. The incorporators are William S. Kenyon, Donald C. McCarthy and Vincent W. Dennis, all of Hartford, Conn.

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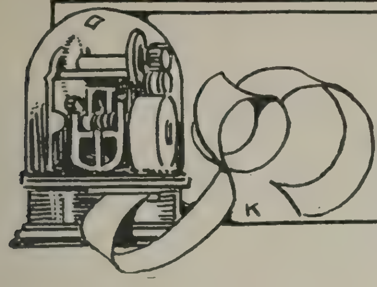

LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.75 @ .80
Manila No. 1	.70 @ .75
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	45.00 @ 50.00
Chip	42.50 @ 45.00

Paper and Board

New York, March 11—While it is true that a majority of paper mills in the United States are operating below capacity, which means that manufacturers could readily take care of additional business, it is also true that the market in its entirety is fairly active, that consumers are absorbing paper in a consistent manner although in somewhat limited volume, and that producers are managing to corral sufficient orders to warrant comparatively heavy production.

In some cases, of course, mills are enjoying demand necessitating full output. This especially applies to newsprint manufactories, which with few exceptions are producing at maximum or very close to maximum capacity. There is also a broad demand for bag papers, and for paper used in the building trades, roofing felt particularly. Such standard classes of paper as book, writing, wrapping and tissue are in relatively slower call, but this does not mean that manufacturers producing such papers are not running their plants at a good rate of capacity. Fine papers are gradually increasing in demand and mills are speeding up production to take care of the additional orders coming in to them.

Prices of paper of all kinds exhibit greater stability at present than has been the case in some months. One of the cardinal reasons for this is the situation which has developed recently in raw material. Practically every description of raw stock consumed in the manufacture of paper has risen in cost during the last few weeks. The advance in some materials has been sharp; rags of some grades, for example, are selling at prices twice above the levels prevailing only a comparatively short time ago. This strength in raw material obviously is having influence on the finished product. Manufacturers necessarily are less willing to shade prices on their product, and buyers who at one time had grown rather accustomed to securing the paper wanted at shaved prices are finding it more difficult to induce mills to grant the concessions asked.

Sentiment in the trade is in favor of a strengthening of prices of many descriptions of paper. It is contended, and doubtless is true, that paper is being marketed today at below the cost of production, and it stands to reason this condition cannot last indefinitely. Manufacturers might be persuaded to dispose of stocks on hand at prices which fail to show them a profit but

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Wire Works

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Ire out of Wire"

INTERNATIONAL WIRE WORKS
MENASHA, WISCONSIN

they are not likely to continue producing at a loss. It is therefore felt that if raw material costs hold up to present levels—and it must be said there is at the moment no indication of any impending declines—paper prices must advance in proportion to the rise in raw stock. That this situation is appreciated by at least some of those on the buying end is inferred by the increased demand from some jobbers, who appear better satisfied to stock up paper than they have been, and also by certain consumers who seem more anxious to cover their needs ahead.

Newsprint is in steady movement and very firm in price. Mills in common are well fixed with contract business, and transient demand is developing in large volume. Roll news is moving into consumption in a volume closely approximating a record, and sheets and side runs are in good demand. Newsprint prices tend upward, and in some instances spot buyers are paying premiums, but no change of course is noted in the contract basis and there is not likely to be any since manufacturers have announced prevailing prices will be maintained for the first six months of this year.

Fine papers are picking up in demand, and the price tone is distinctly firm. The sharp rise in rag costs has necessitated manufacturers advancing quotations on some lines of bond and ledger papers, and the upward trend in values seems to be bringing buyers into more evidence.

Book paper is wanted in a steady way and prices are holding and are marked by more stability than in some time. Average qualities of machine finished book continue to sell at around 6.25 cents per pound f.o.b. New York, with quotations ranging half a cent per pound on either side of this figure, depending on the grade and tonnage, manufacturers being willing to grant some concession on orders for large quantities of book paper.

Wrapping is fairly active but the movement is no more than ordinary in point of volume. Tissues are quiet, and No. 1 white tissue is quoted at 75 to 80 cents per ream f.o.b. New York. Cover papers are in moderately good demand. Bag papers are active and tending higher in price. Building papers are in brisk call, with a big export movement augmenting the domestic demand.

Boards are showing fair activity but the efforts of mills to secure as large a part of the available business as they can even to the depression of prices make for irregularity in quotations. Chip board is quoted at an average of about $42.50 a ton f.o.b. New York, and news board at $45, with some manufacturers cutting under these levels on occasions.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.75	@	.80
Manila No. 1	.70	@	.75
White No. 2	.70	@	.75
Colored	.80	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.00	@	6.50
No. 2 Fiber	5.00	@	5.50
Card Middles	4.00	@	4.50
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	50.00	@	55.00
Binder Boards	80.00	@	85.00
Chip	42.50	@	45.00
Manila Lined Chip	65.00	@	70.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

There is a firming tendency in groundwood quotations. Reports are to the effect that a good many grinders have been obliged to reduce their operations because of frozen mill streams and a consequent lack of water supply, and with production curtailed and less pulp for sale on the market, values display a hardening tendency. Prime spruce groundwood is quoted by domestic producers at a minimum of about $35 per ton f.o.b. pulp mills, and it can probably be said that most sales are above this price, quotations ranging up to $40 a ton, depending on the air dry test and the freight to consuming points. Imported groundwood on the spot in New York and other American Atlantic ports is selling at $33 and $34 a ton ex dock, with a majority of importers trying to get $35 for such pulp.

Foreign and Domestic Chemical Pulp

Reports state that demand for chemical woodpulp is slowly though surely broadening. Since quoted prices have steadied at levels where even those on the purchasing side acknowledge

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pulp is "cheap," and with manufacturers and importers in general insisting that bottom prices have been reached, consumers do not display as much hesitation about placing orders, while it also appears likely that consumption is on the increase, thereby bringing buyers into the market for more pulp.

While the tone of prices is stiffening, no actual change in quotational ranges has yet been recorded. Prices depend largely on the position of the seller, on how anxious he is to liquidate stocks, and also on the quality and tonnage of the pulp the buyer is interested in. Domestic bleached sulphite is quoted at 4 to 4.50 cents per pound f.o.b. pulp mills, with book grades available down to 3.75 cents, and No. 1 domestic unbleached sulphite at around an average price of 2.75 cents at producing plants. Domestic kraft is quoted at a low of 2.60 cents at pulp mills for Southern kraft, with as high as 3.25 cents asked for some qualities of kraft. News grade sulphite is selling at from 2.50 cents upward at pulp mills. Quotations ex dock New York and f.o.b. pulp mills are as follows:

Sulphite foreign—				Unbleached news grade	2.50	@	2.75
Bleached No. 1	3.75	@	4.25	Easy Bleaching	2.75	@	3.00
Unbleached No. 1	2.60	@	2.80	Mitscherlich, unbleached	3.00	@	3.25
Unbleached No. 2	2.40	@	2.60	Soda, domestic, bleached	3.50	@	3.75
Easy Bleaching	2.75	@	3.00	Kraft, foreign	2.50	@	2.75
Sulphite, domestic—				Kraft, domestic	2.60	@	2.90
Bleached No. 1	4.00	@	4.50	Sulphite screenings, refined	1.50	@	1.75
Unbleached No. 1	2.60	@	3.00				

Domestic Rags

Prices rule firm on practically every grade of papermaking rags. There is a good demand emanating from consuming quarters, and reports say that users other than paper mills are competing for supplies with papermakers, reflecting the high price of raw cotton and the substitution of rag products for this staple. Roofing rags continue to sell at around 2.60 cents per pound f.o.b. New York for No. 1 packing, and 2.40 cents for No. 2 grade, and dealers assert that demand from felt paper mills is running neck and neck with the incoming supply of such rags. New cuttings are firm and tending to advance. Dealers in New York quote No. 1 white shirt cuttings at 14 to 14.50 cents per pound f.o.b. this city, fancy shirt cuttings at 7.25 cents, washables at 5.50 cents, unbleached muslins at 12 cents, blue overall cuttings at 9.25 to 9.50 cents, and light silesias at 9 cents. Old blues and whites are in steady movement and fully maintained in price. Quotations f.o.b. New York are:

New Shirt Cuttings,				Overall Cuttings, Blue	9.25	@	9.50
No. 1	14.00	@	14.50	Washables	5.50	@	5.75
No. 2	6.75	@	7.00	New Black Mixed	5.00	@	5.25
Fancy Shirt Cuttings	7.00	@	7.50	Soiled Whites, house	3.50	@	4.00
No. 1 Whites, repacked	7.50	@	8.50	Soiled Whites, street	3.25	@	3.50
No. 2 Whites, repacked	4.50	@	5.00	Thirds & Blues, repacked	3.50	@	3.75
White Lawns	11.50	@	11.75	Thirds & Blues, misc.	3.00	@	3.25
New Muslins, unbleached	12.25	@	12.50	Black Cotton Stockings	4.00	@	4.25
Light Silesias	9.00	@	925	Roofing Rags, No. 1	2.60	@	2.75
Black Silesias	5.50	@	5.75	Roofing Rags No. 2	2.35	@	2.50

Imported Rags

Foreign papermaking rags are meeting with a consistent demand from various consuming quarters, and prices are firm. Importers generally quote dark colored cottons at 2.50 cents a pound or higher ex dock New York, and assert prices on these rags in Europe are rising. Blue cottons are in good call, and so are white linens. New No. 1 white linens are quoted at 15 to 16 cents per pound ex dock and old No. 1 white linens at 11 cents and higher. Prices on an ex dock New York basis follow:

Lins., White, No. 1	15.00	@	16.00	German Linen, blue	4.50	@	5.00
Ger. Blue Cottons	3.25	@	3.50	German Linen, grey	6.00	@	6.50
French Light Blues	3.50	@	3.75	German S. P. F.'s	6.00	@	9.00
New Light Prints	6.50	@	7.00	German Light Prints	4.00	@	4.25
New Unbleached	10.50	@	11.00	Dk. Colored Cottons	2.45	@	2.60

Bagging, Rope, Etc.

Both old rope and bagging are enjoying fair market activity and prices of these papermaking materials are ruling steady. Old manila rope of No. 1 domestic quality is bringing close to 6.75 cents a pound f.o.b. shipping points in most sales, and foreign manila rope is quoted by importers at 6.25 to 6.50 cents ex dock New York. Old bagging is moving chiefly to roofing paper mills at prices of around 1.50 cents a pound f.o.b. New York. Quotations f.o.b. this city are:

Gunny No. 1	1.50	@	1.60	Wool Tares, heavy	1.50	@	1.60
Foreign	1.40	@	1.50	For. Manila Rope	6.25	@	6.50
Wool Tares, light	1.20	@	1.40	Domestic Rope	6.50	@	6.75
Wool Tares, heavy	1.40	@	1.60	Mixed Strings	1.30	@	1.50
Roofing Bagging	1.40	@	1.50				

Old Paper

There is a fairly large movement of old paper to paper and board mills. It is noticeable that consumers are limiting their buying somewhat, seldom ordering other than in quantities ample to cover existing requirements, but demand is apparently large

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enough to remove the bulk of supply from the market and prices are generally holding. Old folded newspapers are selling at about $1 a hundred pounds f.o.b. New York, and No. 1 mixed paper at around 80 cents New York, with common mixed paper fetching 60 cents f.o.b. this city. Flat magazines are quoted on a range of 1.60 to 1.75 cents per pound New York, and white news cuttings at 2.20 to 2.30 cents. Old kraft paper is a firm item and is fetching 2.25 cents per pound New York. F. o. b. New York quotations are as follows:

No. 1 Hard White Shavings	3.75	@	4.00
No. 2 Hard White Shavings	3.25	@	3.50
No. 1 Soft White Shavings	2.90	@	3.15
Box Board Chips	.85	@	.90
No. 1 Clored Shavings	1.60	@	1.75
Magazine flat stock	**1.60**	**@**	**1.75**
No. 1 Crumpled	1.30	@	1.45
Solid Ledger Books	2.15	@	2.25
Ledger Stock	1.90	@	2.10
Kraft, No. 1	2.25	@	2.35
New Manila Cuttings	2.00	@	2.25
New Manila Env. Cuttings	2.75	@	3.00
Bogus & Mill Wrappers	1.00	@	1.10
News, strictly overissue	1.15	@	1.25
Folded News	.95	@	1.00
No. 1 Mixed Papers	.75	@	.85
White Blank News	2.20	@	2.30
Common Paper	.55	@	.60

Twines

While demand for twines is nothing out of the ordinary, being chiefly against the immediate needs of consumers, nearly all grades are sharing in the market activity, and prices are maintained. Raw material is on high levels and this has a sustaining influence on twine values. Quotations follow:.

Sisal Hay, pure	12.25	@	13.25
Manila Hay, pure	16.25	@	17.25
Sisal Lath Yarn	12.25	@	13.25
Manila Rope, pure, ¾ inch diameter	14.25	@	15.25
Hardware Rope	11.25	@	12.25
Jute rope, ¼ diam. and over, coils	14.00	@	15.00
Sail twine, A grade	20.00	@	
Jute Wrapping twine, A grade	20.00	@	
Papermakers Twine	11.50	@	
B. C. Hemp, 18	.39	@	.40
B. C. Hemp, 24	.38	@	.39
B. C. Hemp, 36	.37	@	.38
America Light India— No. 6	14.50	@	
No. 7	13.50	@	

Chemicals

Papermaking chemicals are favored with a fair demand and quoted prices are maintained. Bleaching powder is selling at 1.50 to 1.60 cents per pound, soda ash at 1.40 cents for spot shipments, caustic soda at 3 to 3.25 cents per pound, and casein at a range of 13 to 15 cents per pound with duty paid on the imported article.

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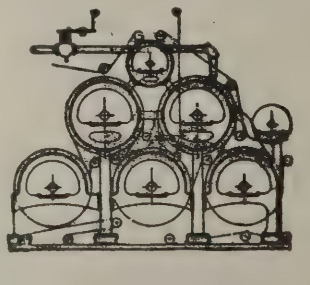
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The economic problem of securing an adequate supply of paper

THE book is of special interest to everyone connected with the pulp and paper industry and equally so to all users of print paper. It points out clearly what must be done to develop sufficiently our supply of pulpwoods. It shows the steps necessary in forest conservation and discusses the subject from the practical viewpoint of industrial needs.

Pulpwood and Wood Pulp in North America

By ROYAL S. KELLOGG

Author of *Lumber and Its Uses, The Cost of Growing Timber, The Timber Supply of the United States,* etc.

270 pages, 6x9, 87 illustrations, $4.00 (*English price 20s.*) *net, postpaid*

The book describes the pulpwood industry, the processes of making paper pulp from wood, the timber supply of North America, the need for increased timber production and the future possibilities of the pulp and paper industry. Detailed statistics of production and consumption since the establishment of the industry are given in the appendix and shown in the text by means of graphic charts of unusual effectiveness. The book also carries many illustrations typical of mill operations and forest scenes.

Do You Know

That 100 million cords of pulpwood have gone into paper in the United States and 30 million cords in Canada?

That paper-making is a billion-and-a-half-dollar industry in North America?

That a permanently self-contained operation for the manufacture of 100 tons of news print paper daily may require the equivalent of an investment of $10,000,000?

That the United States and Canada produce and use as much paper as all the rest of the world combined?

That the per capita consumption of paper in the United States is 150 lb. yearly?

How much pulp may be made from a cord of wood?

How much pulpwood and wood pulp has been exported from Canada?

How much pulpwood and wood pulp has been imported into the United States?

What are the pulping properties of 70 species of American woods?

What are Forest Regions of North America?

How much and what kinds of timber there are yet left in the various regions of the United States and Canada?

How much forest land in North America is publicly owned and how much privately?

What regulations apply to timber cutting in the public forests?

What are the essentials of a forest "Working Plan"?

That forestry is the application of definite scientific principles to the growing and using of timber crops?

What it costs to grow timber?

Who is responsible for the maintenance of the timber supply of the United States and Canada?

What are the essentials of a National Forestry policy?

That without forestry there is no adequate, permanent supply of paper and other wood products in America?

That there is no sense in delaying the effort to maintain the American timber supply on the false assumption that we can turn to any other part of the world for any considerable part of the wood products essential to our well being?

Read This List of Chapter Headings

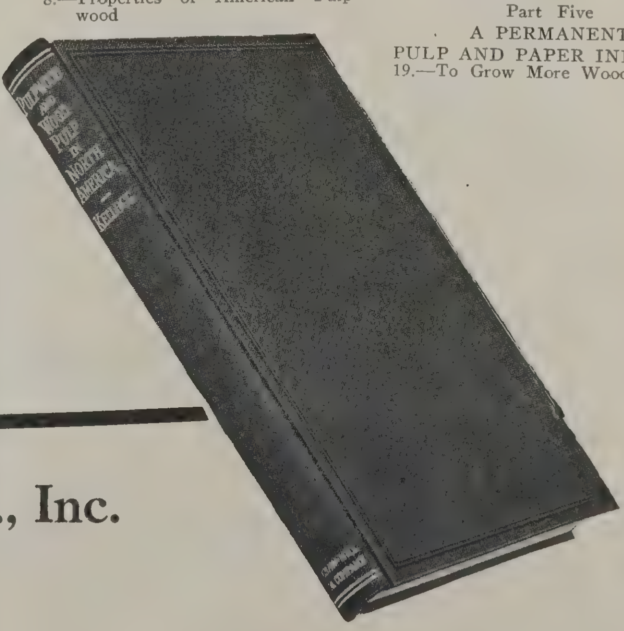
Part One
WOOD PULP
1.—Recording Materials
2.—Processes
3.—Consumption of Wood Pulp in North America

Part Two
PULPWOODS
4.—Logging
5.—The Unit of Measurement
6.—Pulpwood Grades
7.—Pulpwood Used in North America
8.—Properties of American Pulpwood

Part Three
TIMBER SUPPLY
9.—Forest Regions
10.—What We Have
11.—Forest Ownership

Part Four
TIMBER PRODUCTION
12.—The Need for Forestry
13.—The Chance for Forestry
14.—The Methods of Forestry
15.—The Hazards of Forestry
16.—The Cost of Forestry
17.—The Responsibility for Forestry
18.—What Should Be Done

Part Five
A PERMANENT PULP AND PAPER INDUSTRY
19.—To Grow More Wood



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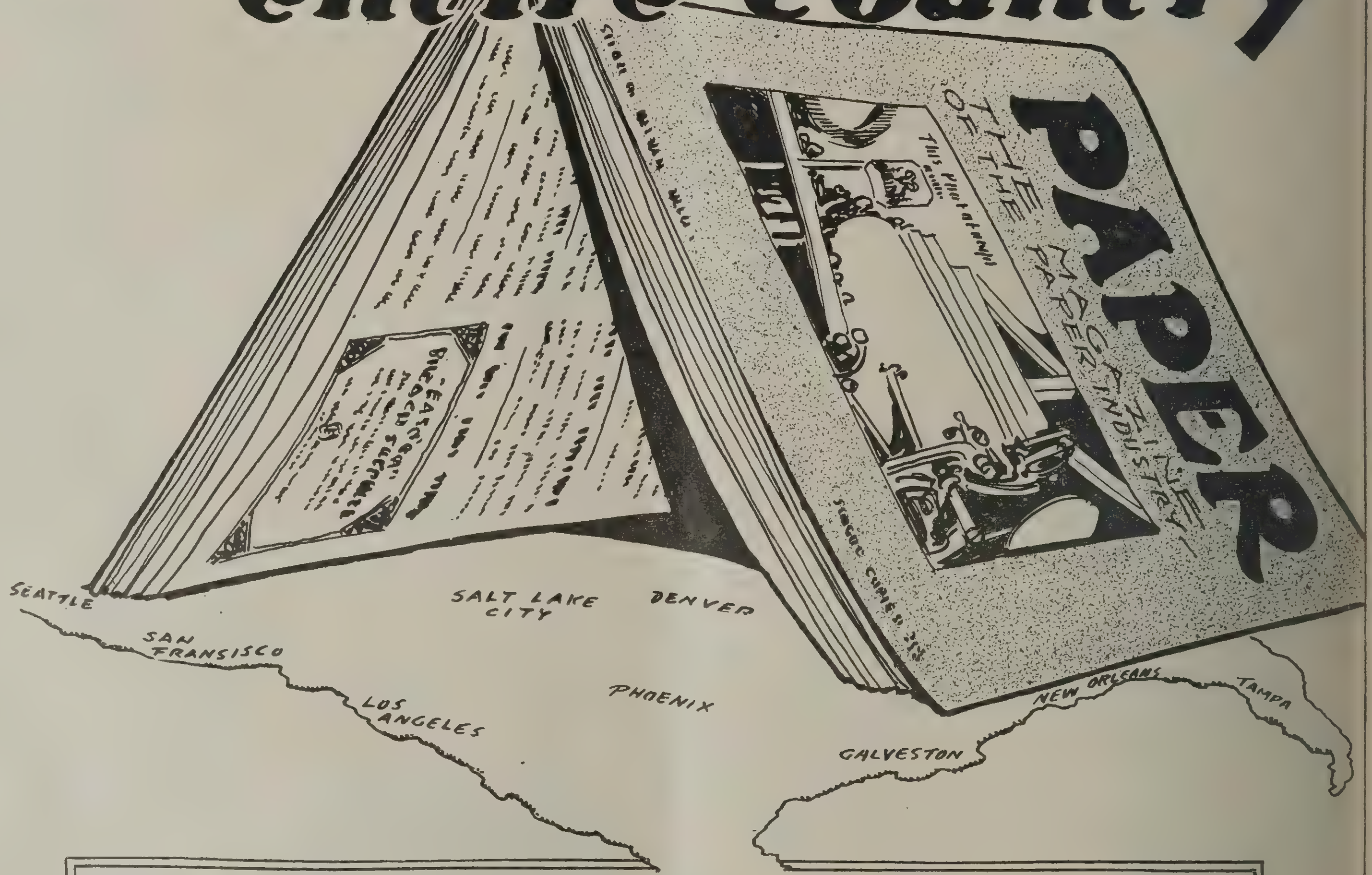

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DARD HUNTER TO HAVE INTERESTING EXHIBIT

Will Demonstrate How Paper Is Made By Hand at Exposition

THREE of the most unusual exhibits of paper ever shown will be among the features of the Second Paper Industries Exposition to be held in the Grand Central Palace, New York, week of April 7th.

Dard Hunter, famous for his unique work in handmade paper, the Seaboard Air Line Railway and the New York State College of Forestry at Syracuse, will provide these three unique exhibits of phases of the paper industry and its raw material problem Dard Hunter will be at the booth of the Paper Makers' Chemical Company, where he will actually make hand made paper during the week of the Exposition. No man in the country has done more interesting historical research on paper making than Mr. Hunter, and he recently produced a book on paper making which was an unusual one-man job, from the making of the paper, cutting of the types to the actual printing and binding of the finished volume. Mr. Hunter not only made the paper on which the limited edition of his book was printed, but devised the type, actually made the type, wrote the test and set the material in the type of his own manufacture. Then he printed the book on paper he had himself made by hand.

Mr. Hunter's work on early etching, watermarks, and other features of the paper making industry of an historical value has made him the leading figure in the industry in this particular line of work.

The exhibit of the Seaboard Air Line will be to show the possibilities of paper making in the South, but will have some most unusual characteristics. Not the least important will be the presentation of printed matter printed on paper made from every type of wood grown on the railroad's mail line and tributaries. The wood was shipped to the United States Forest Products Laboratory at Madison for test manufacture, and the resulting paper, in various grades, will be the basis of the railroad's exhibit. The purpose, of course, is to show the possibilities of the southern states as a field for paper manufacturing. The presentation, however, is so elaborate that it will attract wide attention from the public, and like Mr. Hunter's work will be of the most intense interest to the general public which will attend the Paper Industries Exposition.

The exhibit of the New York State College of Forestry is promised to be the most elaborate demonstration of forestry that has been shown in the history of the college. Two machines will give a constant change of illuminated pictures of pulp and paper manufacture, and the reforestation measures necessary to preserve the paper industry. The illuminated pictures will be accompanied by an elaborate set of graphs showing forestry conditions with another series of transparencies depicting woodlot problems and forest practice in vogue in different parts of the country.

The pictures and graphs will be cross-referenced by the use of ribbons leading from the transparencies to the wall charts. In addition, there will be actual displays of small trees, set off by green decorations.

The entire display will be of an educational nature, to show the relationship of forestry to the paper industry. Students of the paper course of the college will be in attendance to explain the exhibits to the visitors.

An article on "Creating Sales Through Expositions" in the February Advertising and Selling, particularly mentions the success of the Paper Industries Exposition, pointing out that its value is enhanced by the fact that the Exposition is held at the time when the American Paper and Pulp Association and allied associations are holding their annual meetings in New York.

In the paper machinery and supplies group advance information as to the type of exhibits indicates that there will be even a larger proportion than last year who will have operating machinery as a feature of their booths. The value of the Exposition as a means of working with the paper mill executives is not being overlooked by the big mechanical companies which have learned from experience that the Exposition method is a most satisfactory one for the demonstration of products, and for getting in contact with the paper mills which use their materials.

The advisory Committee before adjournment decided to send a letter to the entire industry indicating its belief in the Paper Industries Exposition, both as a means of educating the public and the consumer of paper as to paper problems, but of actually bringing about increased business to the exhibitors. The Committee consists of some of the best known of the manufacturers, merchants, supply men and engineers in the industry.

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Moves to Larger Offices

Due to the vast increase in business, C. A. Wadsworth, sales agent for pulp, paper and mill supplies, has been forced to move into larger quarters. While he still remains in the Canadian Pacific Building, he has moved to another floor. He is now located at 830-40 Canadian-Pacific Building, 342 Madison Avenue.

* * *

Planning Complete Exhibit

The Cameron Machine Company is planning an unusually complete exhibit for the Paper Industries Show, which should interest everyone who makes, uses or sells rolls of paper or board. Three sizes of slitting and roll-winding machines, facetiously called "Uncle Dudley," "Buddy Bill," and "Little Pete,"—good, reliable workers all—will be shown. Visitors to the Exposition are urged not to miss Booth 6, to the right of the main entrance.

EVERY MILL EMPLOYEE

should keep informed as to what is going on in the paper industry. Knowledge is power, and power means prosperity. Any employee who uses his head as well as his hands serves his employer's interest best, and increases his earning capacity. Every paper mill employee in the country—therefore

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French & Columbus, Cleveland, O.
Cummer, F. D. & Son Co., Hanna Bldg., Cleveland, Ohio.
Kilby Mfg. Co., 4623 Lakeside Ave., Cleveland, Ohio.
Proctor & Schwartz, Inc., 7th St. & Tabor Road, Philadelphia, Pa.
Gordon Dryer Corporation, 275 W. Exchange, Providence, R. I.

EQUIPMENT

Crandon Mfg. Co., (special electrical, for pulp & paper mills), Portland, Me.

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Soda Pulp

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Devine, J. P., Co., 1380 Clinton, Buffalo, N. Y.
Zaremba Co., 508 Niagara Life Bldg., Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City.
International Process Co., 5 Beekman, New York City.
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Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
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Permutit Co., The, 4th Ave. & 30th, New York City.
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Oswego Falls Pulp & Paper Co., (wood), Fulton, N. Y.
Finch, Pruyn & Co., Inc., (gorund wood pulp), Glens Falls, N. Y.
Blandy Paper Co., (ground wood pulp), Greenwich, N. Y.
Mohican Pulp & Paper Co., (wood pulp), Greenwich, N. Y.
Hinckley Fibre Co., (sulphite fibre), Hinckley, N. Y.
Tindale, Wm. H., (wood), Keeseville, N. Y.
United Indurated Fibre Co. of N. Y., (ground wood, dry), Lockport, N. Y.
Gould Paper Co., (ground wood), Lyon Falls, N. Y.
Malone Paper Mill, (sulphite fibre: gound wood), Malone, N. Y.
Hoornbeek's, John C., Sons, (ground wood, dry), Napanock, N. Y.
American Woodpulp Corp., 347 Madison Ave., (wood, chemical & mechanical, Kraft), New York City.
ANDERSEN—J. & Co., 21 East 40th St., (Imptrs. of chemical Pulps, Kraft), New York City.
Atterbury Bros., 145 Nassau, (foreign & domestic wood), New York City.
Beebe & Co., Ira L., 132 Nassau, (wood pulp), New York City.
Butterworth, E. & Co., 1123 B'way, (wood & bleached sulphite pulp), New York City.
CASTLE & OVERTON, 200 Fifth Avenue, (wood sulphite), New York City.
CRAIG-BECKER Co., Inc., 52 Vanderbilt Ave., (wood), (Mill Agts., Imp. & Exp.), New York City.
De Bary, Albert, Jr., Inc., 6 Church, (Exptrs.), New York City.
Great Northern Paper Co., 49 Wall, (ground wood pulp), New York City.
Helwig, Rudolph, 451 Wash'n., (sulphite pulp), New York City.
International Paper Co., (ground wood pulp & sulphite), New York City,.
International Pulp Co., 41 Park Row, (asbestine), New York City.
Interstate Pulp & Paper Co., Inc., Grand Central Terminal, (wood), New York City.
Meigs Pulp Wood Co., Inc., 10 East 43rd, (pulp wood), New York City.
Nashwaack Pulp & Paper Co., Ltd., (Canadian bleached sulphite), New York City.
New York Overseas Co., Inc., 44 Beaver, (imp), (wood), New York City.
New York & Penna. Co., 200 Fifth Ave., New York City.
Oxford Paper Co., 200 Fifth Ave., New York City.
Paine, A. G., Jr., 200 Fifth Ave., New York City.
PERKINS-GOODWIN Co., 33 W. 42nd St., New York City.
Price & Pierce, 30 East 42nd St., New York City.
Union Bag & Paper Corp., Woolworth Bldg., (ground wood, sulphite & kraft pulps), New York City.
SCANDINAVIAN Pulp Agency, (Inc.), 342 Madison Ave., (wood pulp), New York City.
Cliff Paper Co., (fibre & ground wood, dry), Niagra Falls, N. Y.
Defiance Paper Co., (ground wood), Niagara Falls, N. Y.
Niagara River Mfg. Co., (ground wood pulp), Niagra Falls, N. Y.
Pettebone-Cataract Paper Co., (ground wood), Niagara Falls, N. Y.
Defiance Paper Co., (ground wood), Norwood, N. Y.
Martin Pulp & Paper Co., (wood), Ogdensburg, N. Y.
Lake Champlain Pulp & Paper Corp., (Dry ground pulp), Plattsburg, N. Y.
Saranac Co., (ground wood pulp), Plattsburg, N. Y.
Underwood Paper Mills, Inc., (ground wood), Plattsburg, N. Y.
Hannawa Falls Water Power Co., (ground wood, pulp), Potsdam, N. Y.
Raquette River Paper Co., (ground wood sulphite), Potsdam, N. Y.
Johnston & Son, (dry ground wood), Port Leyden, N. Y.
St. Regis Falls Wood Corp., (ground wood pulp), St. Regis Falls, N. Y.
American Wood Board Co., (ground wood pulp), Schuylerville, N. Y.
Blandy Paper Co., (ground wood), Schuylerville, N. Y.
Iroquois Pulp & Paper Co., (ground wood pulp), Thomson, N. Y.
Ticonderoga Pulp & Paper Co., (Soda Fibre, Wood), Ticonderoga, N. Y.
Santa Clara Lumber Co., (pulp), Tupper Lake, N. Y.
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St. Regis Paper Co., (ground, wood, dry sulphite fibre), Watertown, N. Y.
SHERMAN Paper Co., (ground wood pulp), Watertown, N. Y.
Champion Fibre Co., (paper pulp), Canton, N. C.
Halifax Paper Corpn., (sulphite fibre & ground wood), Roanoke Rapids, N. C.
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Bayless Mfg. Corp'n (ground wood, sulphite fibre, also paper), Austin, Pa.
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Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
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Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
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Kaukauna Ground Pulp Co., Kaukauna, Wis.
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Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
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Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Elambeau Paper Co., (ground wood, paper), Park Falls, Wis.
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Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
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Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
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Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
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Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Co., (Cylinder; Hot Air), Cohoes,
Cohoes Iron Foundry & Machine N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
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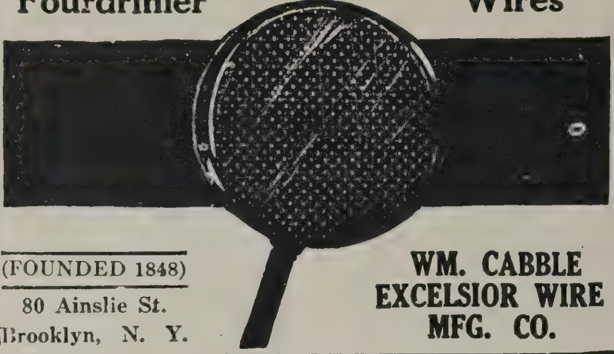

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Jordans—One N & W Monarch, with new shell two Horne; two Emerson, large size, one base; one N & W Pony, with extra plug.

Pulleys—One 98″x34″ face, double arm, modern, Iron pulleys; Cone pulleys for Marshall Drives.

Pumps—One dry suction Knowles 12x22x18; one 1000 gal. Blake Tank pump; two Lawrence Mch. Co.'s Class A 8″ high duty; two 6″ Emerson make; one 4″ Centrifugal; one Type 4 Gould 5″ triplex, self contained. Two Lawrence Machine Co.'s Class A, No. 4, double suction pump for high elevation or for low speed. Thoroughly rebuilt and ready for shipment.

Press Rolls—One pair new, one RC 18x80″; one Gun metal 18x81″; one 16x75″; one RC 15½x73½″.

Rag Cutters—Two No. 2 Daniels; one Perkins.

Screens—4-8 pl. New Success.

Slitters—One 86″ P & J.

Winders—One 86″ P & J; one 100″ P & J; one 112″ M & W.

Wet Machines—One N & W with cut offs, mould 30x52″; two spare moulds.

One set Dillion Doctors for 80″ calender rolls.

MILLS MACHINE COMPANY
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THE CLEARING HOUSE—Continued

MISCELLANEOUS

WANTED—A second hand 80 or 84 inch Fourdrinier paper machine in good condition. In reply state full particulars and price. Address Box 1284, care of PAPER.

WANTED—A 2nd Hand Improved Machine Company's Standard Wet Machine with a single cylinder mould 36"x84". Must be in good condition. Address Box 1281, care of PAPER.

WANTED—A Niagara 2nd Hand Beater of 1500 to 2000 pound capacity. Must be in first class condition. Address Box 1282, care of PAPER.

SALES AGENT with ten years' experience in paper mills and several years' selling experience, having steady outlook for considerable straw, chip and test jute, container board tonnage, desires to represent mills on commission basis in metropolitan district; highest references. Address Box 1286, care of PAPER.

TECHNOLOGIST in stained paper field, about 30 years' practical experience, specialist in paper, cardboard and paper board fields. Can furnish formulae. Solve manufacturing difficulties and install new improvements, particularly in the following fields—glazed paper, chromo papers, art printing papers, stained paper, marbled paper, carbon paper, waxed paper, etc. Can secure all materials as well as machines. Regular technical advice given.

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THE IDEA OF DOING ONE THING WELL

Cameron Machine Company Will Exemplify This At Convention

THE steady growth of a business which has been built upon the idea of doing one thing well will be graphically shown in Booth Number Six at the Paper Industries Exposition. There the Cameron Machine Company, manufacturers of slitting and roll-winding machines exclusively, will show three of their CAMACHINES, representing three main types for the production of small, medium and large rolls of paper and paper boxes.

CAMACHINE 6 will be in operation, actually making miscellaneous small rolls during the exposition. The Cameron principle of slitting and winding, which is a characteristic of the entire line of Cameron Machines, is exemplified thereby.

A CAMACHINE Type 10 will represent the middle stage, both in size of rolls produced and in the progress of development towards the high speed mill types, Camachine 12, Camachine 14 and Camachine 18. This CAMACHINE 10, a standard machine for rolls of medium size, demonstrates that a roll-winder of this capacity is advantageous in a great many mills, converting plants, and paper warehouses, as well as in factories manufacturing paper products.

Although both of these machines are being used in paper mills throughout the country, the mill men who attend the exposition will be particularly interested in the CAMACHINE 18, the big brother in the Cameron family. The experience of many mills attests that these Type 18 CAMACHINES will do everything that a winder has to do—*plus some more*—whether used as a prime winder behind the reels of the paper machine or as a rewinder for finishing room service.

The exhibit shows a portion of the Cameron line of winders and rewinders which backs up the Cameron slogan "A winder for every roll requirement."

In addition to the machines themselves, a representative exhibit of rolls of different sizes and various kinds of paper, all made on CAMACHINES, will be shown. A new booklet, describing and illustrating all of the CAMACHINES used by the paper industry and its allied branches will be distributed.

Every effort has been made by the advertising department to have the exhibit as attractive, complete and informative as possible. W. B. Wilshusen, sales manager, will be in charge, assisted by Messrs. J. B. Venturini, W. E. Blauvelt, and J. E. Regan of the sales staff, as well as by Messrs. Schatten, Schuller and Hawkes, who will demonstrate the machines. Jas. A. Cameron, president of the company, will be there to greet his friends and make new ones. A successful exhibition is looked for; one which will do its bit toward making 1924 a good business year for the paper industry.

* * *

Examining China Clay

Since china clay enters into such manufactures as paper filling, etc., says Mr. J. M. Coon in the Journal of the Royal Microscopical Society, it is important to have it free from impurities, but although chemical and mechanical analyses have their good purposes a microscopical examination is extremely valuable as a guide. Elutriation grades the sizes of particles to some extent, but it will not differentiate between the actual mineral constituents. The above writer prefers to examine samples microscopically in a castor oil medium, although water and Canada balsam may be used. A few milligrammes of the sample are put on to a slide, and a drop or so of water added and carefully mixed. If oil is used as the medium, the slide must be dried, and an examination made first with 1 in. objection, followed by ¼ in., and then ⅛ in. The various minerals are then looked for, regarding all such as impurities. The paper is illustrated with figures of the likely mineral constituents.

* * *

Force vs. Persuasion

Fundamentally, advertisers are dealing with people, not with things; with ideas primarily, rather than facts. This is unfortunately is not always appreciated and as a result a good deal of copy falls short of what it was meant to accomplish. Too often manufacturers insist upon approaching their subject from their own viewpoint, which may not be that of the purchaser at all. Too frequently, also, they lose sight of the idea they wish to plant in the mind of the reader in the effort to build up an overwhelming array of hard facts. The idea of desirability is most easily created by a smooth and easy style of writing which pleases the reader's taste without obtruding itself upon his consciousness. Yet this is frequently sacrificed as a matter of no consequence as compared with the dull and stony facts which represent mere force in place of persuasion. The copywriter tears his hair in private, perhaps, and the great mass of the public exercises its normal, human faculty of taking no notice of that which does not seem pleasant to the taste.—*Advertising Fortnightly.*

* * *

Get A Map

If you want to get a clear picture of how much a manufacturer wastes when he advertises in a large-circulation medium, take a large map of the United States and stick a tack in every town where he has distribution; then compare the number of tacks with the number of towns on the map. The untacked towns get the publication but the people in those towns cannot buy the goods even if they want them, says A. Booster in the *Ambassador.*

The publisher may tell you that advertising will establish markets in these towns where distribution is lacking. Perhaps it will, in time, but distribution may be more economically established first, and then general advertising will come into its own.

* * *

Government Bids

Treasury Department, Bureau of Engraving and Printing, Washington, D. C., March 1, 1924. Sealed proposals are invited to furnish Dextrine, Oils, Textiles, Dry Colors, Paper Boxes, Paper and Check Paper, during the fiscal year beginning July 1, 1924. The right is reserved to reject any or all bids or parts of bids. Samples of Dextrine, Oils, Textiles and Dry Colors must be received at the Bureau of Engraving and Printing not later than 2 P. M., Wednesday, April 9, 1924. Samples of Paper Box Blanks, Paper and Check Paper, must be received not later than 2 P. M., Monday, April 7, 1924. Blank forms with specifications for proposals, giving dates on which the bids for the several schedules will be opened, and further information will be furnished on application to Paul E. Twyman, Assistant Director.

ENGINEERING PAGE

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Paper Mill Architect

and Engineer

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STEAM PLANTS

EXAMINATIONS
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ESTIMATES OF COST
DESIGNS
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VALUATIONS

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Machines for Processing Paper
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Dayton, Ohio

Volume XXXIII, No. 22

PAPER

March 20, 1924

The Magazine of the Paper Industry

RUSSELL C. HUGHES, Publisher

THOMAS J. KEENAN, F.C.S., Technical Editor

ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

The manufacturers and the workers in the mills having filed their income taxes in the last minute rush, and having reported their millions of profit as a result of the vast business done in the last year——

You finish it. Someone just hurled something at us.

* * *

Now if President Coolidge attends to his important mail and reads that gentle persuader from PAPER appearing in this issue, and he then ponders over it and decides to follow its suggestion—what a rosy, glorious world this will be. If he does follow out those suggestions, we can pledge the entire paper industry vote to him at the election.

* * *

We feel compelled to emit a word of praise to the *Paper Trade Journal* for the changes for the better it made in its last issue. A new cover plate, a new color, a new department—all vastly improved the already good magazine. There is life in the old girl yet.

By the way, this stuff about never mentioning your competitor in your columns is all bunk. The general attitude is that mentioning a competitor's name will turn the paper black or place some variety of poison on it. We just naturally like to tempt the fates anyway.

* * *

Do you realize how short the time is before the annual convention of the American Paper and Pulp Association takes place in the Waldorf? April 7 is not so far away as you might think and it is always well to remember that tempus has never been known to knock off on the union hours of fugiting. Make your reservations at once. The big Paper Industries Exposition will also be held that week in the Grand Central Palace. Besides all the integral associations of the big organization will also meet that week. Remember these dates also:

The National Paper Trade Association has its convention at the Waldorf-Astoria April 8-10.

The Technical Association will be in session from the 7th to the 11th, also at the Waldorf.

The Salesmen's Association will hold its convention at the same hotel from April 7 to April 10, ending it one day previous to most of the associate conventions.

* * *

As if the flood of German paper is not sufficient, the paper franc had to rush downward in an attempt, probably, to make itself as cheap as paper now is in America.

* * *

Quite the most striking term that has appeared recently was "paper bootleggers." It isn't to be found in this combined series of nomenclature recently published, but it has just as much weight and spirit.

* * *

According to the late reports, only a little over half the newsprint consumed in the United States was manufactured here. With 2,800,000 tons used last year, but 1,506,204 tons were manufactured here. It was not so good as it might be, but it was a better balance than the year before. Progress is something.

* * *

Lord, let the light of Thy countenance shine into the consciousness of one Calvin Coolidge and show him the tremendous need of better protection to the American paper industry. May he see things clearly and comparatively so that the palpable injustices to this industry may be brought out. May he temper his justice with mercy.

And, above all, may he do something for us.

RUSSELL C. HUGHES,
Publisher.

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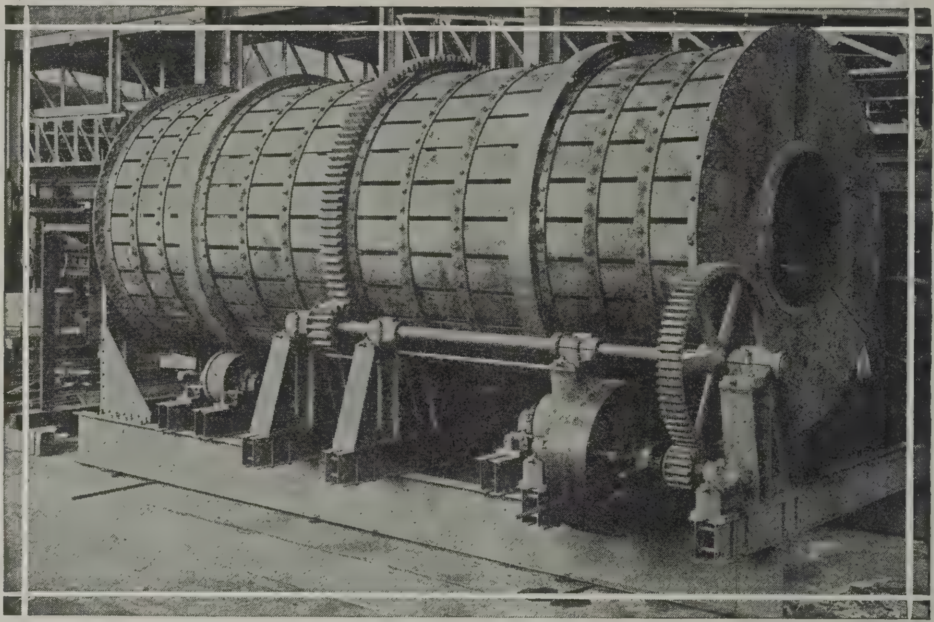
MURRAY



Sick of kicks about dirty pulp?
Tired of costly barking drum repairs?
Sometimes wish you had never put in a drum?

MURRAY BARKING DRUMS
are remarkably free from the faults of older machines

We'd like to tell you about them—
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D. J. MURRAY MFG. COMPANY
Wausau, Wis., U.S.A.

PAPER

The Magazine of the Paper Industry

Porosity Testing of Paper

Further Comment on an Article That Has Attracted Wide Notice—Notes on the Origin and Development of the Porosity Testers Known as Densometers

By **F. E. GALLAGHER**

John A. Manning Paper Company,
Troy, N. Y.

IN the February 14, 1924, issue of PAPER, appeared an article on "The Degree of Porosity of Paper" by V. Ravizza. The article was republished from the Italian journal, *Industria della Carta.*

The subject of porosity testing of paper is unquestionably one on which there should be wider knowledge in this country and you are to be commended for presenting the subject even from so distant a source. Mr. Ravizza's article was principally devoted to a classification of instruments that could be used for porosity testing and a critical analysis of the merits or disadvantages of the different types.

The following historical comment might be offered as a supplement to Mr. Ravizza's paper:

The suction type of apparatus shown in his Fig. 4 as that proposed by the Electro-Technical Association of England is identical with a design first developed in this country by the John A. Manning Paper Company, of Troy, N. Y., for the testing of rope papers for technical purposes including electrical insulating paper. In this way it was introduced into the American electrical industry and has apparently been transferred to England without change. It was constructed from the well known Hemple gas burette. This form of porosity tester was open to the serious defects.

(1) That the vacuum changed throughout the test so that readings were not proportional to variations in actual porosity.
(2) The instrument being of glass was readily breakable.
(3) The glass instrument with rubber tubes could not be accurately standardized.
(4) The time interval required to make a test was so short that accurate tests could not be made with certainty or convenience.

Because of these serious defects and on account of a greatly increasing demand from customers and friends for instruments that would give comparable tests, the problem of making a simple, unbreakable and accurately standardized instrument was turned over to the W. & L. E. Gurley Company, skilled instrument makers, of Troy, N. Y. They produced the form of porosity tester known as the "Densometer" and referred to by Mr. Ravizza as the "Gurley and Troy" instrument. This instrument is constructed entirely of aluminum in the form of a miniature "gasometer" and the air is supplied at practically constant pressure by the weight of the upper or floating cylinder.

Mr. Ravizza quotes Professor Herzberg as attributing the following disadvantages to this apparatus:

(1) Moisture from the air delivered under pressure over water is taken up by the paper fibers and affects the test.
(2) The pressure is not constant throughout the test.
Although the reason for the latter is not stated, presumably it would be due to decrease of weight of the floating cylinder due to gradually deeper immersion in the water of the outer cylinder.

Although our long experience with this instrument indicated clearly that these theoretical considerations were of immaterial importance in actual operation, we have made a careful series of tests to check up on the two points.

A sample of paper was put in the clamp at the top of the densometer and was left in place without change throughout all the tests. An identical paper area was therefore being tested.

Series I.—Twenty-one readings were taken with a non-aqueous solvent, ethylene glycol, as a sealing liquid in the outer cylinder. The average of 21 readings was 38.7 secs. for 50 cc. Lowest reading, 36. Highest reading, 41.

Series II.—Sixteen readings were taken with water as the sealing liquid. The first set of eight tests gave an average of 38¾ secs., the second set of eight tests gave an average of 39 secs., grand average 38.9 secs. Lowest reading 38 secs. Higher reading, 40 secs.

Series III.—The water was covered with 1/16″ of oil to prevent contact between the water and the air. Average of sixteen readings, 39.2 secs. Lowest reading, 37 secs. Highest reading, 40 secs.

All of these readings are within the general operating accuracy of the instrument. Even on a check test of this kind, moisture in the air under pressure is negligible in affecting the test. It would be even more negligible in tests on different samples or different parts of the same sample, which in themselves show considerable difference in porosity.

Tests were made to check up the second of Professor Herzberg's criticisms, that the pressure was not constant throughout the test.

The densometer is calibrated in 50 cc. intervals up to 400 cc. A series of readings throughout the complete travel of the cylinder was as follows:

Cubic Centimeters	Seconds
0-50	38
50-100	38
100-150	40
150-200	39
200-250	39
250-300	39
300-350	39
350-400	40

The variations due to the water displacement of the thin-walled upper cylinder are negligible and of no practical importance in porosity testing.

One of the very attractive points in the design of the densometer is the ease of obtaining on the same test check readings for consecutive 100 cc. intervals.

As a matter of practice we use ethylene glycol instead of water as a sealing liquid, since it prevents corrosion of the aluminum cylinder.

Putting the Spring Floods to Work

A Most Timely Subject Handled Ably by a Man Who Knows the Game

By R. H. ROGERS

Industrial Engineering Department, General Electric Company

THE utilization of power which runs to waste when the spring thaws fill streams and rivers to overflowing and send solid sheets of water over the dams, is becoming more and more an economic necessity. People think a good deal today about the conservation of coal and oil and other sources of power, and the conservation of water power is perhaps the most easily accomplished. It requires regulatory devices, which nowadays are usually tied up with flood prevention.

But because of a lack of proper flow regulation there are millions of horse power in "white coal" permitted to run away every year, often wreaking considerable destruction in their course, when they could profitably be put to use to turn the wheels of industry.

This waste power will successfully be utilized at the hydro-electric plant of the St. Croix Paper Company on the St. Croix River, the international boundary between Maine and New Brunswick. The plant is twelve miles from the company's mill. In spite of extensive flow regulation works on the St. Croix River and its tributaries for fifty miles back, there is every spring a big waste of water at the power house dam. Water over the dam does no one any good.

This potential energy might be stored up in retaining basins, but they would be too large and expensive to be practical. It might be converted into electricity and held in huge storage batteries but this scheme would be more impractical than water storage. The St. Croix Paper Company plans to enlarge its hydro-electric plant so that the waste water may be diverted to a useful purpose instead of going over the dam—converted into electricity and then into wood pulp during the flood season.

The pulp will be stored away as dry pulp laps, and when the inevitable drop in water power comes during the dry summer and fall months, it will be made into paper. This practically amounts to storing excess power and using it during a period of low water power.

As an auxiliary feature, electric steam generators will be installed later, so that some of the excess water power can be converted into steam with a consequent saving of very expensive fuel in the paper mill boiler house, steam being very essential in the manufacture of paper.

The General Electric Company has on order for St. Croix Paper Company a 3360-kw., 2400-volt vertical waterwheel generator, and an 1800-h.p., 2200-volt synchronous grinder motor with all the necessary exciters, switchboards, etc. The generator equipment will have to be hauled four miles over the old power station construction railroad by teams of horses, as the track is in such condition that it will not hold up a locomotive.

This so-called "high water" generator will be operated every year at full load for about three months, and at reduced load for another three months. During some seasons it may be in operation for nine months.

The present wood grinders at the paper mill are part motor driven and part waterwheel driven and of the pocket type. The new motor will also drive pocket grinders, but they will be arranged so that magazine grinders may be installed at some later date.

This conservation plan carries with it three things: Power-factor correction by the synchronous grinder motor; the utilization of otherwise waste energy by working up raw material in advance of its requirement; and the substitution of an amount of electrically generated steam for the steam ordinarily produced by burning coal. Manufacturers of all sorts having water power plants might profit by a study of the St. Croix plan.

Prof. Wise on "The Riddle of Cellulose"

Takes Issue With Statement in Previous Article on Cellulose

My Dear Mr. Keenan:

Thank you for sending me the article entitled, "The Riddle of Cellulose," which forms a very interesting presentation of a subject that has been bothering us for a long time.

You have asked for a frank criticism of this little article and I would like to point out one or two statements with which I do not entirely agree.

I fear that chemists have not *in general* accepted the thesis that celluloses of different origin whether from cotton wood, or straw are identical in chemical properties. If you could listen to some of the arguments advanced by my friends at the Forest Products Laboratory I think you would see exactly what I mean. Quite a number of the chemists of continental Europe have agreed that there is probably one type of unit (which occurs largely in cotton cellulose) which occurs in the cell walls of most of the higher plants. I am also of this opinion, but I am afraid that quite a number of my American colleagues are in the opposite camp and feel that there are quite a large number of different celluloses.

May I also point out that your statement that the molecule of cellulose is very large might perhaps be misinterpreted.* The very paper which you refer to in your article, namely the one by Hess, Mesmer, and Weltzien would actually indicate that the cellulose molecule is comparatively small, possibly smaller than the glucose molecule. True, the cellulose molecules associate to form a huge cellulose aggregate but presumably the units which combine in this way through the agency of residual valence are in themselves reasonably small.

Have you noted the recent work from the St. Andrews Laboratory in which Principal Irvine has shown that the main component of esparto is identical with cotton cellulose? This of course supports the opinion of identity of celuloses from various botanical sources and I wish to point out again that I am strongly in favor of this as a working hypothesis, but I do not feel that it has been one which has been generally accepted by our cellulose chemists.

LOUIS E. WISE.

The New York State College
of Forestry at Syracuse University,
Syracuse, N. Y.

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*Professor Wise is right, and the reference to the cellulose molecule as being very large was out of place. It should have been used to denote an abandoned hypothesis.—ED.

Imports and Exports

Fourth in a Series of Articles on a Situation That Is Vital to the Life and Welfare of the Paper Industry

The Big Issue of the Year

THAT the trade balance in favor of foreign countries is gnawing at the heart of the American paper and pulp industry is shown by the cold figures that have been issued during the last few months. Exactly how it is operating is not so plain and clear. This is the dark and devious part of the situation.

But its importance and its far-reaching effects cannot be over-estimated. The mere fact that the American Paper and Pulp Association has temporarily stopped the operation of its Information Bureau so that the indefatigible Warren B. Bullock could be put on the trail of the "paper bootleggers," as it is succinctly put, is indisputable evidence that not only is there something vitally wrong, but that only the most exhaustive and stringent efforts are sufficient to remedy this wrong. It is well to say here, also, that this situation will be the biggest issue to be brought before the annual convention of the Association and its complementary organizations.

Mr. Bullock is gradually turning himself into a veritable bulldog in the interests of his investigation into this "bootlegging." He is on the job to stick. He bases his logic for calling it bootlegging on the fact that if smuggling liquor into the United States in violation of the law is bootlegging, then smuggling paper into this country in violation of the law, whether under a wrong classification or label is bootlegging.

Scouring the Ports

For days he has been traveling throughout the eastern portion of the country gathering evidence. He has visited Boston, Washington, Baltimore, Philadelphia and has been doing much in his home port of New York. Wherever he goes he finds that certain unscrupulous importers are making every effort to bring paper into the United States under a misclassification. In uncovering these disclosures he is finding that, although the customs authorities are both honest and efficient, it is impossible to prevent themselves from being deceived. In other words, crookedness can always find a way.

Mr. Bullock found that paper is being imported under one name, with little or no import tax and then sold as a much better product. In this way the government is swindled, the customer is swindled and the American paper industry is grievously injured in prestige and intrinsic loss. One glaring violation and misclassification he uncovered was in a huge shipment from Germany. German imitation parchment paper was sent here under the label of wrapping paper. This was so palpably a misrepresentation that legal action will result.

It has been found in investigating the cases that not only paper is being offered in unfair competition, but that the innocent and tax-free pulp is being discriminated upon. Some railroads are granting free storage to pulp brought in, awaiting a sale or a market. This is a pure violation of law, and is tantamount to a rebate by these railroads. Formal complaints are being filed in cases of this nature.

Evidence Needed

Everywhere the investigation leads to, it brings dead up against the proposition of the gathering of evidence. The customs officials have only a skeleton organization for the gathering the loose ends of violations of the law. The appraisers, while wide awake and ready and willing to prevent fraud are essentially appraisers, not detectives.

PAPER has frequently reiterated that it is squarely up to the paper manufacturers to secure the evidence that will eventually prevent the undermining of their business. While the tariff laws are what they are, the least that can be hoped for, is a strict interpretation and enforcement of the law as it is written.

The Anti-Dumping Act was not repealed when the new tariff law went into effect. It was closely incorporated in the 1922 tariff law. It shows that Congress anticipated efforts to dump goods on the American market. It shows that there was a well defined fear of exactly the present situation.

The Other Side

So that the matter may be considered from an impartial viewpoint, a representative of PAPER has talked with importers. They say that the claimants of vast law violations in regard to dumping are afraid of a bugaboo, a wraith. They say there is no such thing as wholesale dumping on the American market. The contention is the American paper industry is afraid of its own shadow just now and that because it is nervous it is trying to throw the blame on foreign countries, Germany, in particular.

One ardent importer of German paper has said that Germany is bringing a benefit to America by sending paper here cheaply, that it makes the price low and the buying public pleased and that the American paper manufacturers are only jealous.

It is pointed out by the importers that only the one case, mentioned previously in PAPER, concerning alleged dumping of Norwegian kraft paper, was ever brought to a hearing, and that this was thrown out because of lack of evidence.

A strong case is put up by the importers. Because they are able to undersell the American papermakers, they are gleefully laughing in their sleeve and frequently openly. They are making hay while the sun shines, and they admit it. They will naturally continue to do so as long as the beneficient government of the United States permits them to do so.

It is squarely and obviously up to the organized paper industry to take the necessary measures to see that the law is carried out to the letter. That is the least that could be done when no stone should be left unturned to protect the industry.

A step in the right direction appears to have been taken tentatively, which will be discussed further at the annual convention. It is the so-called Wise plan, because it originated in the head of Henry A. Wise, one of the ablest legal defenders of the paper industry for many years. This plan will, very briefly, provide a bureau or a commission to handle this phase of the battle against business invasion. The industry would then be prepared to handle the question in a business like and thorough manner.

At the present moment, the import question is being discussed with a tremendous vehemence. Over a long period the agitation was passive. During recent months and weeks, due partly to the activity of the American Paper and Pulp Association, partly to PAPER and partly to other agencies, it has again become a question of much importance and it is being discussed as the prime knotty problem of the industry.

Forensic Paper Chemistry

A Study of What Can and Cannot Be Done With Paper, Which Will Be Interesting to Every Papermaker

By A. PAPINEAU-COUTURE

Papermakers have long studied paper from the standpoint of what goes into it. Here is a study of what goes on paper and whether it can be taken off without detection. It is translated from Lu Papeterie, of November 10, 1923. The new phases it takes up make it an engrossing contribution to American paper literature. It is well worth reading by all of PAPER'S *readers.*

THE detection of attempts to tamper with documents, either as regards the writing or the paper itself, is usually a delicate and difficult matter. We therefore consider it will be both interesting and useful if we briefly summarize the results of some very careful investigations which were undertaken to try to prove whether or not a portion of the paper examined has been strongly and unevenly wetted, and if attempts were made to erase pencil writing, in other words, if the paper has been rubbed.

When dry paper is subjected to the action of iodine vapors it assumes a different color from that of the same paper which has been first wetted and dried and then subjected to the action of iodine. When a sized and calendered paper is partially wetted and dried, and then subjected to the action of iodine vapors, the portions which have been wetted assume a violet tinge, whereas the portions which did not come in contact with water become yellow or brown. The intensity of the coloration naturally varies with the time of treatment with iodine. This experiment is readily carried out by placing the paper to be examined over a suitable dish containing some iodine in the bottom.

The phenomenon can still be observed quite clearly when drops of water are allowed to fall on the paper and to evaporate spontaneously so as to affect the surface of the paper, which is then heated to 100 deg. C. to dry it completely. If the paper thus treated is then immersed in water after exposure to iodine, the portions which were originally wetted assume a very intense violet blue coloration, while the portions which remained dry before iodine treatment become blue.

If drops of water are allowed to fall on paper and to evaporate spontaneously and the paper is subsequently completely immersed in water and then dried, on treating with iodine vapors the spots caused by the first drops of water can still be detected, either on the dry treated paper or after wetting it. In the latter case, that is, when the paper is wetted after exposure to the action of iodine vapors, the spots are scarcely perceptible as long as the paper remains wet, but on drying again the outline shows up clearly in a light shade on a darker background.

This reaction allows of obtaining the effects of sympathetic writing merely by writing with water on a sized and calendered paper, and allowing it to dry. On treating the paper with iodine vapor the writing stands out clearly in a violet brown on a yellowish background, which on wetting changes to dark blue on a light blue background. The writing is immediately decolorized by the action of sulphurous acid. It can be made to reappear after a first bleaching provided the paper has not made to reappear and disappear at will, or which can be made to reappear once and then disappear completely.

Iodine has been known for nearly a century and paper is in common use and is handled by practically every one in large quantities. The above described reactions have perhaps been known for quite a long time but were not published (at least to our knowledge), presumably because they seemed too simple and of no interest or value. But we shall now show wherein they can be of great value in showing up various manipulations to which paper may have been subjected.

When examining paper to try to find possible forgeries or other tampering, it is generally carefully examined by transmitted light or by glancing light, that is, the paper is placed practically in line with the source of light and the eye of the observer. If the paper has been rubbed energetically so that part of the material of the paper has been removed, on holding it up to the light there will be a light spot at this point. While if the rubbing has been done carefully, it can sometimes be detected by glancing light, the rubbed portion being more matte or duller on account of the displacement and partial raising up of the fibres above the surface of the paper.

If bread crumbs are used for rubbing, instead of an ordinary eraser, and if care is taken always to rub in the machine direction of the paper, it may be impossible to detect this merely by looking at the paper, no matter how carefully, especially when the rubbed portion has been written over, either in pencil or ink.

But iodine vapor shows up such manipulations very clearly, the rubbed portions assuming a brownish yellow or violet brown color, and the outline of the rubbed area showing up quite sharply.

If the rubbed paper is wetted after having been subjected to the action of the iodine vapor, the rubbed portions become blue, the depth of the color depending on the length of time the iodine was allowed to act; and on drying it can be observed that these portions are of the same shade as the remainder of the paper, but are usually darker.

On the other hand, if the paper has been rubbed so hard as to remove a part of the material of which it is composed, after treatment with iodine, wetting, and drying, the rubbed portions will appear lighter in color than the remainder. This is due to the fact that the mechanical action of rubbing has removed part of the substance (starch or size) which combines with the iodine to give the blue or brown color; so that the depth of shade of the rubbed area varies inversely as the degree of rubbing.

If a piece of paper is partially rubbed and wetted, as is done when copying in a letter press, allowed to become quite dry, and then subjected to the action of iodine vapor, the same phenomenon still occurs, but in this case the differences are not as sharp and clear cut as before. And if the paper thus treated is wetted and then dried, the rubbed portions will show up lighter than the others.

is thus seen that whether portions he paper have been wetted or bed the behavior with iodine is ut the same.

n certain cases iodine will indicate nature of the substance which was d for rubbing: the use of bread nbs or of an india rubber eraser es a yellow or brownish yellow r with iodine, and with the former streaks are of a deeper hue and the er sometimes assumes a violet tinge ch is always more uniform than n an ordinary rubber.

These phenomena are due to the fact the fibers are disturbed and turned by the rubbing, thereby exposing a er surface to the action of the ne. Consequently more iodine is d on or absorbed by the rubbed n by the unrubbed portions.

Chemical Hydration in the U. S.

During the war, the firm of Meigs, sett & Slaughter, of Philadelphia, successful in applying chemical hy- tion to the reduction of cotton lint- complete details being given in cKay's paper already referred to. its means slow or slimy stock is duced much more quickly than erwise, the time of beating being atly reduced. According to an ar- e in the *Papierfabrikant* by Prof. Schwalbe of Eberswalde, which is ewed in a recent issue of the *rld's Paper Trade Review,* satisfac- results in the quick production of rated pulp are obtained by treating a pulp with nitrous acid followed a washing with alkali. The addi- of portions of a slimy pulp, made his way, to other stock in the beater elerates the beating process, operat- to swell the other fibers, as "a e leaven leaveneth the whole lump."

German Work on the Subject

Professor Schwalbe is the author of umber of papers on the swelling and ting degrees of pulps and what he to say on this subject should carry siderable weight. In 1914-15 he occasion to study particularly the blem of the quick production of asy beaten stuff and the results ob- ed have already been published by self and Dr. Becker. Since then he experiments made in several mills the manufacturing scale and the ar- e of which the following is a trans- on by J. Melrose Arnot, contains a ement of the results so far obtained.

The study was originally pro- ed at the beginning of the war Ebart Brothers, of Spechthousen, ing the professor to supply a e process for the destruction of k notes, destruction by fire having ved unsatisfactory, as loose notes e carried up the chimney or partly burned notes fell by other means into dishonest hands. Having in mind the destruction of cellulose in the process known as carbonizing mixed or union goods in the textile industry to obtain the wool fiber, he proposed this method, and it proved quite successful, large quantities being destroyed in the carbonizing drums with gaseous hydrochloric acid or with chlorine. The tendered material escaped through the small holes in the drum as it revolved and was conveyed away to the waste tip.

War-Scarcity of Paper

This process had later to be given up as the growing scarcity of fibrous materials made it necessary to repulp the notes and everything else in the shape of waste paper. Attempts were, however, made to use the material from the carbonizers as a sort of filling for paper and quite good boards were made from it, with the addition of a small proportion of sulphite pulp. While beating this mixture it was observed how easily wet and greasy feeling stuff was produced. Professor Schwalbe had already noted the same thing when dealing with sulphite pulp which he had tendered with acid for the preparation of a foodstuff for cattle.

Woodpulp as Cattle Fodder

To feed ordinary long fibered pulp directly to cattle would probably give rise to the formation of indigestible aggregations in the stomach; to reduce the fiber by beating would consume too much power; and it was, therefore, decided to try the chemical reduction process as used in the textile industry and for the destruction of the bank notes. The results were eminently satisfactory, but sulphite pulp had already become too dear and it became necessary to treat the raw wood and straw for this purpose. This is a short digression, but it is of interest and could not hitherto be published owing to the prohibition of the War Committee for Food Substitutes.

For foodstuffs, however, a greater degree of fineness was demanded and it was sought to attain this by the use of kollergangs and of beaters. Again the rapidity with which the slimy stuff was prepared from straw and cellulose was remarked. Raw wood was variable in character and did not give this result so markedly.

Results of Adding Slimy Stuff to Beater

This observation induced the professor to try adding the slimy stuff to the ordinary beater furnish with a view to obtaining an exceedingly dense paper. He actually found that hand-made sheets were exceedingly dense and strong and became transparent when calendered.

Effect of Acids

The treatment of cellulose with hydrochloric acid results in hydrolytic changes, through cellulose dextrin and hydrocellulose to grape sugar and glucose. Many factors play a part in the final result; the concentration of the acid, temperature, time and the nature of the fibrous material. But not every tendering or every hydrocellulose formation gives rise to the slime-forming stuff.

On a former occasion, when preparing wood cellulose for the manufacture of explosives, Professor Schwalbe had found that if soda pulp was treated with nitrous acid and then washed with alkali, under certain conditions a material was obtained which, after a very short beating in the hollander, yielded an almost structureless paper. Both oxidation and acid treatment are capable of producing the condition necessary for the formation of slime by beating and Schwalbe and Becker have already published a number of papers on the subject.

If a blunt point, for instance, the drawn-out and rounded end of a glass rod, is used to write on paper, on exposing the paper to the action of iodine vapors the writing soon appears in brown on a yellowish background, turning blue on wetting. This phenomenon can still be observed even after the paper has been calendered. Provided the paper is not wetted, the writing can be made to appear and disappear by alternate treatments with iodine vapor and with sulphur dioxide gas.

This method is far superior to the use of water for sympathetic writing. The marks made with the glass point are practically unnoticeable, especially if they are made between the lines of ordinary writing in ink. And the reaction is so delicate that it can be reproduced quite readily on a piece of paper which was placed under the one on which the writing was actually done. By prolonging a little while the action of the iodine, the writing will show up clearly, even when the most careful visual examination reveals absolutely nothing. The delicacy of the reaction is still further increased by placing the paper (or superposed sheets of paper) on a hard surface such as marble, glass or porcelain.

The explanation of this phenomenon is to be found in the fact that by the action of the glass rod the sizing substance is compacted along the lines of the writing. Consequently, as there is more material along these lines more iodine is absorbed and the shade is deeper. If the under side of the paper is exposed to the action of the iodine, the writing shows up also; but naturally it is reversed.

This last-mentioned fact naturally suggests the possibility of using iodine to detect pencil writing, as it will have compacted the sizing material in the same way, though possibly not to the same extent, as the glass rod.

When pencil writing is rubbed out with sufficient care not to destroy the surface of the paper, on exposing the latter to the action of iodine the writing sometimes appears. If the paper is rubbed so hard as to destroy the surface it becomes impossible to make the writing reappear with sufficient clearness to allow of its being read. But in this case, if the reverse side of the paper is exposed to iodine, quite frequently the writing will show up, reversed of course, but sufficiently clear to be read fluently, especially if placed before a mirror to rectify it.

If the pencil writing was originally very heavy, it is sometimes possible to reproduce it in a letter press. To do this, a piece of sized and calendered paper is moistened, as is regularly done in letter copying, placed over the iodine-treated writing to be reproduced, and immediately pressed. It is absolutely essential that the whole operation be carried out very quickly.

Of course the clearness of the results obtained depends largely on the nature of the paper. With a slack-sized, lightly calendered paper it is practically impossible to obtain anything satisfactory. And moreover, the paper can be subjected to various manipulations, which it is superflous to enumerate, which prevent anything from showing up.

Another point of great importanc how long after they have occurred wetting, rubbing, or writing be tected. It has been observed that regular wetting and rubbing could detected three months after they length of time letters which had b written with a blunt point could made to appear. It has also been served that the reaction is sharper more delicate if the paper is first pla for about three to six hours over vessel of water before exposing to iodine vapors. However, though t were quite plainly visible after lapse of time, they were much less tense than a short time after the man ulation had been carried out; and is quite possible not to say probal that they no longer appear after a c tain period, which varies according the intensity of the rubbing or wetti action or the heaviness of the writi

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Sulfur Black *versus* Carbon Black

Relative Advantages of Two Blacks Are Explained By a Man Who Knows

By LEONARD MANN

IN considering the relative advantages of Sulfur Black and Carbon Black, there is one point that under usual conditions must undoubtedly be conceded to Carbon Black, which is, that Carbon Black produces shades of black paper at a lower cost than any other coloring material. In addition, Carbon Black possesses fastness to light. On the other hand however, there are features connected with the use of Carbon Black that are disagreeable, and frequently entirely offset its advantages.

Black papers produced with Carbon Black will always rub off to a certain extent and smudge any light colored articles with which they come in contact. They furthermore show what is generally known as "shiners," which are little lumps of Carbon Black that have not properly broken up during the beating process. These particles take on a higher finish than the rest of the sheet when the paper passes through the stack or the super calenders. Being only loosely and superficially imbedded in the sheet they break up quite readily during any subsequent handling of the paper and discharge their contents of small particles of Carbon Black, thus contributing further to the soiling of other articles coming in contact with the paper.

In its application, Carbon Black always causes an undesirable amount of dust being raised, no matter how carefully it is added to the beaters, which necessitates an especially careful cleaning up after such a run of black paper. Similar troubles are encountered in the washing-up process preparatory to a succeeding run of a different shade of paper.

Deposits of paper stock, colored with Carbon Black, which lodge in the beaters, stuff chests, and pipes are of a slimy character and extremely difficult to remove. Despite the greatest care exercised in the washing-up, traces of this stuff will be noticeable for some time in a subsequent run and are likely to cause not only great annoyance but also an excessive amount of spoil paper, says *Dyestuffs.*

Sulfur Blacks, although genera slightly more costly to use, poss none of these disadvantages and are the same time equally as fast to lig as Carbon Black.

Sulfur Blacks dissolve easily in bo ing water with about one half the amount of concentrated sodium sulfi and this solution is simply added to t beater. After a short time the oxid tion process is finished and the additi of a small amount of alum will neutr lize any trace of sodium sulfide th might still be present. After that, t stock is united for shading with eith aniline dyes or sizing exactly as for a natural stock. Paper dyed in this w will show none of the disagreeable fe tures of Carbon Black.

The backwater will be perfectly cle even on heavy shades, and the washin up will be accomplished with surprisi ease. Sulfur Black is absolutely fa not only to light, but also to rubbing- and water, and "shiners" are entire eliminated.

Hugh P. Baker

Executive Secretary,

American Paper and Pulp Association

Says:

MY DEAR MR. HUGHES:

Let me congratulate you on the March 6th issue of PAPE This particular number contains a number of articles which should be special interest to paper manufacturers of this country. Furthermo the magazine is mechanically very attractive. The trade press servi the paper industry is doing a splendid piece of work in promoting a protecting the industry.

Very truly yours,

HUGH P. BAKER.

Use of Slime Formers in Beating Pulp

ormation of Slow Stock May be Expedited by Direct Use of Chemicals, but Addition of Slime Formers is Better, According to Professor Schwalbe

T HAS been a matter of common knowledge among paper technologists for several years that the ating process may be expedited or arded by the use of chemicals. A ntribution of some importance to our owledge of the subject was made by fred MacKay in an article on the dration of pulps which was published Paper for December 21, 1921. As pressed by him, hydration of the ck is really a chemical operation, energy spent in operating the beat- engine merely hastening chemical ion, which is true. A piece of pure ton treated with distilled water for ty-eight hours will show an increase copper number and the water will ve a higher pH value, which is uivalent to saying that it will have alkaline reaction. The increase in per number indicates the decompo- on of the cellulose represented by cotton, and the formation of a com- und which will eventually break up o glucose and then dextrin. Since cellulose takes on a molicule of ter to form glucose, we should not, haps speak of the process as one of aking up, but it will serve our pur- se. To go farther, would, as Heuser serves, take us too far afield into culation.

Results of Mill Trials

Backed by the influence of Dr. acht it was possible to carry out a l in the mill at Hohenofen in 1918. da pulp, which had been tendered ac- ding to Schwalbe's patent No. 368,- 2, was beaten by itself and in a short e became very slimy or greasy. is material was then mixed with the al furnish in another beater, and ndmade sheets showed a remarkable nsity. Unfortunately, however, when n over the machine, no improvement uld be found in the paper, but is was ved that the suction boxes had re- ved all the slimy stuff. It was then ught that if the fibers were thor- ghly impregnated with the slime, od results should be got. The im- gnation was carried out in a koller- ng, but still there was no marked ference.

After the war Professor Schwalbe rsued the subject further with a view avoiding the necessity to accomplish desired result in the normal course manufacture. By using additions of nitrous acid in a small kollergang quite satisfactory results were obtained. Trials were then made by Herr Emmel at Merken near Düren, and in the presence of Professor Schwalbe at Muldental in 1921, but the experiences here were similar to those at Hohenofen.

Substances That Interfere with Slime Formation

At Muldental Professor Schwalbe noticed that the stuff rapidly became slimy or greasy; but as the beating process was continued this quality disappeared and the final result was as if no slime former had been used. He attributed this behavior to the material of which the beater was made, viz., iron, knowing how detrimental the presence of a salt is to slime production. [The presence of alum would be sufficient to interrupt the hydration of a pulp, which is a reminder that alum should not be added until the beating process is completed.—Ed.] New trials were therefore made at Weissenborn, where the beaters are tiled and are fitted with bronze bars and plates. Paper made from cotton and from linen showed no improvement; but a sulphite paper, after only one hour beating, showed an excellent result. He next attempted to make the process workable in iron beaters and for this purpose resorted to swelling the fiber instead of converting it to oxy or hydrocellulose, and this enabled him to use acids which do not readily attack iron, such as lactic and carbonic acids. The trials were again made by Herr Emmel at Duren, but good results were followed by bad ones and no certain or constant result could be obtained and Professor Schwalbe could not himself be present.

Special Slime Stuff from Flax Shives

Besides the above mentioned methods for producing slimy stuff, there is the special cooking of pulp for greaseproof papers, wherein some of the incrusting matters are retained; and then there is the fact that many tropical plants yield material which rapidly becomes slimy when beaten, for example, the Musa fiber (plantain or banana) and sugar cane pith. But there is one material of European origin which possesses this quality in an astonishing degree. If the shives from hemp or flax are digested by the sulpite process an extremely short fibered pulp is obtained, and this can be beaten to an almost structureless slime in from fifteen minutes to half an hour. The textile industry produces enormous quantities of shives which are used as fuel at present; but Professor Schwalbe forecasts a time when the papermaker will merely have to add a few kilos of this special slime stuff to the beater in order to make dense and strong papers.

Notwithstanding the disappointment he has met with Professor Schwalbe has faith in the process he has discovered, but he realizes that, as in many other cases, final success must be the result of many experiments, and it is to encourage the prosecution of such experimental work that he is now giving the industry the results he has so far achieved.

* * *

NEW METHOD OF USING SHAVINGS

Dr. Alfred Tingle Claims New Process Will Permit Using "Culls"

MR. ALFRED TINGLE, who was formerly employed as research chemist for a large pulp and paper mill in Canada, has been doing work in the laboratories of the University of Oregon, at Eugene, Oregon and has succeeded in perfecting a process for making paperpulp from wood in which shavings and similar "cull" materials of the ordinary pulp mill may be included to give a satisfactory pulp for making heavy grades of dark paper.

Dr. Tingle is accredited with the statement that the manufacture of paper by this new process can be carried on with a much simpler and less expensive plant than is required for any other kind of pulp.

The process involves a double treatment of the wood. The chips or shavings are first digested under pressure with a solution made from lime and sulphur. The product is then crushed to a fine, soft pulp, in certain very cheap acid, which is itself at present only a waste product from another manufacture. The washed pulp can then be made into a very good grade of paper, which research chemists believe, will compare well with that made from kraft.

The application of this new digestion method of Dr. Tingle is expected to be of great importance to the lumber industry. He thinks that it can be used with northwestern fir and at the same time be cheap enough in operation to use in connection with waste products.

When the new process is applied to high grade spruce chips the product may be considered, for many purposes a competitor with kraft pulp.

The Editorial Page

An Open Letter To President Coolidge

DEAR MR. COOLIDGE:

In the multiplicity of duties that are forced on you as President of the United States it is doubtful if you have ever had an opportunity to consider the paper industry. Possibly you have never looked through the mass of documents presented to you and saw—not the words—but the paper which bore those words.

The industry that makes that paper is ill. It is not sick unto death—for it is a long-suffering and peculiarly stalwart industry. But it is distinctly under the weather.

Among other diseases it has never recovered from the war. It became intoxicated in the hysteria of that time as did all industries. It sobered slightly and then following the war it again tore off the lid, as did all industries, and, speaking cruelly, threw a fit. But the paper industry suffered, Mr. President, for that excess. It took its headache, and the bitter taste in the mouth, the general debility and the full punishment for it all. It paid in full—a terrible toll—and it was contrite. It is unfair that the punishment should last so many years, when other industries are again going their blithesome, prosperous way.

The paper industry, Mr. President, only wants a square deal. It doesn't want an unfair advantage over any other. It doesn't want an unjust advantage over foreign competitors. It merely wants to compete on a level, business basis. This, we do not deem too much to ask, Mr. President.

Other industries have been protected by tariffs, tariffs that insure prosperity for American labor and industry, as is right and proper. No one will object to helping the steel trade, the textile trade or any trade. But the paper industry was not protected by a sufficient tariff. If we were unkind, Mr. President, we might naively intimate that perhaps the legislators of the United States did not want to put a tariff of any consequence on certain papers. Because, Mr. President, most legislators read newspapers and periodicals, and if the publishers had to pay tremendous prices for paper on which to print their imperishable literature, they would not feel kindly disposed towards men who caused an increase in that price. These publishers might even suggest in courteous, impeccable language where the legislators might get off. They might even, if forced into unpleasantness, fulminate at length against the perfidy of legislators who would thus impose a hardship on publishers. Now, few legislators like to read unkind things in publications against them. Some even have a positive dislike for such things. Even with practice it is difficult to acquire a great passion for the lurid welts of published dislike.

This, Mr. President, might be one reason why a protective tariff wall was not built up around the paper industry. Of course, there are other reasons also. That tariff, however, was made pliant. It was left to a great extent up to your judgment. Of course, you depend on the Tariff Commission and other governmental agencies, to sift the chaff from the grain. You are far too busy to give minute attention to everything. A man—even a President—is only human.

Under this flexible tariff law, for the first time, you put into effect on March 8, the elastic provision by ordering increases of 12 cents a bushel in the duty on wheat imports and 26 cents a hundred pounds on wheat flour, advancing these two rates, respectively to 42 cents and $1.04. At the same time the ad valorem rate in mill feeds has been decreased from 15 per cent as fixed by the law, to 7½ per cent. The difference between costs of milling in the two countries amounted to only three-tenths of one cent a hundred pounds. This, of course, puts the wheat situation on a thoroughly sound and prosperous basis in the matter of foreign competition. There can be no objection to this by any just man.

The same situation is apparent in the paper industry. You must know, Mr. President, that Germany and other countries are flooding America with paper and pulp at prices ruinously low for American paper and pulp makers. Germany, be assured, is the worst offender, according to all the facts we are able to gather. The economic situation in that benighted country is one where 5 per cent of the people, namely, the large industrialists, are ruling and ruining the remaining 95 per cent. Wood is bought for little or nothing. Labor is paid little. There are no taxes on the product worth mentioning. Then this paper, made for almost nothing, is sent to America, comes in with little or no tariff, and competes with paper made by mills forced to buy wood at huge prices and pay high prices to labor. Such competition is unfair, unjust, and derogatory to the future of the American paper industry. Moreover with a tariff wall protecting other industries, it is discrimination of the most wicked character. The paper industry should have an equal chance. It does not now have that chance.

Do you realize, Mr. President, that the mere carrying out of some of the provisions of the Versailles treaty will put an immediate stop to this ruinous competition? That treaty calls for the imposition of a tax of 26 per cent on all goods imported from Germany, the money to go towards the payment of reparations. Such a tax is not collected, not ever threatened. Germany laughs in her glee at American stupidity and lack of spirit.

England does not impose the 26 per cent levy. But England tried to collect this levy. According to public prints, she imposed the 26 per cent levy, but it broke down because Germany refused to refund it. But a few weeks ago W. Graham, the Financial Secretary to the Treasury, was able to inform the House that an agreement has been come to with Germany by which the rate of levy is to be reduced to 5 per cent. In order to guarantee that no part of the levy will fall upon British importers, the German Government is to compensate the German exporters and, at the same time, to make it a punishable offence to transfer any of the levy to the British importer. Further, the importers who up to date have had to pay the 26 per cent levy are to be reimbursed by the German Government in gold bonds.

According to the Central News British traders will benefit to the extent of £1,000,000 sterling, as the result of the reduction in the rate of the levy. Upwards of £1,000,000 sterling will come to British traders through the channel of reimbursement, namely, payment in gold marks for deficiencies incurred in regard to the levy prior to the time when the reduction came into force. British traders are said to be well satisfied with this new arrangement. It will not affect the volume of trade or the conditions.

Cannot the United States do likewise? It would mean success instead of failure, fair competition instead of bankrupt competition. It would mean an act of comity to our former Allies in the war. It would mean that Germany would be able to thus pay some of the long sought reparations. And immediately other countries that are now losing money in exports to America because of Germany would likewise be able to sell at a profit.

Thus, it will be seen, Mr. President, that two avenues are open to you to help the paper industry.

One is to raise the present tariff sufficiently to make it impossible for other nations to compete. You have full power to do this.

The other is to speak a word to Congress—if indeed you can get a word in edgewise—and have that turbulent body press the reparations levy to a completion. If 26 per cent is not feasible, then let America at least support England by levying the 5 per cent levy, to which Germany has agreed.

This situation is not a passing, transient one. It is one that has long troubled the business world. The paper industry is not getting a fair deal.

We are not touching, in any way, upon the subject of violations of the Anti-Dumping law. That is another jagged bone of contention.

With hopes,

PAPER

The Magazine of the Paper Industry.

NEW DEVELOPMENTS IN PAPERMAKING

Drying Paper By Electricity

It is reported in the World's Paper Trade Review that a process for drying paper with the aid of electricity will shortly be made public, which process will prove without a doubt that it is cheaper to dry paper with the aid of the electric current than by steam. It is claimed that the paper dried in this manner will be free from all the objections which were formerly found with electrically dried paper and not only that but that the paper will show an increase of from 15 to 25 per cent in strength.

* * *

Coating Paper

An improved process of coating paper was recently patented in which a solution of nitro-cellulose is employed as the coating agent. The nitro-cellulose is dissolved in the alkyl ester of a fatty acid having Canadian balsam and alcohol added to the solution. A bath of water to which is added an adhesive such as starch is prepared and the surface to be coated is submerged in the same. The solution is then poured into the water, when it spreads out in a thin film. The solvents are evaporated by natural or artificial means. The surface is then raised out of the water, picking up the iridescent film with it, and allowed to dry.

In carrying out the process a solution was used comprising nitro-cellulose fifty parts and amyl acetate 1400 parts. This solution was then mixed with five parts of mastic. The solution is separately prepared before mixing.

In picking up the film on the uniform surface, such as paper, it is only necessary to establish contact between the film and the edge of the paper, then lifting without any special precaution, when the film will cling to the paper or other surface and leave the bath quite clean. The cleanliness of working permits great rapidity of operation and the use of unskilled labor.

* * *

Purifying the Cellulose Material

Cellulose material is treated with inorganic or organic acids possessing no oxidizing action, such as sulphuric acid, hydrochloric acid, sulphur dioxide, lactic acid, or oxalic acid, before treatment with alkaline earths or magnesia, as described in the chief patent. (German Patent No. 369,606). In this patent it is pointed out that the acids practically hydrolyze the incrustations on the material and facilitate the action of the alkaline earths.

Washable Writing Paper

Ordinary writing paper is first coated with a varnish and the with a transparent lacquer made from copal gum. Then aft the surface of the paper is covered with magnesia powder, it rubbed smooth.

If it is desired to remove the writing from such paper, the the entire surface is covered with a thin layer of soap. Th soap that is used for this purpose is made by digesting gall nut The soap layer must not be moistened too much. The layer allowed to remain on the surface of the paper for about a minut or two and then it is removed by means of a coarse rag an the paper is washed with a little water. This treatment remove the writing. The paper is wiped off with a wet rag and the rubbed dry. After the surface has again been rubbed smoot with a little magnesia powder, the paper can be used agai This process is patented in German Patent No. 388,100.

* * *

Rotary Pulp Strainers

The rotary pulp strainer which is the subject of a Britis Patent issued to Carl H. Jonnson can perform effective wor without the use of any special stirring or shaking device or othe mechanically driven auxiliary means for accelerating the passag of the pulp from the vat through the mantle of the strainin drum.

In the accompanying figure 1 is the rotary straining drum the mantle of which has in cross section the form of an eigh sided polygon, but which can have a greater or less numbe of sides if desired, and 2 is the vat. To obtain a sucking an pressing action on the mass supplied to the vat by means of th irregular form of the straining drum, longitudinal ribs can b arranged in the bottom and the sides of the vat 2. For effectin movements in the mass longitudinal wings 5 may be provide in the inside of the drum 1. It is also possible to provide th straining drum on the outer side with longitudinal wings fo continually removing coarse material and impurities which ar carried up from the bottom of the vat and delivered over a overflow at one side of the vat. The removal of the coars material and impurities may also be effected by means of a discharge channel 8 with a discharge shutter in the bottom of th vat, which discharge channel can be brought into communicatio with the vat by a double perforated bottom 10.

Fig: 2

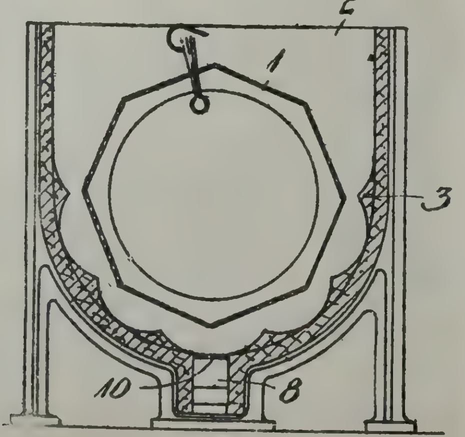
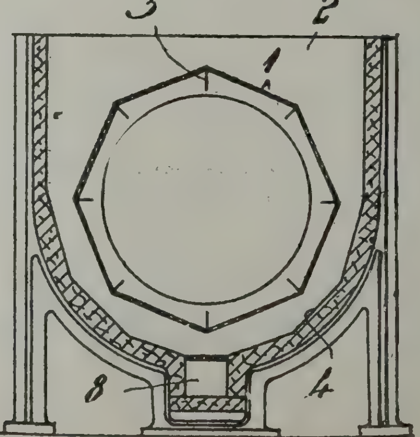


Fig: 3



FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

orestry Management Plan Is Submitted in New York

Foresters Respond to Request of Chairman Rabenold of Senate Conservation Committee in Splendid Fashion

PECIFIC proposals for forestry legislation in New York, where the work done by paper companies along forestry es is of notable extent, featured the re- it conference of the New York Section, nerican Society of Foresters, in which paper company foresters form no small portion of the membership.

The special committee of the Section, on proposed New York legislation has w been made public, and is as follows:

'It is important that in any scheme of rking for the Adirondack region the sting data on the status of the land be plified. This means that we must have equate knowledge of both state and pri- e land and with respect to:

'(a) Condition (merchantable, non-mer- antable, barren or water.)

'(b) Quantity of standing timber.

'(c) Amount cut in an average year and bable future cut.

'(d) Present and probable future growth.

'No such data have been brought to- ther since Bulletin 12 was published by Commission in 1915. For the private d nothing has been done since the war nsus, the results of which have also been blished.

'Obviously any working plans must ve reference not only to the tract for ich they are prepared, but must take o account the conditions surrounding tract on both state and private land.

'It is therefore urged that provisions be de for reconnaissance surveys of state d similar to the work which the Forest rvice has done and is doing on the tional Forests and that this be included the budget of proposed expenses."

Another set of suggestions, going into matter in great detail, was submitted S. N. Spring and A. B. Recknagel, of factulty of the Department of Forestry Cornell University, the suggestions having d the approval of the staff of the depart- ent. The suggestions are probably the st complete outline of the requirements forestry legislation yet to be form- ted in New York State, and may well m a basis for legislation in other states ere the paper companies are active ng forestry lines. The statement is as lows:

'1. Senator Rabenold has requested that foresters prepare and submit a draft a proposed forestry law.

'2. A bill cannot be drafted until a for- policy is agreed upon. It is, therefore, sirable to list the points upon which embers have previously been in agree- nt and those which deserve attention now.

'3. Assuming that the Senator's request for a forest policy for the entire state, the oposals given below are considered state-wide in application unless otherwise specified.

"4. *Protection:* The present efficient system in the Adirondacks and Catskills should be extended to the rest of the state by further development of *Fire Districts.*

"5. *State Parks:* Clear cut distinction as between state parks and state forests (preserves). Delimiting those areas now owned by the state within the Adirondacks and Catskills which constitute *parks* in the same sense as the National Parks, to be maintained under similar conditions.

"*Examples:* High mountain slopes, areas along highways, streams, lakes and otherwise directly serving the recreational use.

"6. *State Forests:* Remaining areas of state land in the Adirondacks and Catskills and forest areas purchased elsewhere in the state to be placed under forest management with the definite aim of continuous production of timber crops, excepting that class of land noted under Item 5.

"7. *Economic Survey:* Utilizing all existing state agencies and local organizations to determine the best use of which is for forests under state ownership, under ownership by counties, by towns or privately.

"8. *Subdivision of States: District Foresters.* For the development of fire prevention and other phases of forestry practice it is desirable that the plan for the division of the state into districts each in charge of a District Forester, as previously promulgated by the Conservation Commission, be carried out.

"9. *Assistance to Priavte Owners:*

(a) Extension of protection from fire.

(b) Advice and assistance in forest management.

(c) Free trees from state nurseries.

(d) Modification of existing methods of taxation of woodlands.

"10. *Regional Management Units:* Should be delimited in the state. A management unit is made up of those contiguous forest areas, similar in character and composition, constituting a definite forest region. These forest areas, as a whole, should be managed so as to assure a continuous production of forest crops. A plan of management, called a working plan, should be required for each forest area 500 acres or over in extent within the regional management unit. The first of such units that can now be delimited is the Adirondack forest region lying within the "blue line."

"11. *Administration:* There should be a *Board of Working Plans* consisting of representatives of (a) the Conservation Commission, (b) the timberland owners, and (c) the public whose duty is to make such rules and regulations as shall be necessary for the preparation, approval and execution of working plans within the regional management units. (Details as to the number constituting this Board and similar points are purposely left for consideration at the meeting.)"

* * *

For Taxation Reform

How taxes force the cutting of timber was told graphically by W. T. Alberty, of the Pine Lumber Company, at the recent meeting of the North Carolina Forestry Association, when he gave figures on a 20,000 acre tract which his company wished to hold for continuous timber production. The case is notable as being an exact parallel of a New York paper company's experience with a 10,000 acre tract which this paper company wished to preserve, but which it was forced to schedule for the cutters on account of the tax assessments made against it.

The North Carolina land, bought at $4 per thousand feet, with taxes and interest on taxes now represents an investment of $10 per thousand. Adding carrying charges, the cost is $19.

Increasing taxes have more than absorbed the value due to increased growth, so in order to prevent further loss the company is forced to cut the timber. The premium on forestry is with "reverse English." In other words, a penalty for preservation of the timber is imposed by the present tax system.

* * *

Introduces Pinchot Bill

The so-called Pinchot bill, providing for an excise tax on all timber cut contrary to government requirements, has been introduced by Senator Capper of Kansas, who has previously sponsored other Pinchot forestry proposals. Senator Capper, however, is said to also favor the McNary bill, as a means of immediate action for the protection of the country's forests. The McNary-Clarke bill will be given a hearing in the House Committee on Agriculture, probably about the 16th of March, and there is a good chance of the passage of the bill at this session of Congress, at least in the Upper House.

* * *

May Take Abandoned Land

Pending legislation in New Jersey would allow the state to take over for forestry purposes abandoned land on which taxes have not been paid, the amount involved being about 500,000 acres. Revision of fire laws is proposed in bills pending in Massachusetts and Maryland.

* * *

A Fine Gift

Forestry in the South has, according to an address by V. H. Sonderegger, state forester of Louisiana, in an address to the southern mill workers, given a Louisiana parish permanent paper and pulp plants valued at $2,500,000. This parish sanctioned the dedication of a large tract to forestry, and thereby sacrificed taxes totaling $159,000, but gained a new industry.

AMONG THE FORESTRY ASSOCIATIONS

Summary of Work of Associations Regarding Pulp and Paper

THERE are more than twenty state forestry associations in the United States, in addition to the national association at Washington. Reports on the various annual meetings, which are usually held in the beginning of the year, indicate very encouraging progress in the association movement, a movement based upon the argument that a meeting ground of interests within the states is the logical medium through which to accomplish results in forest legislation, forest fire prevention, continuous forest production and reclamation of waste land areas.

Two facts are of especial interest to the paper and pulp industry in relation to the work of the forestry association for the past year, as reported in the minutes of the annual meetings now in general circulation. The first is that forestry association membership among paper and pulp men and lumbermen is on the increase, resulting in the presentation, throughout the country, of the industrial point of view before representative groups. The second is that forest taxation is recognized as one of the most important problems confronting the forestry movement at the present time.

As a contribution to this state forestry association we find the timberland owner delivering an address or presenting a paper on the results of his private experimental work, and outlining the policies which he believes would result in gradual extention of the forestry principles involved to cover his entire property. Even in Ohio, where, to the outside observer, forestry for watershed protection looms as a more important phase than timber production, we find H. C. Rogers reporting before the annual meeting of the Ohio Forestry Association not only the growing but the harvesting of a succesful 150 acre plantation of trees, with a very satisfactory financial showing.

We have had access to the minutes of the leading state association and find the taxation matter covered in resolutions which are strikingly similar in composition and principle. From these resolutions it is apparent that what the forestry people want, and what the industries want is a tax levied once and once only, on the value of the crop at time of harvest, whether the harvest comes as a clean cutting or as a thinning. The following might be set down as a composite statement based on several resolutions covering the subject by several or our leading forestry associations:

"Next to the protection of the forest from fire comes the just taxation of forests in establishing conditions under which the practice of forestry on privately-owned lands may be carried on with the expectation of a reasonable profit. The Forestry Association has sponsored bills before the Legislature based on the principle of a tax levied on the yield of the forest at time of harvest. We again affirm our belief that in this state and in other states there is need of legislation that shall put this principle into practical operation, and we urge the support of legislative measures designed to accomplish this result."

In a later issue PAPER will outline the taxation measures advocated in several of the states where association activities have resulted in presentation of remedial measures before the legislatures.

* * *

Age is obliged to use caution, and seeks consolation by calling it wisdom.

Want Closer Co-Operation

How to achieve closer co-operation between the Woodlands Section of the American Paper and Pulp Association, and the United States Pulp Producers Association, both of which have O. M. Porter, Assistant Secretary of the American Paper and Pulp Association as their Secretary, will be one of the questions discussed at the meeting of both organizations during Paper Week, beginning April 7.

Both the pulp mills and the foresters of the paper industry have many common problems, and it has been felt by many that a closer coordination of their work might be achieved through their common Secretary, particularly as to pulp wood problems and statistics.

The pulp producers have established operating efficiency reports, as a check on their individual mill operations, but problems of the basic raw material are so interlocked that there is considerable sentiment for a still closer official connection between the two groups. The form which this cooperation will take will be decided by the two organizations during convention week. The Woodlands Section convention on Wednesday, however, will take up many other problems of interest in the problems of forest management, to give the mills an assured supply of the raw material they need for the continued operation of their mills. Features of this will be papers by representatives of the United States Forest Service on Pulpwood Decay and Forest organizations for fire control.

* * *

Adopts Working Plan

The story of an elaborate forestry management development by a paper company is that told in the announcement of plans for operation of the new holdings of the A. P. W. P. Company in Nova Scotia. Preservation of young growth by fire prevention and careful logging will be the policy, and Frederick A. Gaylord will be the forester in charge. He has as an assistant James A. Connors, and no small part of the work of these men will be assistance to the provincial foresters, and aid to wood lot owners adjoining the company's forest lands in proper handling and development of their properties.

* * *

George D. Pratt, New President

As forecasted in this department, Henry S. Graves, president of the American Forestry Association, has resigned. At a meeting of the directors in Washington, George D. Pratt, former conservation commissioner of New York, was elected president. The resignation was presented because of Col. Graves' new duties as provost of Yale University.

* * *

Much Lumber Here

Superintendent of the municipal dock at Vancouver, Clarke County, Washington, made the statement recently that approximately 15,000,000 feet of lumber was cut monthly by the sawmills of Clarke County. Over 2,000,000 feet is each month shipped over the municipal dock. This does not include the amount shipped out by the Columbia River Paper Mills Company which has leased a portion of the municipal dock and ships over its own section of the dock.

* * *

Continental Paper & Bag.

Owen Shepherd, treasurer of the International Paper Company, has been elected treasurer, director and member of finance committee of the Continental Paper & Bag Mills Corporation.

WISCONSIN FOREST MEN MEET

Profitable Meeting of Protective Association at Chicago

A MEETING of the Wisconsin Forest Protective Association was held at the Congress Hotel, Chicago, Wednesday March 12.

In addition to the regular members there were present O. T. Swan, Secretary and Manager of the Hemlock and Hardwood Association and E. E. Hubert, President of the Madison Chapter of the Forestry Association.

Mr. Swan said that he thought his association and the Wisconsin Forest Protective Association had a lot of things in common and that their interests were identical on taxation and fire protection, which both were holding up timber development. He said his Association favored the McNary bill now before the U. S. Senate and thought we should all work together to get the needed results.

Mr. Hubert said his Association had long ago given up the idea of tree planting and were concentrating their efforts on fire protection and taxation as the first great needs.

A committee of three from the Wisconsin Forest Protective Association is to meet with a Committee of three from the Hemlock and Hardwood Association before the April meeting of the Hemlock Association to arrange for consolidation and co-operation of effort of the two Associations. D. C. Everest, B. T. McBain and one more to be appointed by the President are to compose the comittee of the Forest Protective Association.

The following were present at the meeting: O. Bache-Wiig of the Wausau Sulphate Fibre Co., Mosinee; J. H. Delbridge of Marinette & Menominee Paper Company of Marinette; Guy Waldo of Falmbea Paper Co., Park Falls; W. J. Sullivan of Grandfather Falls Company, Merrill; Mr. Baker of Dells Pulp and Paper Co., Eau Claire; Mr. Johnson of Marinette and Menominee Paper Co., Marinette; D. C. Everest, Marathon Paper Mills, Rothschild, and B. T. McBain of the Nekoosa Edwards Paper Company.

* * *

A Long Incline

One of the chief features of the Crown-Willamette Paper Company logging camp at the Bradley logging works at Cathlamet is an incline that is 2600 feet long and a maximum grade of thirty-five per cent. A donkey engine weighing approximately 85,000 pounds is used in letting down the logs on this incline and hauling the men up. The operations are above this incline.

It is expected that there will be timber enough to keep the camp at its present location for more than three years. The camp may then be moved with all its machinery to the timberlands recently purchased by the Crown-Willamette Paper Company in Washington state near the boundary line.

* * *

For Paper Sales

Plotkin Brothers, wholesale paper merchants of Denver, Colorado, advertising in the *Denver Grocer* says: "It's Some Job to call on everybody in our territory, no matter how hard we try. So, if we don't get around, send in your orders or drop us a card about your wants. Our mail order service is quick, sure and economical. You will find it most helpful. Denver Jobbers for Denver Merchants."

* * *

Take Permanent Office

Notice has been sent to those interested in the paper industry in America that George Buchanan & Company, of London, dealers in woodpulp, are not located permanently at the Blackfriars House, New Bridge Street, London, E. C. 4.

Through the Middle West

McBAIN TAKES TRIP TO PACIFIC COAST

Writer for Paper Makes Swing Around the Circle and Visits Many Points

B. T. McBAIN, Assistant General Manager of the Neekoosa Edwards Paper Company of Port Edwards, Wisconsin, has just returned from a three weeks visit to the Pacific Coast, where he visited many of the mills and his old haunts. It will be remembered that prior to Mr. McBain's coming to Wisconsin some three years ago he was connected with the Pacific Coast mills, having been in the paper game for 30 years, 27 of which were on the Coast.

Among those mills he praised the highest was the new mills of the Washington Pulp and Paper Company at Port Angeles, Washington. This city is reached by boat from Seattle to Port Townsend and thence by rail requiring about 4 hours time. These mills are the most economically arranged and manned on the Pacific Coast.

Before returning to Port Edwards, however, he visited many Pacific Coast cities and reports business good in all parts. He says that as usual there are paper mills being built in almost every district on the Pacific Coast, but that the only new one actually building is at Vancouver, Washington, where the Columbia River Paper and Pulp Company is about ready to widen their building so that they can start setting up their machine. It is reported that J. C. Pollanz will be the sulphite superintendent, and Fred Fuller, of Watertown, New York, the paper mill superintendent.

The New Hawley mills of the Hawley Pulp and Paper Company replacing those that burned down on October 7th, 1923, are being built of reinforced concrete throughout, are also about ready for setting up the machine and they should be making paper not later than May first, or just a little short of six months after their destruction.

The new concrete building replacing the wooden frame structures in the West Linn Mills of the Crown Willamette Paper Company are nearing completion and when the present building program is complete that mile of the Willamette River will be built of concrete and steel.

The Portland Pulp and Paper Company with Joseph Kaster general manager, report going ahead with building of a kraft pulp mill and the installation of a paper machine within the city limits of Portland. It was reported that A. C. Witherbee, now Superintendent of the Peshtigo Pulp and Paper Company of Peshtigo, Wisconsin, will be the superintendent of this new paper mill.

* * *

Taking Lime Sludge

Hundreds of farmers living near Mosinee, Wis., are taking advantage of the offer of the Wausau Sulphate Fibre Co., to supply them with lime sludge required to neutralize the acidity of soils, according to J. C. Justesen, traffic manager for the company. About 10,000 tons of lime sludge has been stored by the company during the winter and will be available early in the spring.

Last year the company shipped about 50 carloads of sludge to nearby towns and hundreds of farmers hauled away the by-product with trucks and wagons. The company is charging $10 a carload to cover the cost of handling and loading. County farm agents are urging farmers to secure the sludge to fertilize their soils.

ROSEBUSH BOUGHT OUT EIGHT STOCKHOLDERS

Water Power to Be Developed by Northern Paper Mills

MR. and MRS. JUDSON G. ROSEBUSH of Appleton who acquired sole ownership of the Outagamie Paper Co., and Hewitt Water Power Co., Ltd., at Kaukauna, Wis., purchased the interests of the eight other stockholders, the largest of whom was A. W. Priest, president of the company. No announcement has been made of plans to develop the property.

The paper company and the water power company was organized almost four decades ago by the Patten and Priest interests. In late years Mr. Rosebush, representing the Patten interests, acquired the interests of some of the stockholders and last week he purchased the holdings of the remainder.

The Northern Paper Mills, Green Bay, of which Mr. Rosebush is general manager and treasurer, has acquired the waterpower and property formerly owned by the White Rapids Paper Co. on the Menominee River but has no plans for immediate development. It is planned to erect a hydro-electric plant at the waterpower and transmit the power to Green Bay. The waterpower can generate about 10,000 horsepower, it is said. A survey of the property is being made and estimates of the cost of development will be prepared soon.

* * *

MAKING OVER MILLION NAPKINS A DAY

New Napkin Folding Machine Makes Production Possible

THE Green Bay Paper Napkin Company has reached a production of about 1,200,000 napkins a day. This output is made possible by aid of a new napkin folding machine recently patented by P. J. Christman and James Deloye, two officials of the company. The patent has been assigned to the Green Bay Paper Converting Machine Company which is operated in the same plant.

The new machine has some features not possessed by others, it is said. As it is being operated it is turning out 400 folded napkins a minute and counting them. The operation is simple enough. Two pairs of rollers, one almost directly above the other, accomplish the folding. The paper enters from a roll the width of a napkin across a triangular piece and the first fold is made as the paper comes off the triangle into the first pair of rolls. A vacuum in one of the top rollers catches the end of the folded paper and draws it around until the point of the second fold is directly over the lower rollers when a second vacuum on the lower rollers draws the paper between them for the second fold.

Once below the second pair of rollers the napkin, now in the quarter fold, is placed in bunches of 250 and the number marked by a raised napkin.

The machine is driven and the vacuums created by an electric motor on the machine. It is steel with ball bearing construction to make it easy for operation, and packs the napkins in regular bunches ready for shipping. Another folding machine is in operation at the same plant, but has not the same speed. All of the movements of the new folder are rotary, making great speed possible.

ST. LOUIS DOES BIG PAPER BUSINESS

Use of Paper Greatly Increased During Past Year

FIGURES just completed by the St. Louis Chamber of Commerce show that the total volume of business done during 1923 in the paper, stationery and envelope industry in St. Louis totaled $27,750,000. In the same lines a total of $25,000,000 business was transacted in 1922. The printing trade was spotty during the year and the total business for 1923 was $6,000,000. Figures for the year previous are not available but all firms report an increase during 1923.

The tonnage of printing papers sold in St. Louis during 1923 showed an increase of from 10 to 50 per cent according to the grade or quality of stocks. The finer grades are always among the leaders in the local demand since St. Louis consumes vast quantities of the better papers in direct by mail advertising.

Since the first of the year the market on both old and new rags for papermaking has been unusually firm with a tendency to rise. The high price of cotton and the substitution for shredding and breaking up by cotton waste mills, instead of low grade cotton formerly used is held responsible for the increase in rag prices.

Rag prices are now from 15 to 80 per cent higher, depending upon the grade, than at this time during 1923. Indications are that they will go higher. However, writing, ledger and book mills are at present selling freely giving all concerned bright assurances for the future.

One expression of interest in the St. Louis territory comes from Ley P. Rexford, president and general manager of the American Paper Products Company. Calling attention to the fact that general business is good he adds his opinion that it would require but little effort to start an industrial boom. "The paper industry is generally good and we are looking forward to a big business in 1924," says Mr. Rexford. "The most essential thing for a greater volume of business is for the government to reduce taxes and stop nagging the railroads. I feel that one of the greatest errors of our government today is that it has throttled business to the point where it can tell it what not to do but there has been no constructive legislation to tell us what to do. The result is that business, in trying to find its way out, has done things that, legally, has caused trouble."

* * *

Continental Site Doubtful

Whether the $200,000 plans which the Continental Bag and Paper Co. is considering erecting in the west will be built at Menominee, Mich., or Oconto Falls, Wis., has not been determined, it was stated at a recent meeting of the common council of Menominee when a report was made on a proposal to the paper company that it purchase land for straightening out a city street and receive in exchange a parcel of land now used by the street. It was suggested that the parcel that was to be given to the paper company be added to its present property.

The company, however, according to the report, balks at buying the required land and it was said it would build the new plant at Oconto Falls rather than buy the property. No action has been taken by the council and further negotiations will be made with the paper company.

PAPER MAN ON LONG AUTO TRIP

Willard P. Hawley, Jr., Off on Trip to Mexico City by Automobile

WILLARD P. HAWLEY, Jr., vice president and general manager of the Hawley Pulp & Paper Company of Oregon City, Oregon left Portland March 8, 1924, with two elaborately outfitted automobiles for an overland trip to Mexico City and return which he expects to require approximately two months time.

Not including the cars the most important parts of the Hawley expedition equipment were manufactured in Oregon.

There will be long stretches of desert waste through which no automobile has previously travelled successfully and then there is the danger of meeting hostile rebel bands but Mr. Hawley is optimistic about the success of his journey. The party goes by way of San Francisco, Los Angeles, El Paso, San Antonio, through Chihuahua, Torrean, Aguas Calientes, Guanajuto, Queretro to Mexico City.

Accompanying Mr. Hawley on this automobile trip to Mexico City are Earl C. Brownlee, a newspaper man, Bud Stright, chief electrician for the Hawley Pulp and Paper Company and H. H. Brownell, a motion picture camera man.

They carry letters to President Obregon of Mexico from Secretary of State Hughes, various senators, Governor Pierce of Oregon, and city officials of Portland, Oregon.

* * *

Envelope Company Held Up

At 4:30 in the afternoon two men walked into the office of the Rocky Mountain Envelope Company, 730 Acoma street, Denver, Colorado, when Miss Laura C. Frances, the cashier, walked forward to greet them, the leader said: "We want the pay roll."

The second man was really a prominent doctor whom the bandit had forced under penalty of death to accompany him after stealing the doctors automobile.

Four hundred and sixty dollars was obtained, the bandits then smashing the doctor's car and giving him the laugh.

* * *

ANALOMINK PAPER MILL HAS NEW MANAGER

Leonard Mann Succeeds Eskridge Who Goes to Mohawk

IT was announced by officials of the Analomink Paper Mill Company that Leonard Mann, lately connected with the National Aniline and Chemical Company of New York City, had succeeded J. L. Eskridge as general manager of the paper mill at North Water Gap, Pa. Mr. Mann has taken active control of the management of the plant.

Mr. Mann has been in the paper manufacturing business all his life. He grew up in a paper mill, and has been at it ever since.

He is an expert chemist as applied to paper manufacturing and is recognized in this capacity not only in the United States, but in foreign countries as well. Mr. Mann has traveled to a large extent, and has been affiliated with paper manufacturing plants in various parts of the world. He is a specialist in manufacturing colored papers.

The new manager of the Analomink paper mills was formerly connected with such paper manufacturies as the American Paper Company at Holyoke, Mass.; the Hammermill Paper Company, at Erie, Pa., and numerous other factories of like standing.

It was announced J. L. Eskridge, who has been the general manager of the Analomink paper mill, had accepted a position with the Mohawk Paper Company, which has factories at Cohoes and Waterford, N. Y.

Caught in The News

At Elizabeth, La., a paper mill is being erected. When completed it will produce twenty tons of pulp daily. No names are given.

* * *

A chemical engineer has developed a method of making paper from yellow pine stumps, first extracting the turpentine and rosin. Neither name or location given.

* * *

At Stockholm, Sweden, an engineer using waste paper, clay and sulphate lye, has been able to turn out a fireproof product which is durable for building material. The combination may be painted, stained and polished, or the old time wall-paper may be hung. Name not given.

* * *

Was a Paper Man

Samuel M. Stow, who recently died in Manila, was at one time assistant superintendent in the Crown-Willamette Paper Company plant at West Linn, Oregon. While there, at the risk of his own life, he saved a man from drowning in the locks for which he was awarded a Carnegie medal for heroism. His widow and one son survive him.

* * *

NEWSPAPERS BREAK OUTPUT RECORD

American Periodicals Used 2,800,000 *Tons of Paper Last Year*

THE year 1923 set a new high record for the consumption of newsprint paper in the United States, exceeding the year 1920 by about 28 per cent and the year 1922 by about 15 per cent. Total net consumption amounted to approximately 2,800,000 tons, of which mills in the United States produced 1,506,204 tons. This production was practically all consumed in the United States, our export shipments during the year being only approximately 16,360 tons.

To make up the balance we imported 1,108,390 tons from Canada, representing approximately 80 per cent of the total Canadian production, as well as 200,450 tons from the European mills. The imports also establish a new high record, the purchases from each of the foreign countries exceeding any previous year by very substantial margins.

United States production for 1923 was about 1.8 per cent less than that for 1920 and only about 2.55 per cent above that for 1922. On the other hand, however, Canadian production has continued to increase and the total production for the two countries for the year 1923, amounting to 2,748,000 tons, exceeded the previous high record set in 1922 by 218,000 tons, or approximately 9 per cent. The Canadian industry has shown rapid strides within the last few years due to the addition of new equipment, whereas production in the United States has shown only little variation with practically no tendency toward expansion in the way of new equipment.

* * *

Making Paper From Straw

Considerable interest is being aroused in Manitoba over the possibility of manufacturing pulp suitable for the manufacture of high-grade white paper from wheat and oat straw. Recently about 200 bales of straw were shipped to Grenoble, France, where it is proposed to have the straw manufactured into pulp by the De Vains process. If results are satisfactory, it is said that the De Vains Company contemplates the erection of mills in the vicinity of Winnipeg with a capacity of 50 to 100 tons of pulp daily.

PAPER EXPORTS IN JANUARY COMPILED

Less Than in December But Larger Than in January, 1923

PAPER exports from the United States during the month of January, 1924, were valued at $2,051,584, according to figures of the Paper Division of the Department of Commerce, a loss of $134,623 compared with the previous month, but a gain of $90,043 compared with January, 1923. While the loss as compared with December, was fairly well distributed, the majority of the various classes showing a decrease in value were: Book paper, $54,743; wrapping paper, other than kraft $51,412; tissue and crepe paper, $12,310; toilet paper $13,096; carbon paper, $11,947; paper board and strawboard $17,603; and wall board, $20,636. Playing cards, exports of which increased enormously during 1923, also fell off to the extent of $15,073 last month. These losses were compensated to a great extent by an increase of $50,116 in exports of photographic paper and $21,858 in exports of surface-coated paper. Other classes which showed an upward tendency during January were: Newsprint, greaseproof and waterproof paper, hanging paper, towels and napkins, paper bags, and boxes and cartons.

If the comparison is made with January, 1923, a much better result is shown, exports of the various classes, with a few important exceptions, showing substantial increases, varying from approximately $10,708 in the case of carbon paper to $65,314 for newsprint and $86,737 for paper and strawboard. On the other hand important losses took place in exports of book paper, wrapping paper, toilet paper, and playing cards.

The value of paper and pulp exports from Canada during January, 1924, was $10,900,050, a decrease of $774,136 under the December exports, but $601,807 in excess of those for January, 1923, Consul General Albert Halstead, Montreal, reports. Newsprint accounted for 65 per cent of the January, 1924, shipments, exports of this product amounting to 93,708 tons, valued at $7,089,061, an increase of 10,919 tons in weight and $954,234 in value over the previous January. All of January's newsprint shipments, except 561 tons which went to New Zealand and British South Africa, was sent to the United States.

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To Talk Imports

Import problems will feature the forenoon program of the Salesmen's Association convention on Tuesday, April 8, of the annual Paper Week, while a dinner and smoker with addresses in a lighter vein will take the place of the dinner-dance held the last few years by the paper salesmen of the country.

Plans are already under way for the Salesmen's meeting, and Henry A. Wise has been invited by President J. L. Fearing to speak on the import situation at the forenoon business session of the Association. No other subjects, except matters relating to the year's work will be discussed at the forenoon session, and adjournment will be taken before luncheon until the evening affair.

Some nationally known humorist will be one of the speakers at the evening meeting, and Edward A. Guest was invited, but declined owing to a previous engagement in the West. The speaker will be some man, however, with a message of equal interest to the salesmen.

F. N. Countiss, chairman of the convention committee, has already secured some entertainment features for the smoker which will follow the dinner, and the entire affair will be of the most informal type.

SAYS CANADA SHOULD BARGAIN FOR THE UNITED STATES MARKET

Financial Post, of Toronto, Reviews the Situation—Says Canada Talked Embargo Years Ago

THAT the Canadian public is coming around gradually to a compromise arrangement on the pulpwood export question is evident from the following, which appeared in a recent issue of the *Financial Post* of Toronto under the heading: "Canada should bargain for U. S. Paper Market."

"Twenty years ago one of the livest questions of the day was an embargo on pulpwood. Today Canada is still discussing the same question."

"When the question first came up, Canada was half way in prohibiting the export of pulpwood. The four big pulpwood provinces put embargoes on the export of wood from crown lands, and as a result the United States was forced, by the pressure of the big publishing interests, to give free entry of Canadian newsprint into that country. From that time dates the tremendous expansion of the Canadian newsprint business, now Canada's biggest exporting industry. To speak of the expansion and prosperity of the Canadian pulp and paper industry is really misleading. The newsprint industry in Canada is prosperous but the pulp mills are far from prosperous and the high-grade paper and wrapping paper mills are not rolling in wealth by any means."

"Canada only went half way with its provincial embargoes. This country still permitted American capitalists to buy vast stretches of forest lands and to strip them bare of their trees to fill the maw of grinding machines located across the line. Section after section of the country was denuded by interests that have little or no desire to perpetuate the forests of the country, but who slashed and hacked at our greatest natural resource and paid us a few dollars in lumber jack's wages, a few dollars in freight charges and a few dollars for the land. Export of raw wood from freehold lands has never been prohibited from Canada. For that matter, export of wood from crown lands has never been entirely prohibited, for through the system of special licenses and by lax checking up of the source of wood shipments labeled as from freehold lands, there has always been a large amount of crown lands wood shipped from Canada raw and unfinished."

"Altogether apart from the fact that this action has drained our forest resources without giving us adequate return, it has been grossly unfair to Canadian pulp and paper makers outside of the newsprint field. Consider the position of a firm making wrapping paper in Canada. This company cuts down the trees and converts them into kraft pulp and ground woodpulp. If it wants to sell this semi-finished product across the line, it may ship it into the United States duty free and get anywhere from $25 to $65 a ton for it. It probably will not make money out of it. There is hardly a company in Canada today making pulp only that is prosperous, for the pulp meets with terrible competition from European pulps and the price ultimately received is apt to be less than the cost of production. How true it is can be seen from a survey of the number of large Canadian pulp companies that are now in bankruptcy.

"But if this Canadian company manufactures this pulp into paper in order to get $150 or more for it, the door into the United States market is closed. There is a tariff wall so high that it prohibits sales of Canadian wrapping paper or Canadian high-grade paper in the United States."

"The Canadian company cannot sell its paper in the United States, but an American manufacturer can cut wood alongside the Canadian company's timber limits, ship the wood into the United States, make it into paper and sell it at home.

"If Canada is going to continue to sell pulpwood to the American manufacturers, Canada ought to get in return free entry of all Canadian wood products into the United States.

"Canada wants the embargo on pulpwood, but it would be willing to give up the embargo for something just as good. There exists today an opportunity to build up one of the greatest of Canadian industries. Let the government at Ottawa bargain with the United States on the pulpwood embargo. Canada is in a strategic position to strike good terms.

"Free wood for the United States and a free market for Canadian paper in the United States would result in numerous paper mills springing up around our bankrupt pulp plants. There would be hundreds of new jobs created for Canadian workmen; thousands of tons of new freight for Canadian railroads; dividends for investors who are now in danger of losing much of their investment.

"Canada ought at least to give itself an even chance to make money out of its forest. Free entry for our papers into the United States is worth striving for."

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Forecast More Consumption

Increased consumption of newsprint in 1923 and prospects that 1924 would see the present high rate sustained makes it probable that the International Paper Company will soon take steps to increase the capacity of its newsprint plant at Three Rivers, Que. The Canadian mill has a present daily capacity of almost 320 tons of newsprint which could be increased to 500 tons daily with small outlay. Plans are reported to be under consideration by the company for transformation of three paper mills in the Watertown, N. Y., district into hydro-electric units. With power plants already developed by International Paper in the past two years, and those in process of construction, new developments, when effected, would make the largest producer of paper in the world an important figure in the public utility field.

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Talks Safety First

A. P. Costigane, Toronto, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association, spent some days last week visiting certain of the pulp and paper mills in the Niagara Peninsula, where he discussed with the managers the salient features in connection with the analysis of accidents which had taken place during 1923. "An analysis of 1923 accident reports," said Mr. Costigane, "shows clearly that the large majority of accidents can be traced to one of several causes which include handling of material, slipping or tripping, trucking, block pile, etc." Mr. Costigane is of the opinion that concentration on the elimination of the cause of accidents which are responsible for so many repeats would go far to improve the record and is hopeful that something along this line will be done during the current year.

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Two Important Bills

Government legislation of importance to lumbering and pulp manufacturing companies entered the Ontario Legislature in Toronto last week and secured its first reading. It was constituted into two bills, one of which placed an embargo on the export of hardwood, while the other provided for the licensing of pulp and saw mills, its aim being to check up the returns to the Government by operators, to prevent disputes over rights in rivers during driving operations, and to secure information for statistical purposes. The licensing bill, in addition to providing a nominal fee, has enabling sections as follows: to secure information regarding the amount of timber and pulpwood cut, whether from private or Crown lands; to secure information regarding the amount of pulp and paper made by each mill; to control the erection of saw mills so as to regulate the fire hazards; to avoid disputes between two or more operators through booming or driving operations; to enable the Crown to check up against operators' returns when deemed necessary to protect itself against spurious operations.

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Talks on Newsprint

"The Manufacture of Newsprint" was the subject of an address delivered before the Riverdale Kiwanis Club, Toronto, last week by W. A. Peacey, of the *Toronto Mail and Empire.* In his address Mr. Peacey outlined the wonderful process of transforming pulpwood into paper, and demonstrated by the aid of samples supplied by the J. R. Booth Company, of Ottawa, the newsprint in the various stages of its manufacture from the log of wood to the roll of paper ready for the printing presses.

* * *

Southworth Dies

The death took place in Ottawa a few days ago of Thomas Southworth, who was director of forestry and director of colonization in the Ontario Government from 1895 to 1907. The remains were taken to Toronto for burial. The late Mr. Southworth was at one time editor and proprietor of the *Evening Record* of Brockville, Ont., and was one of the incorporators of the Canadian Forestry Association. He was vice-president and managing director of the Deloro Mining and Reduction Company and a director in the National Equipment and other large companies in Canada.

* * *

Observing 40th Birthday

At the annual meeting of the American Sales Book Company, Limited, held at the head office in Toronto last week, A. M. Bovier, the general manager, referred to several new lines of product which had been brought out during the past year. These, he said, were now being nationally advertised in connection with the fortieth anniversary of the founding of the business. S. J. Moore, of Toronto, the president, gave some reminiscences of the days which have intervened since the first shipment was made from the company's initial factory was established in January, 1884. Mr. Moore stated that the business of the company was ahead of that of last year and that prospects were exceptional. Prior to the annual meeting the directors of the company entertained Mr. Moore and some of his associates to luncheon at the National Club when brief addresses were given by Dr. Charles W. Colby of New York and Lewis Henry of Elmira, N. Y. During the proceedings Mr. Moore was presented with an oil painting of himself painted by E. Wyly Grier, the noted Canadian artist.

* * *

Charles W. Price Dies

One of the most popular men in the Toronto paper trade passed away last week in that city in the person of Charles W. Price, city traveler for the Allan Paper Company, Simcoe Street. The late Mr. Price died after a few days' illness of pneumonia. Before coming to Canada he was for some years with the John Dickinson Paper Company of London, Eng., and worked for them in London and in South Africa. When the company opened an office in Montreal he was in charge there and when it was closed and taken over by the Allan Paper Company he came to Toronto with the latter firm. He was widely known and highly respected in the Ontario paper trade generally.

ABITIBI REPORT IS A GOOD ONE

Annual Statement Shows a Balance of Over Two Million

THE annual statement of the Abitibi Power and Paper Company, Limited, for 1923, shows a balance of $2,396,769 after all charges including preferred dividends have been met. This is applicable to the common stockholders of the company, and is equal to about $9.50 per share on the 250,000 shares of stock of no par value outstanding. This compares with $1,812,323, or $7.24 a share for 1922. Receipts, from the sale of paper were $11,047,667, as against $9,461,289 in 1922. Operating general and administration expenses were $6,768,088 as against $5,846,462, the net earnings being $4,279,579 as compared with $3,614,837 in 1922. Of the deduction of depreciation charges and preferred and common dividends the balance is $1,396,769, which added to the previous balance of $4,807,238 brings the total profit and loss balance to $6,204,007.

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More Evidence

Reports to the effect that the International Paper Company is converting mills at Watertown, N. Y., into plants for the production of hydro-electric power, accompanied as these reports are by others that extensions are contemplated to the company's mills at Three Rivers, Que., is considered by the Canadian trade as further evidence of the transfer of the newsprint industry to Canada. The Three Rivers mill has a present capacity of 320 tons a day, and it is understood that this might be increased to 500 tons at very little extra capital outlay. This is additionally interesting because of the fact that the Three Rivers plant is included in the scheme for the merging of newsprint interests in the St. Maurice Valley.

* * *

Tells of Low Price

Mr. Andrews, Jr., son of W. C. Andrews, with whom he is associated in the business of importing pulp in London, was in Toronto and Montreal last week. Mr. Andrews is on a business trip to Canada and the United States. He explains that the low prices of Scandinavian pulp as a matter of low cost of production and of German pulp as low production cost, very much depreciated exchange, and the necessity of turning raw material into cash. He does not see any immediate likelihood of increases in European prices for pulp. He said that Finnish goods are coming into the British market, but are not a really important factor. Mr. Andrews stated particularly that many British houses prefer the Canadian to the European way of doing business.

* * *

New Company Busy

The waste paper business in Ottawa, formerly carried on by A. L. Florence & Son, has been taken over by a new company which has been incorporated under the name of The Capital Paper Stock Company, Limited. The new organization will be controlled by E. Pullin, Toronto, president, Harry Pullin, vice-president and A. T. Brown, secretary-treasurer.

* * *

Protest at Embargo

Settlers and organizations representing rural interests continue to protest against the proposed embargo of exports of pulpwood from Canada. Before the Canadian Pulp Wood Commission sitting at Kootenay, B. C., several witnesses appeared and represented that such an embargo would mean much hardship to those connected with the lumber industry. The view was expressed that while the ultimate effect of an embargo might be to cause the building of more paper mills in Canada, still during the interval much hardship would result.

Reviews Box Lines

Shareholders of the F. N. Burt Company, Limited, attended the annual meeting in Toronto last week at which statements were presented by the president, S. J. Moore, who reviewed the operations in paper box and other lines of the company during the year. Miss M. R. Cass, general manager, who is at the head of the United States end of the business, also spoke, and gave some interesting facts about the affairs of the organization. During the year expenditures, well in excess of $100,000 were made in developing new lines which would have a wide distribution. A line of paper drinking cups has been developed which will have an extensive market. A process has also been evolved of moulding paper which is likely to have a wide market. These latter products consist of novelties and toys which will be stocked by chain stores throughout the continent. All the old directors and officers were re-elected.

* * *

Death of Fremont Spicer

Fremont Spicer, who built the Frontenac paper mill at Brownville, N. Y., years ago, and who was one of the editors of the *Fourth Estate,* a newspaper man's publication, died recently at his home in Kew Gardens, Long Island, after an attack of pneumonia. Mr. Spicer was well known and greatly liked by many of the older generation of papermakers.

* * *

Chemists to Have Experience Meeting

Prof. Ralph H. McKee, of Columbia University, will preside at a meeting of the American Section of the Society of Chemical Industry, to be held at the Chemists' Club, New York, on Friday evening, March 21. It is to be "An Old-time Experience Meeting" and the announcement sets forth that "Brother McKee will open the exercises, after which we will hear from the following Brethren: Elwood Hendrick, P. I. Murrill, Edw. Sakal, A. W. Hixson, D. D. Jackson, H. T. Beans, W. H. Gesell, C. M. Salls, H. B. Faber, W. H. Eddy, Jerome Alexander and D. E. Cable."

Subjects of papermaking interest will be discussed in addition to more purely chemical topics. William H. Gesell, formerly general manager and superintendent of the Hamersley Manufacturing Company, will discuss the deleterious effects of iron bacteria as affecting the color of white paper, and other paper technologists will contribute to the program of the evening.

* * *

Are Against Embargo

At the annual meeting of the Hull, Quebec, County Council held recently, a motion was adopted protesting against the proposed embargo on exports of pulpwood. Mayor Legauly of Maniwaki, Que., pointed out that 700 or 800 settlers in the Gatineau Valley drew revenue aggregating about $300,000 a year from the cutting and shipping of pulpwood during the non-farming season, and that if they were deprived of this source of revenue much harm would result.

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Mattagami Company Busy

The Mattagami Pulp and Paper Company's plant at Smooth Rock Falls, Ont., is operating to capacity on unbleached sulphite. The company has produced 8600 tons of unbleached sulphite since the opening of 1923, up to March 1 and has marketed it all. Some 11,000 cords of pulpwood has been contracted for for the year, sixty per cent of which will come off their own limits and thirty-five per cent by rail from settlers. The output is being marketed by S. R. Armstrong, of Caledonia, N. Y., who has charge of sales for the receiver.

'BUSINESS—NOT POLITICS' IS SLOGAN

No Speaker Representing Political Party on Convention Program

RESENTING the display of partisan politics at Washington, the American Paper and Pulp Association for its annual convention the week of April 7 has adopted this keynote, "Business—not politics." In accordance with this policy there will be no speaker representing any political party on any of the programs of the Association.

Instead, Julius H. Barnes, President of the Chamber of Commerce of the United States, Frederick F. Fish, of the National Industrial Conference Board and Dr. W. Warren Giles of East Orange, N. J., will be the three speakers for the banquet program.

Mr. Barnes will speak on the organized business of the nation, and general business conditions. Mr. Fish on problems of industry, particularly such questions as immigration, labor and the like, while Dr. Giles will close with an optimistic message for the American business man. Dr. Nehemiah Boynton, the Association's long time unofficial chaplain will not be in New York at the time of the convention this year, but Dr. Giles is a speaker whose message will be no less impressive than the remarks of Dr. Boynton have always been.

Last year Senator Borah was one of the speakers, on other years other prominent political figures have been the convention orators, but the change this year is to evidence the sentiment of the paper manufacturers at least at the manner in which the country's needed legislation is being sacrificed to the political exigencies of a presidential election year.

* * *

Take Harbor Property

The Dominion Tar and Paper Company, a British company, controlled by the Earl of Dunmore and Sir Harold Walker, has leased five acres of harbor property at the foot of Saulter Street, in Toronto, for a period of twenty-one years and will erect a $200,000 factory which will constitute one of a chain of plants extending across the Dominion. The chief output of the plant will be by-products of coal tar.

* * *

Redeem First Bonds

Announcement is made that the Canadian Paperboard Company, Limited, which operates paperboard mills at Montreal, Frankford, Ont., and Campbellford, Ont., has redeemed the first installment of their outstanding $900,000 seven per cent bonds, amounting to $30,000 in accordance with the trust deed. A similar installment is required to be taken up the first of April of each year.

* * *

Operated to Capacity

The pulp mill which was erected by the Backus-Brooks Co. at Kenora, Ont., is being operated to capacity and it is expected that the new newsprint mill will be completed and running during the month of March. Splendid progress has been made on construction and installation of the equipment.

* * *

Good Bond Demand

Paper box factories are fairly busy at the present time and there is a moderate demand for board of all kinds. There have been no changes in prices for a long period and the plants are operating to fair capacity. With the advent of spring it is expected there will be.

News From New England

REVIEW OF THE PAPER SITUATION IN NEW ENGLAND

Outlook in New England Is Given, With Results of Study of Fundamental Conditions

NEW ENGLAND is in an important position relative to the papermaking industry. She has without doubt held an enviable position in the past in this respect; and has much to live up to, if this prestige is to be maintained.

Profitable papermaking in a geographical sense depends principally on three factors, coal, power, and raw materials. New England is a long way from the coal fields and suffers considerably because of the present high cost of transportation. With the gradual return to normal the coal prices are expected to readjust themselves and become more reasonable. Some time ago manufacturers anticipated relief through the West Virginia coal mines, which are said to produce a very good anthracite coal. However, the present difficulty is directly traceable to transportation rates.

The present outlook for lower freight rates is not good. Figures at hand, referring to railroad equipment, for the first time in many months would tend to indicate the country, as a whole, is confronted by the danger of a serious car shortage. The surplus of cars, built up before the first of the year, because of the increased demands for transportation facilities has been depleted to a considerable extent. In New England, especially, the unfilled demand for cars has taken a sharp turn upward. During the month of February the decline for the entire country was 70,000 cars, which is about half the number available one year ago.

This is a serious situation. Not only would the paper industry be effected from the standpoint of fuel; but also in all lines where prompt shipments are demanded. Many cars are now in the process of manufacture, and seem at this time to be the only means of relief. If the condition is not remedied, it is self evident, freight rates will start to soar.

To some extent the high cost of fuel is compensated for in some parts of New England by water power. In recent years water power legislation has been suggested for the State of Maine, which would have been most harmful to Maines' paper and pulp mills. Fortunately, these bills were never passed, and it is the duty of paper manufacturers to prevent a reoccurrence of this situation, if possible. If a car shortage is prevented, the outlook in regard to coal and power, as related to the paper and pulp maker is bright enough.

It is in regard to raw materials that the paper industry faces its most serious situation. Those mills, which make a specialty of using rags, rope, etc., are partially protected for the future, but mills depending on the use of pulpwood must view with some alarm the condition of our forests.

Many times the destruction of our forests is placed at the doors of the paper industry, which is entirely unfair. No single agency at work for the protection of our forests, has done more or labored harder for their preservation.

To many paper companies the protection of our forests is a matter of great importance and some mills have spent hundreds of thousands of dollars to protect their future supply of wood. More would be done but the expense involved is tremendous, and companies can not afford to add to their overhead, much as it is to their interests to do so.

Plans for reforestation are discussed in various states from all angles. The European plan has been adopted to some extent, but from the viewpoint of the present high level of wages and the heavy taxation, reforestation, as a private business is quite out of the question.

Protection is as vital an item in forestry as the establishing of new forests. Perhaps if the public realized to what extent our forests were depleted yearly by fires and insects decided action might be obtained. In Massachusetts, Harold L. Frost, Chairman of the Boston Chamber Commerce's Committee on Forestry at a recent meeting recommended increased state authority in fighting forest fires. It is felt each town cannot properly handle this important issue.

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Conditions Steady

Conditions in the paper trade in New England are steady with consumption remaining about normal. Business for January, according to statistics, was far in excess of the same month a year ago, showing an advance of about ten per cent.

Sales of foreign kraft pulp remain about the same, or 2.50 docks while foreign chemical pulps showed little strength as the result of the strike in Norway which has seriously affected the pulp and paper industry of that country. Captains of ships recently arriving from Norway report plenty of pulp on docks in that country ready for shipment. Unless the strike continues for many weeks, a rise in imported pulp is unlikely. Mechanical pulps have not been imported in sufficient volume to make the strike have much effect upon them.

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McGrath With Gilman

Maine has just parted with one of its best known paper men owing to the resignation of C. B. McGrath, general superintendent of the Grand Lake Paper Company, of Woodland. Mr. McGrath has left Woodland to accept the office of general manager of the Gilman Paper Company, in Gilman, Vt. as a testimonial of regard a number of Mr. McGrath's co-workers and fellow officers at Woodland, on the eve of his departure, tendered him a complimentary banquet at the Queen Hotel, St. Stephen, N. B., when speeches were made by George Kent, master mechanic of the St. Croix Paper Co., Peter Falbert, superintendent of the paper machines and others. Assistant Superintendent Leonard Miller officiated as toastmaster. Mr. McGrath was presented with a Shriner's ring and Masonic cuff links by employees of the paper mill.

VAN BUREN MILL IS CLOSED NOW

International Paper Company Closed for Indefinite Period

THE Van Buren Pulp Mill of the International Paper Company at Van Buren, Me., has been closed. The closing is for an indefinite period. The mill manufactures kraft pulp.

The entire output of this mill was formerly shipped to Rumford but when the Continental Bag & Paper Co., purchased the Rumford mill of the company, shipments to that point ceased. The Continental Company has been buying pulp at its source, mostly from Canada, at a saving of $15 per ton.

The plant has a capacity of 60 tons per day of pulp and about 300 have been employed. There has been some talk of the company installing paper machinery to use the pulp at some future date.

Closing down of the mill, according to paper circles, does not indicate a slump in the paper or pulp trade. It is the fourth mill to close down within a few weeks. Its closing is looked upon more in the nature as a change in conditions affecting that particular mill rather than to any change in the trade. Demand for newsprint, which comprises two-thirds of the company's output, shows no abatement. While the present price of newsprint of $75 per ton shows but small profit, it is sufficient to show a moderate profit to the company.

The Van Buren mills are among the less important of the company. The two mills recently closed at Watertown, N. Y., are also of little importantance as compared with other mills of the company. One produced high grade paper and the other newsprint.

The company states that the closing of the Watertown, N. Y., mills is probably but temporary, but as they are two of the oldest mills of the company, there are some in the trade who doubt if the mills are reopened. On the other hand, the company's plan for utilization of water power might result in the erection of a power plant of that kind and the reopening of the mills again. The company controls a potential 13,000 horsepower in the Black River but was using only a very small part of this power for its mills.

Demand for newsprint continues good and the International is producing about 1300 tons daily. The market for finer grades of paper has shown a slight decline but this decline usually occurs at this time of the year.

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Building Addition

Thomas Strahan Company of Chelsea, Mass., paper manufacturers, is erecting an addition at Heard and Maple streets, that city, foundations for which have already been put in place. The structure will be of reinforced concrete and brick, one story and basement, 60x100 feet. Automatic sprinklers will be installed. The W. H. Whitcomb Co., of Boston, have the general contract.

Two Verdicts Returned

Two verdicts in favor of the Great Northern Paper Company were returned in the Superior Court March 6 by the jury that heard the cross actions of the above named concern and the Skinner Bros. Manufacturing Co. of St. Louis, Mo. The latter concern sued for $6,116.20 as alleged balance and interest due for patent air heaters furnished the Great Northern Paper Co. The Great Northern Company brought a cross action to recover $6,000 as paid on the heater account, claiming that the heaters were not satisfactory. The verdict in the first action was for the defendant, the Great Northern Company, and the latter was awarded a verdict of $6,195 in the other action.

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Grange Endorses Plan

Two important actions regarding the future of Maine's water powers were taken last week in the statement issued by the executive committee of the Maine State Grange, an organization with a membership of 60,000 in this state, which is a definite endorsement of the development of Maine water powers by private interests, and similar action by the State Chamber of Commerce at a meeting in Bangor.

The attitude of Governor Baxter in opposition to the granting of franchises to private concerns prevented the endorsement to such extent of the Dead River Dam Co. by the last legislature and owing to uncertainty of legislative action in view of the state development views of the Governor and his adherents, there has been difficulty of late in attracting capital into construction depending upon water power development.

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Dismantling Plant

Michael Blasberg and his brother, Peter Blasberg, have purchased the property and machinery of the Deerfield Valley Paper Company and the Deerfield River Railroad Company at Mountain Mills, Vt., and have started work dismantling the plant.

The mills manufactured a high grade of sulphite pulp with 60 tons capacity and was started in 1908. The rolling stock of the railroad comprised one locomotive and 70 cars, and operated between Mountain Mills and Somerset, being used to carry wood to the mills.

It is expected that the dismantling will take two years and about four million pounds of machinery are to be removed. The Blasberg Brothers reside in Turners Falls, Mass.

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Authorize Bonds

Trustees of the Cushnoc Paper Company, at Augusta, Me., have been authorized by Judge F. J. C. Little to issue trustee bonds to the amount of $150,000 to provide for the purchase of pulpwood for the company. Judge Little was referee in bankruptcy for the company and it is believed that with this issue of bonds the affairs of the company may be straightened out and operations continued.

* * *

Will Be Dutiable

The Bureau of Foreign Commerce announces to St. Louis manufacturers that owing to a new tariff ruling in Mexico, cardboard or paper display cards or cardboard boxes (even those containing advertising) when imported containing merchandise or with it will be dutiable according to the merchandise with the paper and the duty will be computed upon the gross weight of the entire shipment.

BANKRUPTCY PETITION PREVENTS SALE

Petition Is Filed Just Few Hours Before Sale

FILING of a petition for involuntary bankruptcy within a few hours of the time set for sale by execution of the property of the Rainbow Mills Paper Company of Windsor, Conn., prevented the sale of the property by the Farmington Power Company. The mill was incorporated and members of the Kent family were active in its financing.

Three months ago the Farmington Power Company secured an order of execution of sale and counsel for the company at that time explained that it was the intention of the company to take the proceeds and turn them over to a committee of creditors to be divided on a pro-rated basis. The power company's claim approximated $5,000.

At a hearing before Judge Edwin S. Thomas of the United States District court at New Haven recently, the matter of appointing a trustee of the property was discussed. Counsel for a majority of the creditors was not in accord with the plan as a number of the creditors were old members of the firm. Judge Thomas advised as the best way out of the difficulty, the filing of involuntary bankruptcy petition, which would eliminate any misunderstanding and the case could be disposed of in the regular bankruptcy proceedings as prescribed by law.

The bankruptcy petition was then filed. Augustine Lonergan appeared as counsel for the power company and V. R. Parmalee of Hartford, Conn., represented the creditors.

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Completes Drying System

The Rogers Paper Mfg. Co., Inc., Manchester, Conn., recently completed the installation of a new drying system in their East mill. The new equipment is now in operation, enabling the company to speed up their drying operations 50 per cent.

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Rainbow Mills Bankrupt

The Rainbow Mills Paper Co., Windsor, Conn., filed an involuntary petition of bankruptcy, February 28th. E. Gross & Co. Inc., was the largest creditors with $5,000.

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Fire Destroys Mill

The two-story building of the Neptune Twine & Cord Mills Inc., Moodus, Conn., was destroyed by fire March 9th, and the loss is placed at $50,000, which is partially covered by insurance. It is thought the fire was caused by someone carelessly tossing a match into a pile of refuse near the building. The company plans to build at once.

* * *

To Erect Building

The Foxon Company, Inc., Providence, R. I., manufacturer of gold labels, has awarded a general contract for the erection of a two-story factory building, 100x65 feet, of brick construction, to cost $40,000.

* * *

New Filter Plant

The Crocker-McElwain Co., Holyoke, Mass., has awarded a contract to D. O'Connell's Sons, 480 Hampden Street, Holyoke, for a new brick, concrete and mill construction filter plant and mill, 2 stories 30x100 feet, to cost $40,000. The company manufactures writing paper.

Goes to Draper Corporation

The Beebe River Mill of the Woodstock Lumber Co., is to be transferred to the Draper Corporation, of Hopedale, Mass. Legal documents for the transfer have been drawn up and signed. The Woodstock Company, however, will continue operation of the mill until May 1, 1925, in order to complete the handling of the soft wood on the 25,000 acre tract. The sale also includes the 25 miles of standard gauge logging railroad in the property. With the taking over of the property by the Draper Company next year, the manufacture of pulp will cease at the mill.

* * *

58th Banquet Held

The Boston Paper Trade Association held its 58th anniversary banquet Thursday evening, March 20, at the Algonquin Club, 217 Commonwealth avenue, Boston. The affair promises to be one of the most successful in the many social successes of this organization. Incidentally it will be the 149th regular meeting of the association. Officers for the ensuing year will be elected and the guests will include Governor Channing Cox, of Massachusetts, and Prof. Charles J. Bullock, of Harvard University. There will be a reception at six o'clock.

* * *

Propose New Mill

Much interest in the paper industry in Maine and New Brunswick has been caused by the report that a large paper mill is to be constructed on the border owing to the securing of option on a considerable amount of land near the Maine end of the International bridge across the St. John River between this state and Edmundston, N. B. This option appears to be the sole basis for the report but according to rumor the location of the plant is to be at Madawaska, Maine and the Fraser Company, Ltd., whose headquarters are at Edmundston, and the Brown Corporation whose parent organization is in the United States, but which controls several large pulp industries in Canada are alleged to be interested in the project.

* * *

Short Snappy Items

Plans are under way for a reorganization of the U. S. Fiber & Products Co., in West Sacramento, Cal. The plant used for the manufacture of cardboard is to be remodeled and equipped with a pulp mill. The reorganized company will have a capital of $300,000 ,and will have among its stockholders J. M. Henderson, Jr., Stuart Coulter and B. F. VanDyke, of Sacramento; C. A. Davis of San Francisco and George F. Goerl of Oakland.

* * *

Making Additions

The Crocker-McElwain Company, of Cabot street, Holyoke, Mass., is making extensive additions to its mill and filter plant on Cabot street, between the first and second canals. The addition will be of brick and concrete, mill construction, two stories high and 30x100 feet. It will cost approximately $40,000. D. O'Connell Sons, of Holyoke, have the contract.

* * *

Captain H. E. Ellis, 27 Seventh Avenue, Hialeah, Fla., is interested in formation of a company to establish a plant at that point for the manufacture of paper from sugar cane, bamboo and grasses. The mill is to have a daily capacity of 25 tons, and the first output is to be book paper.

PAPER PRODUCTS

Fiber Shipping Case Economies

Important Features of Value to Every Industrial Plant Are Explained

By **WILLIAM A. VOLLMER**

Sales Promotion Manager, Robert Gair Co.

PERHAPS the outstanding superiority of American business over older countries has been in the improvement of distribution methods. The turn toward package merchandising which had its real inception in 1897, while increasing the great public demand for branded goods, also resulted in so much greater facility of distribution that the two forces acted together in spreading the sale of all manner of products.

With the rapid extension of the package idea, came the question of packing for shipment. There must be standard units purchasable in large quantities and as uniform in character as the other elements of packing. The fiber case, hitherto in the experimental stage, attracted the attention in this connection of both shippers and paperboard manufacturers, and since 1906 has had an astonishing growth in public acceptance.

In the endeavor to point out some factors of the economic value of this form of shipping case, it is perhaps worth while to discuss, first, certain general phases which bear upon it.

Though we, in the United States, may have developed efficiency in many fields of performance, it cannot be said that in all cases we have paid strict attention to the incidental waste. Fortunate in enormous forest resources, we have been so lavish in their destruction that the *most sanguine* experts report that at the present rate of consumption the existing lumber supply will become exhausted in 150 years. Even the casual visitor to Europe may be struck by the difference in the attitude toward forest preservation and the destruction of forest products. American soldiers casually burning boxes seemed to the French faggot-gatherer to be committing a sacrilege. Yet that is the normal fate of most of the wood cases which make up the vast total shipped annually in this country. It may take some stress of sacrifice to teach America the spirit of conservation.

Meanwhile, however, the use of fiber is accomplishing this very vital saving. There is only about 10 to 15 per cent of new wood product used in the fiber case as compared to the lumber in the wood box of a like size. Best of all, however, the fiber container is not attractive to the builder of bonfires and certainly not useful in kindling. At the same time it is the most satisfactory form of waste for re-conversion into paperboard for new boxes. The improvement in the organization of waste collecting agencies and the greater public understanding that waste paper can bring income, is daily acting as a force in the conservation of timber which certainly is desirable from many points of view. Interesting statistics might be obtained relative to the amount of income received by the management of our big office buildings from the sale of paper waste.

The shipper is concerned with but two primary problems. What packing can he use to deliver his goods in satisfactory condition, and what will be the least expensive container, both from the point of view of cost and packing expenses? No claim has been made by fiber box manufacturers to the universal suitability of their products for all shipments. In the fields, however, where such cases have become the standard of shipping practice, as well as where they are rapidly becoming established, they have a demonstrable superiority, and occasion very significant savings. It is our purpose to point these out categorically and give certain characteristic instances.

First of all, a word will be given upon the recent developments in research to establish manufacturing standards and the methods of testing containers for their suitability to stand the stress and strain of trans-continental shipping.

When the fiber case passed beyond the experimental stage and its general use in transportation was extended, it became subject to the regulation of the Classification Committees of the Interstate Commerce Commission. Two types of boxes had sprung into use: One was the corrugated case made of two 'jute liners" separated by a thin sheet of strawboard fluted or corrugated. Strawboard has great resiliency and with study, the proper angle of corrugation was arrived at. A cross-section of this board shows two tough pieces of fiber-board held apart by a row of arches working exactly as the truss in bridge construction, to provide the maximum amount of support with the minimum amount of material. Due, then, to the material and the construction, a sheet of corrugated board has great resiliency and acts as a shock absorber to blows received in transit.

Solid fiber cases use the name "liners" of fiberboard or pulpboard, combining them by pasting to several plies of chipboard, which makes a solid filling in place of the corrugated strawboard. This laminated paper construction, as it is treated by the manufacturer, makes a particularly tough and leathery box strongly resistant to puncture from contact with sharp corners.

Rule 41 of the Consolidated Freight Classification prescribes the specifications of material to which the manufacturers must conform in making fiber boxes. Liners of definitely prescribed thickness must be used in each of the standard grades of fiber cases. The resistance of the combined board must show a certain minimum bursting test of a definite number of pounds pressure to the square inch for each type of material used. There are also dimension and weight limits stated for boxes of each grade of board. Each box-maker puts his certification stamp upon each box to show that these regulations have been complied with. It must not be supposed that the certification means that all boxes are therefore uniform; conscientious box-makers manufacture goods considerably in excess of the minimum requirements.

Standardization of Packing

The chief reason for touching upon this phase of the subject is to point out that the fiber package is subject to a definite amount of standardization. It is made of materials which can be controlled to almost negligible variability. Hence when the right size and shape of package have been determined upon, it can be expected that the future supplies will be uniformly satisfactory. It is, of course, impossible to control native, elementary manufactured products, such as lumber, to anything like the same degree of consistency; hence certain tests for standards show a much wider variation in wood boxes and prediction cannot be made with the same expectation of constant performance.

Having a raw material which can be kept within standards of scientific exactness, and manufacturing it into boxes under controlled standardized processes, there was need of testing methods which did more than check the material used in containers. Something had to be found which could test their utility function and their performance prior to the actual risk of shipment. The so-called United States government model drum-tester has accomplished this, so that now the suitability of fiber boxes for the individual needs of shippers can be developed through research, and, particularly important, the most serviceable interior packing can be judged through comparative experimentation. The first machine of this sort was devised by J. A. Newlin, who was in charge of the Forest Products Tests at the Madison Laboratories of the United States Forest Service. He conceived the idea for testing the strength of wooden containers of various types of construction, types of wood, and thickness, and also to test the holding power of nails. On each of the six sides of the hollow drum, which forms the drum-tester, cleats or battens are nailed. As a result of experimentation, these are so placed that they hold the box, as the drum revolves, until it falls first on one corner, edge, and side, and then on another in sequence, the drum automatically duplicating all possible shocks that a package may have in transportation. After the drum was installed at the Forest Products Laboratory, it was adopted by several large users of packages and one or two manufacturers of cases. These were adopted some time in 1919. In many cases where drum tests have been made, sample actual shipments of similar packing were also made. This check has been given by almost every owner of a drum-tester; and actual use substantiates the reliability of the laboratory test.

Having endeavored to sketch the theory and development of fiber cases, let us take up the discussion of fiber case economies which have been established through their use. In a loose acceptance of the terms they fall into two classes of savings over earlier methods of boxing—savings in distribution and savings in production. Under the first heading is the primary saving of investment in shipping material. Fiber cases are considerably less expensive than wood. Box for box, depending upon size and construction there is a reduction of first cost often aggregating 50 per cent. The second saving is in freight. Fiber cases weigh from 50 to 75 per cent less than wood, the variation depending chiefly upon size. This produces a cumulative saving that appears at three stages in the sequence of transportation. The first reduction is in the haul from box manufacturer to the packer's plant. Fiber boxes average from 8,000 to 10,000 to a car, can be loaded to fill the space entirely, and make a weight saving on each shipment that is considerably worth while. Since, as a rule, the big fiber box manufacturers are located near the market they serve, there is in many instances a reduction in length of haulage over that required to ship box lumber from the woodworking base—usually placed near the forest regions and away from manufacturing centers.

When the packer's product is shipped to his wholesaler's distributing point, this freight-weight-saving is again operative; so also for the third time, from the jobber to the retailer. This triple saving can result in commodity selling prices materially lower than are possible with wood cases, a very helpful thing on such highly competitive markets as exist today.

The second class of savings, which we have called production savings, occurs in facilitating the flow of manufacturing processes in the company of handling and in the reduction of overhead. Corrugated and fiber cases are complete units in themselves. They come in bundles which are very easily loaded on trains, unloaded at manufacturers' plants, and stored flat. In the space required to store 10 complete wooden boxes, a hundred knocked-down fiber cases may be placed.

Co-ordinating Speed of Production

There is another phase of this space-saving, which has to do with the processes of assembling. Even though the components of a wood box are in the form of shooks, some sort of carpenter shop is required to make the best economy of the material. There is always a certain amount of noise and confusion, which makes it necessary to have this last stage of the production process somewhat removed from the final operations of packing individual cartons, bottles, and the like. As has been previously indicated, one of the significant advances in package business is the remarkable development of automatic packing machinery. Unit containers are filled, sealed, weighed, and set up automatically with the use of minimum personnel and exceeding precision, at high speed. In order not too greatly to extend the area of the packing-room, there has been a problem in many industries to keep the packing of shipping cases up to the production speed of delivery at the end of automatic machines. Fiber containers, being complete units, can be packed at these machines, sealed, and delivered by the simple gravity or other form of traveling conveyors to the loading platforms and into the cars.

The savings incidental to the use of corrugated and fiber shipments are all greatly demonstrable in the individual experience of each user. There are general economic features, however, which, though no dollar and cents value may be placed upon them, nevertheless are just as important. By its smooth construction, having no rough edges, projecting points or wire binding, the fiber case is very easily lifted and handled.

TWILLER SALES TALKS

In an abundance of talk there is confusion. Wise words are few.

* * *

Hasty judgments work havoc. Slow decisions are sure.

* * *

Give another credit for being right, you can be wrong.

* * *

Don't always try to be the whole thing, the world was here before you came and will be here after you go.

* * *

Every successful man has made mistakes but he is an ultimate success. Don't point out his errors, look after your own.

Cancellation

In the March issue of "The Nation's Business," Mr. William Haynes, publisher of "Drugs and Chemical Markets," writes an article on "Let the Seller Beware," in which he calls attention to the evils and the immorality of cancellation.

There is no doubt but that this evil reaches into the paper and paper specialty trade. The use of cancellations by buyers causes untold hardships to manufacturers, it places them in a position undesired and unfair. The buyer becomes careless in his buying and the salesman less serious in his selling.

There should be one code of honor in selling and buying.

Just as the buyer expects and compels the seller to give the quality and the price, so must the seller be compelled to look upon the order as a sacred contract not subject to cancellation. There is a mutuality of interest in this method which preserves both the buyer and seller from financial hardships.

* * *

Annual Dinner Held

The annual dinner of the Metropolitan Bag & Paper Jobbers' Association of New York City was held at St. George Hotel, Brooklyn, on the evening of March 13th.

There was an attendance of two hundred and they all enjoyed the usual good time they have at their picnics and dinners.

The officers of the association are, J. Berger, President; S. Greenberg, Vice President; P. Karlsruher, Treasurer; Wm. P. Otter, Secretary.

The entertainment committee is made up of A. E. MacAdam, Jr., Chass Woolney, Clarence Stein and Nelson Berger.

* * *

To Have Booth

The American Association of Paper Specialty Manufacturers, now in process of formation, will occupy Booth No. 68 in the Paper Industries Exposition.

Paper Specialty Manufacturers are invited to make the booth their headquarters at the show.

Every detail of the organization will be explained and the plan of operation will be open for inspection.

* * *

Arranging Meeting

A meeting is being arranged for the week of April 7th, for a free and open discussion of a plan for the organization of The American Association of Paper Specialty Manufacturers.

WHAT'S IN A NAME ASKS WILLERT

A Discussion of the Value of a Name and Reputation

By J. E. WILLERT

A ROSE would smell as sweet by any other name." This would be true if the rose had started with any other name, but would not be true if the name was changed now.

We have been associating the name rose with the most beautiful and fragrant flower that grows, we visualize it in all its varieties. The name is so impressed on our mind that the rose would be completely destroyed in our loves and in its influence on our lives, if the name were changed.

A name is only our designation for anything, our expression in language by a word, which carries in its meaning the whole power, working ability and influence with which the object is endowed.

The name table brings to our mind what a table will do, the varieties of tables we indicate by adjectives that describe to the human mind their several attributes.

The brevity of a name adds to its value in quickness of speech, ease in memory and shortness in description.

This principle, recognized in commercial life in the designation of commodities, has made a lasting impression on the public mind, has become a guide in its purchases, enlarged its vocabulary and enriched its expression.

The manufacturer who adopts a list of names that follow in sequence, and are closely associated with either the ability of his product, the place of its production or connected with the product's intention, soon makes his products prominent in the buyer's mind.

Names must be euphonious and attractive, also lasting in the memory.

The paper trade is replete with names in watermarks and brands, some of great descriptive value, others valueless, some carry with them the thought of their intention and suggestion of their use, others are merely the creation of a mind reaching out for something different and completely void of any practical idea.

The virtues exercised by a commodity should be in such close harmony with the name that, by the use of the commodity, the user discovering its virtue should immediately find the name creeping into his mind.

What's in a name? Everything, provided the commodity in its performance warrants the designation.

A rose cannot be a rose unless it lives up to the reputation of a rose, when it fails it is a thing despised.

So with any commodity of any name, if it is remiss or does not show in its use the attributes claimed, it is rejected by the public mind.

* * *

The Piedmont Paper Box Co. has been incorporated in Charlotte, N. C., with a capital of $50,000, by R. E. Ballinger and A. S. Menzies, of Hickory, N. C., and C. W. Ballenger, of Tryon, N. C.

* * *

The Fiber Craft Chair Co. has acquired the building of the Hermitage Distilling Co., Frankfort, Ky., as a factory and will make fiber chairs with spun paper seats and backs.

* * *

The Princeton Hosiery Mills, Princeton, Ky., is figuring on installing the necessary machinery for the manufacture of its own paper boxes.

But Caesar had no Printing Press

Julius Caesar built up a vast dominion by the force of his own personality. When Caesar was gone the empire crumbled. The different parts had no common ground of thought to hold them together.

Lack of communication was a serious handicap in ancient times. Word-of-mouth messages get to their destination slowly and inaccurately. A growing world consciousness depends upon an easy and accurate diffusion of information.

Printed sheets of paper brought men out of the Dark Ages into our modern civilization. The printed page has the power to move minds, a hundred or a million at a time.

To make the printed page broadly available is in large part a responsibility of the modern paper maker.

Hammermill Paper Company
Erie, Pennsylvania

McBAIN'S PAGE

Shipping-Rolls of Paperboard

By **B. T. McBAIN**

Assistant General Manager, Nekoosa-Edwards Paper Company

NOT only is the tonnage of paperboard in the form of rolls as compared to sheets increasing, but the sizes of rolls specified by the customer is still another proposition for the producers of board to wrestle with. Where a comparatively few different sizes of rolls were formerly called for, it was a simple matter to rig up for producing them, but now the customer's demands range all the way from ordinary shipping size roll, say, for instance, 40″ wide and 40″ diameter, up to rolls which might be 60″ diameter and only 10″ wide. There is an equally great variety in the kind of core or diameter of hole in the center of the roll. Some customers want their rolls wound on wood slat cores, others on solid wood cores with a square hole, and still others on iron pipe. Others again specify rolls without cores and a hole possibly 3″ or 4″ diameter.

What is the mill man going to do to get out from under this variety of demands? What he usually does is to accept only such business as he can comfortably handle on the winder he already has, or talk the customer out of his notions as to wanting this or that in the way of excessive diameter or narrow width or freak kinds of cores or no cores at all. It is not always feasible to talk the customer out of the preferences he may have. Usually he keeps prowling around until he finds a mill with modern equipment that can produce the kind of rolls he wants, and leave the salesman flat who is trying to sell him what he does not want.

When it comes to shipping the rolls of board, a new difficulty presents itself where the customer demands rolls of extra large diameter, say, for instance, 60″ diameter, and also wants them straight and even on the edges, firmly wound and frequently also wants rolls of very narrow width in this large diameter.

A roll which is poorly formed, that is to say, of mushy density rather than firmly wound and also irregular as to the edges, is certainly a mean proposition to handle in shipping, and equally mean for the customer to utilize. A roll irregular as to the edges requires not only that it should be wrapped on the outside, but also that a certain amount of padding should be used on the ends to prevent excessive damage in shipping—and this costs time and money.

Modern methods of winding rolls solve these difficulties. Not only do they cover the difficulties of producing the rolls, but also minimize the expense of preparing same for shipment.

It is a matter of arithmetic, and a simple one at that, for the average mill man to figure how much he has already invested in mill equipment, including land, buildings, machinery, etc., to actually make the board; and to figure whether the additional investment of possibly one-half of one per cent of this amount in a thoroughly up-to-date Slitting and Roll-Winding Machine, would not be a good proposition; especially as the saving of such a machine in the production of rolls at the minimum of operating cost and broke, combined with the saving in shipping difficulties and expense, would probably save the cost of the machine within half a year. That is easy enough to figure.

But there is another factor in favor of modern Roll-Winding equipment, and that is that the mill having it will gradually come to have the preference of the customer utilizing board in rolls.

Waste in the Pulp & Paper Industry

Pacific Coast Mills

By **B. T. McBAIN**

Assistant General Manager, Nekoosa-Edwards Paper Company

THE most economically arranged and manned mills on the Pacific Coast is at Port Angeles, Wash.

There are nine hand fed electrically driven pulp grinders using four foot wood.

There is a sulphite mill with Tower system and two 16x52 digesters.

There is a paper mill with two 164″ machines, producing 150 tons of newsprint paper per day.

There are all the auxiliary and necessary shops, wood mills, etc., and yet this plant is operating with much less than two men per ton of finished product.

The Groundwood mill is a closed system as far as waste is concerned and is very economical in power use, as well as labor.

The paper mill is equipped for re-use of all white water possible and every known labor saving appliance used.

These mills are using small spruce and hemlock such as the other Pacific Coast mills reject, yet this old waste of the forests is being used and a better product results.

These mills are located on the shores of the Sound, have the benefits of both rail and water transportation and can reach the markets of the world better than any of the other Oregon and Washington mills. They have their advantages and their disadvantages but those responsible for their planning and operation have certainly made the best of all their advantages and have overcome most of the disadvantages as well as could be.

Their market is the world. It is not going to be long before the Atlantic Coast will be supplied with paper from the Pacific Coast paper mills by steamer through the Panama Canal and today those mills located on tidewater as well as on rail, have a great advantage over their competitors not so logically situated.

Keep an eye on the Washington Pulp & Paper Mills.

JOBS IN PAPER

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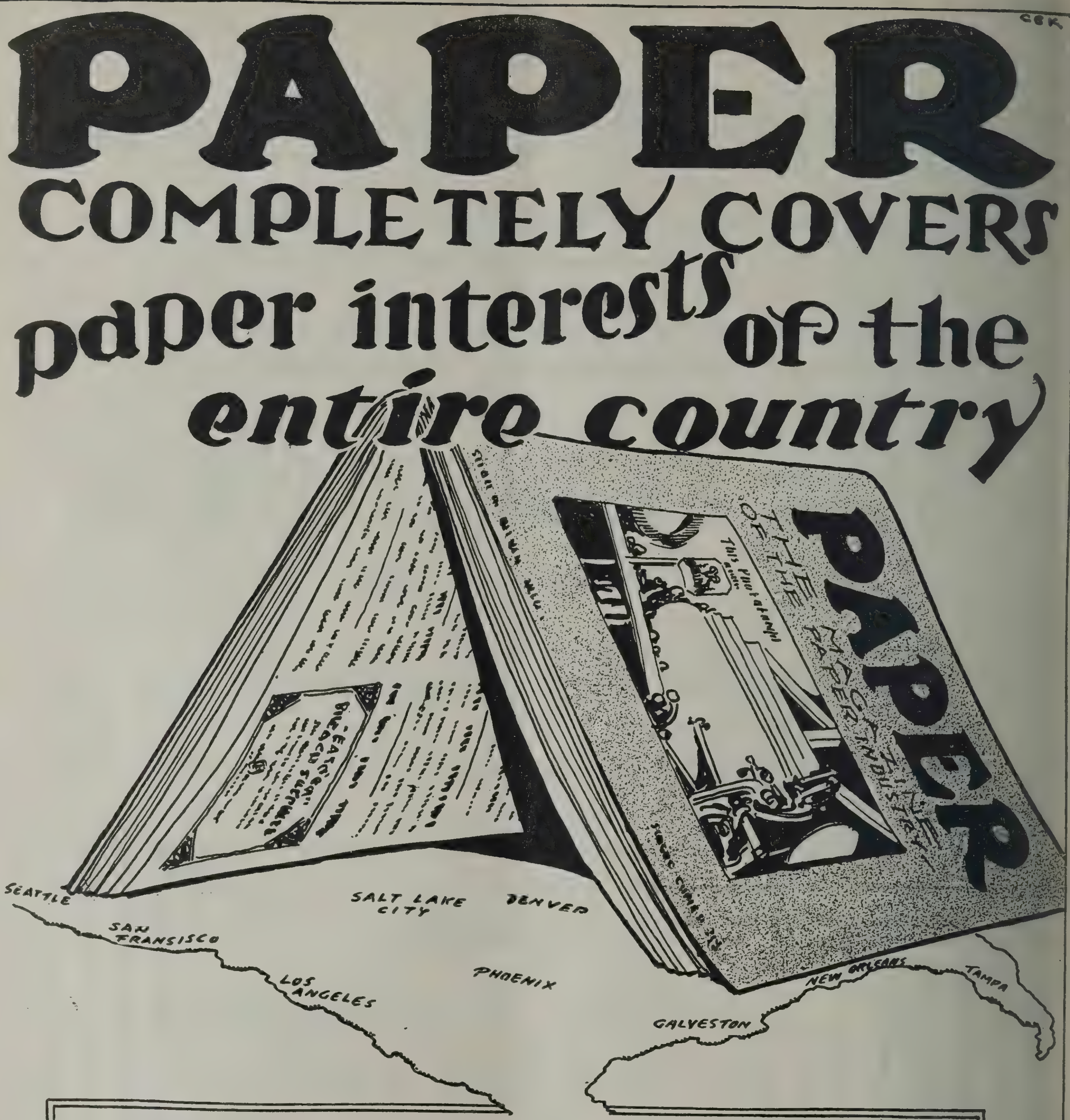

Make your reservations now

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Annual Convention Number of PAPER

To Appear Thursday, April 17

With a host of new features and all the old ones rejuvenated

The economic problem of securing an adequate supply of paper

THE book is of special interest to everyone connected with the pulp and paper industry and equally so to all users of print paper. It points out clearly what must be done to develop sufficiently our supply of pulpwoods. It shows the steps necessary in forest conservation and discusses the subject from the practical viewpoint of industrial needs.

Pulpwood and Wood Pulp in North America

By ROYAL S. KELLOGG

Author of *Lumber and Its Uses, The Cost of Growing Timber, The Timber Supply of the United States*, etc.

270 pages, 6x9, 87 illustrations, $4.00 (*English price 20s.*) *net, postpaid*

The book describes the pulpwood industry, the processes of making paper pulp from wood, the timber supply of North America, the need for increased timber production and the future possibilities of the pulp and paper industry. Detailed statistics of production and consumption since the establishment of the industry are given in the appendix and shown in the text by means of graphic charts of unusual effectiveness. The book also carries many illustrations typical of mill operations and forest scenes.

Do You Know

That 100 million cords of pulpwood have gone into paper in the United States and 30 million cords in Canada?

That paper-making is a billion-and-a-half-dollar industry in North America?

That a permanently self-contained operation for the manufacture of 100 tons of news print paper daily may require the equivalent of an investment of $10,000,000?

That the United States and Canada produce and use as much paper as all the rest of the world combined?

That the per capita consumption of paper in the United States is 150 lb. yearly?

How much pulp may be made from a cord of wood?

How much pulpwood and wood pulp has been exported from Canada?

How much pulpwood and wood pulp has been imported into the United States?

What are the pulping properties of 70 species of American woods?

What are Forest Regions of North America?

How much and what kinds of timber there are yet left in the various regions of the United States and Canada?

How much forest land in North America is publicly owned and how much privately?

What regulations apply to timber cutting in the public forests?

What are the essentials of a forest "Working Plan"?

That forestry is the application of definite scientific principles to the growing and using of timber crops?

What it costs to grow timber?

Who is responsible for the maintenance of the timber supply of the United States and Canada?

What are the essentials of a National Forestry policy?

That without forestry there is no adequate, permanent supply of paper and other wood products in America?

That there is no sense in delaying the effort to maintain the American timber supply on the false assumption that we can turn to any other part of the world for any considerable part of the wood products essential to our well being?

Read This List of Chapter Headings

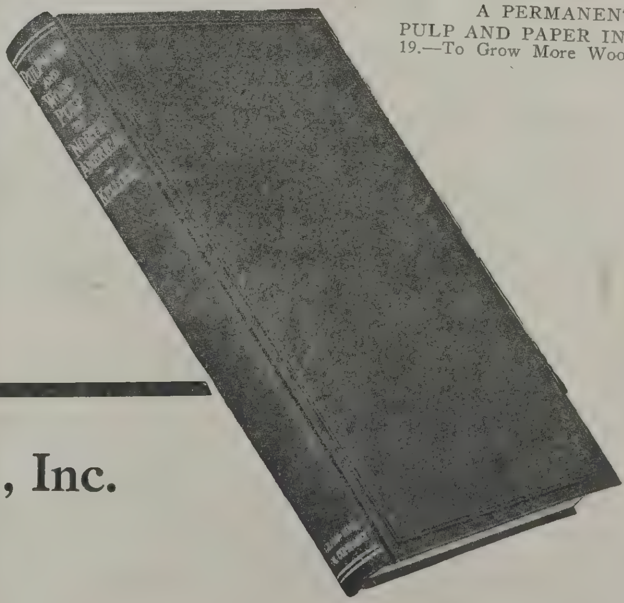
Part One
WOOD PULP
1.—Recording Materials
2.—Processes
3.—Consumption of Wood Pulp in North America

Part Two
PULPWOODS
4.—Logging
5.—The Unit of Measurement
6.—Pulpwood Grades
7.—Pulpwood Used in North America
8.—Properties of American Pulpwood

Part Three
TIMBER SUPPLY
9.—Forest Regions
10.—What We Have
11.—Forest Ownership

Part Four
TIMBER PRODUCTION
12.—The Need for Forestry
13.—The Chance for Forestry
14.—The Methods of Forestry
15.—The Hazards of Forestry
16.—The Cost of Forestry
17.—The Responsibility for Forestry
18.—What Should Be Done

Part Five
A PERMANENT PULP AND PAPER INDUSTRY
19.—To Grow More Wood



HUGHES PUBLISHING CO., Inc.
1478 BROADWAY
New York City

WIDE RANGE OF SUBJECTS HERE

Superintendents Will Hear Discussions on Many Topics of Interest

A PROGRAM discussing subjects ranging from apprenticeship in the paper mill, vocational education, to the most highly technical problems confronting the paper mill superintendents has been practically completed for the annual convention of the American Pulp and Paper Mill Superintendents Associatio in Dayton, Ohio, in May, under the direction of H. W. Server of the Miami Paper Company, West Carrollton, Ohio, general chairman.

The convention is to open at 9 A.M Thursday, May 22 at the Miami Hotel. Papers on various problems that confront the superintendents will be presented by authorities at morning and afternoon sessions. The banquet will be held at 7 P.M.

The general business session will be held on Friday morning in Dayton, followed by luncheon at the Manchester Hotel in Middletown, Ohio. The divisional meetings will be held in the afternoon at various places in Middletown. Friday evening at the banquet, which will be held at the Dayton Country Club, "Dusty" Miller, a country editor who is fast becoming famous as an afterdinner speaker, will talk. Charles F. Kettering, president of the General Motors Research Corporation, may have a place on the banquet program, as also will Martin Collins, of the Graham Paper Company, St. Louis.

Saturday will be given over to visits to the various mills and plants of the allied industries of the Miami Valley, many of whom are making special entertainment features for all the visitors.

The following is a partial list of the papers that have been prepared for the convention and will be given during the sessions on Thursday and Friday.

"Apprenticeship in the Paper Industries,"—George P. Hambrecht.

"Building and Maintenance of an Organization,"—Robt. B. Wolf, R. B. Wolf Co., 42 Broadway, New York.

"Employment Problems,"—Frances S. Pope, Mead Pulp & Paper Co., Chillicothe, O.

"The Beater of Today,"—Charles Shartle, The Shartle Brothers Machine Co., Middletown, Ohio.

"Drying of Paper,"—E. P. Gleason, C. E., Nekoosa-Edwards Paper Co., Port Edwards, Wis.

"The Development of Recording Devices as Applied to the Art of Papermaking,"—M. A. Goetz, General Electric Company, Schenectady, N. Y.

"The Use and Abuse of Papermaking Felts in Paper Mills,"—M. C. Burrell, Orr Felt & Blanket Co., Piqua, O.

"Steam and Power in Pulp and Paper Mills,"—H. S. Taylor, President T. A. P. P. I., Dayton, O.

"Manufacture and Use of Bleached Ground Pulp,"—Lyman Beeman, Cons. Waterpower and Paper Co., Grand River Rapids, Wis.

"Vocational Education,"—Harry P. Carruth, Genl. Manager Mead Pulp & Paper Co., Chillicothe, O.

"Papermaking Fibres."—B. S. Summers, Port Huron, Mich.

"Beating of Kraft,"—A. W. Bronk, Deerfield Valley Paper Co., Mountain Mills, Vt.

"Tinting of White Paper,"—John R. Roberts, E. I. du Pont de Nemours & Co., Wilmington, Del.

* * *

Send New Instruction Card

The Mathieson Alkali Company has just sent out to their users of Liquid Chlorine a new instruction card for the use of this product. It is printed on sturdy linen stock capable of standing the wear and tear of the mill for a long period. It details the use of the ton container, giving the vital facts necessary to know in a brief manner.

Swedish Pulp Production in 1923

There was a relatively large export of Swedish wood pulp during December, 1923, amounting to 194,605 metric tons as compared with 119,620 tons in November. Preliminary statistics indicate that the total exports of all kinds of Swedish wood pulp in 1923 were only slightly below those for the previous year, being 1,044,216 tons (including wet pulp) as compared with 1,170,435 tons in 1922, writes consul Walter A. Leonard, Stockholm.

Of wood pulp, it is estimated that 66,000 tons of bleached and 680,000 tons of unbleached sulphite, 235,000 tons of sulphate, and 300,000 tons of mechanical pulp were produced in 1923, as the estimated annual capacity of the Swedish sulphite mills is 880,000 metric tons and that of the sulphate mills is 285,000 metric tons.

This estimated output is close to 85 per cent capacity.

Exports to the United States in 1923, based on the declared exports certified at the consular offices, were valued at $19,724,463, distributed among the different classes as follows: Sulphite, $12,494,243; sulphate, $4,684,389; kraft pulp, $1,184,497; soda pulp, $854,392; and mechanical ground wood, $506.942.

* * *

Look for Mathieson

The Mathieson Alkali Works at the Paper Industries Exposition will have booth No. 41, and will be in charge of R. J. Quinn, Assistant Manager of Sales, assisted by J. D. MacMahon, and G. N. Davis.

The company will exhibit a large model of the Mathieson Multi-Unit Chlorine Gas Tank Car, which has recently been approved in an important decision of the Interstate Commerce Commission. The model will illustrate the many unique features of the Multi-Unit car, together with the unloading by means of a manifold and headers. A full-sized Mathieson Ton Container, as used on this car, will also be exhibited in the booth, sectioned at one end to show the construction in detail.

Exhibit material will include literature describing the Mathieson System for preparing bleach liquors from Liquid Chlorine, and samples of "Eagle-Thistle" Caustic Soda, Soda Ash, and Bleaching Powder.

* * *

Buys Large Timber Tracts

The Fisher Body Corporation have purchased approximately 100,000 acres of standing timber in Tennessee, Arkansas, Louisiana and Mississippi as a "further extension of its policy for insuring an uninterrupted flow of raw materials." The property will be operated by a subsidiary, the Fisher-Hurd Lumber Company, of which O. P. Hurd, of Memphis, Tenn., will be the president and general manager.

The price of the timberlands was not given out.

* * *

Tom Shevlin says: "It takes a certain amount of mania to accomplish anything beyond the ordinary routine. In playing football, the main thing is to go crazy. Two good men can handle any sane man, but it takes five to handle a crazy one. There are moments in every game, when, to win, you've got to be better than you know how to be, and you can't reach this point over any sane trail." —From *The Note-book,* published by The Joseph K. Arnold Co., Chicago.

* * *

A genius is a human being with his head in the clouds and his feet in the mud, trying to keep his balance.

GETTING RID OF THE SEASONS

By WILLIAM R. BASSET

President of Miller, Franklin, Basset & Company, Inc.

OF all the so-called "unsolvable" problems of business, perhaps the most expensive and the least necessary is the problem of seasonal production.

Few concerns make any effort to solve the problem. They accept it as unalterable, probably in the belief that the seasons are an act of God. If they are rich they pile up inventories for a short selling season by keeping the plant going the year round. If they can't finance that, they shut their plants down.

Yet every year a few more concerns succeed in doing away with seasons. A branch of the garment industry reduced costs and prices enough by year round production to greatly lengthen the selling period. Another business reduces prices in the off-season as an incentive to its retailers to buy then.

A soap manufacturer found that it was the jobber who had the seasonal hallucination. When he went direct to the retailer he found that people wash with soap the year round. He now guarantees year round employment to his workers.

Even the building industry which comes in closest contact with cold and snow has found that in most climates construction can go on in the winter as well as any time. The American Construction Council has shown that the building season can be lengthened and hopes ultimately to do away with the peaks and valleys in its industry entirely.

When more concerns cease hibernating during off seasons, their profits will be bigger and labor troubles fewer. A little study will show any industry that it need not have such violent seasonal fluctuations.

* * *

With Gottesman Company

James Rosenberg, formerly president of the American Woodpulp Corporation, has now become associated with M. Gottesman & Company, Inc., 18 East 41st Street, New York, N. Y. Gottesman & Company were established in 1886, since which time they have developed an extensive business with American and Canadian Paper and Pulp manufacturers. M. Gottesman & Company, Inc., also have their own offices at 13 Stureplan, Stockholm, Sweden, for the control of their European business, which is considerable.

* * *

Norwegian Lock-Out

The paper and pulp mills of Norway are still in the grip of the extensive lock-out which involves practically all the industries of the country. The second instalment of the lock-out was to take effect on Thursday this week, and in the absence of any news to the contrary it is to be presumed that this intention was carried out.

It is stated that some 70,000 workpeople in the pulp and paper plants of Norway are idle. Being on such a large scale it is thought that the dispute cannot be of long duration.

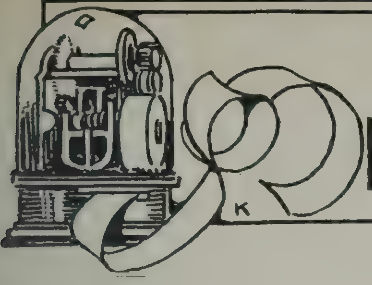
* * *

Lefren Opens Office

Karl A. Lefren, formerly chief engineer of the Robert Gair Company, has opened a consulting engineering office at 171 Madison Avenue, New York City, where he will engage in the practice of engineering in connection with power, paper mills and general mill construction."

* * *

The tramp dog's Coue: "Day by day in everybody's way I am getting better and better."



LATEST MARKET REVIEW

THE CONTINENTAL MILLS MAKE ANNOUNCEMENT

Formal Announcement of Change Is Made by Company

THE Continental Paper and Bag Mills takes pleasure in making announcement to the Trade of its reorganization under the name of Continental Paper & Bag Mills Corporation.

In addition to taking over the properties and well known mills and factories of its predecessors as enumerated herewith on this page the Continental Paper & Bag Mills Corporation has acquired the paper mill property at Rumford, Maine, previously owned by the International Paper Company, with a daily production of 200 tons of bag and wrapping papers.

The Continental Paper & Bag Mills Corporation, controlling vast tracts of the finest timberlands in the United States and Canada, and equipped to make the chemical and mechanical pulp required for the manufacture of over 400 tons of a great variety of paper products daily, is in a unique position to serve the trade with dependability.

What the Ticker Says

Prices at closing Tuesday

	Bid	Asked
American Writing Paper.........	2	2½
International Paper, Pf...........	64¾	64¼
International Paper...............	37¼	37⅛
Union Bag & Paper Co...........	57⅞	58

The executive offices of the Continental Paper & Bag Mills Corporation are at Pershing Square Building, Park Avenue and East 42nd Street, New York, N. Y.

These paper mills are controlled by this corporation: Rumford, Maine, 9 machines. Kraft, sulphite and ground wood papers. York Haven, Pa., 3 machines. Water finished and machine finished sulphite papers. Marinette, Wis., 4 machines. Machine glazed krafts and sulphite papers, water finished and machine finished kraft, sulphite and ground wood papers. Menominee, Mich., 1 machine. Water finished and machine finished kraft, sulphite and ground wood papers. Oconto Falls, Wis., 2 machines. Machine finished kraft and water finished and machine finished sulphite papers. Ashland, N. H., 3 machine. Fourdrinier tissue, manila, No. 2 white and crepes. Watertown, N. Y., 2 machines. Fourdrinier tissues, manila, No. 2 white and crepes. Greenwich, N. Y., 1 machine. Pure bleached white cylinder tissue—"Daintiwite."

These are the factories of the firm: Rumford, Maine—bags and sacks of all descriptions and printing plant: Brooklyn, N. Y.—specialty bags, glassine bags, merchandise and catalogue envelopes, fancy duplex coffee bags, die cut confectinery bags and printing plant. Ashland, N. H.—Toilet papers and towels—"Nap-o-lin." Watertown, N. Y.—toilet papers and towels, Ottawa, Canada—bags, sacks and paper specialties, folding boxes and printing plant.

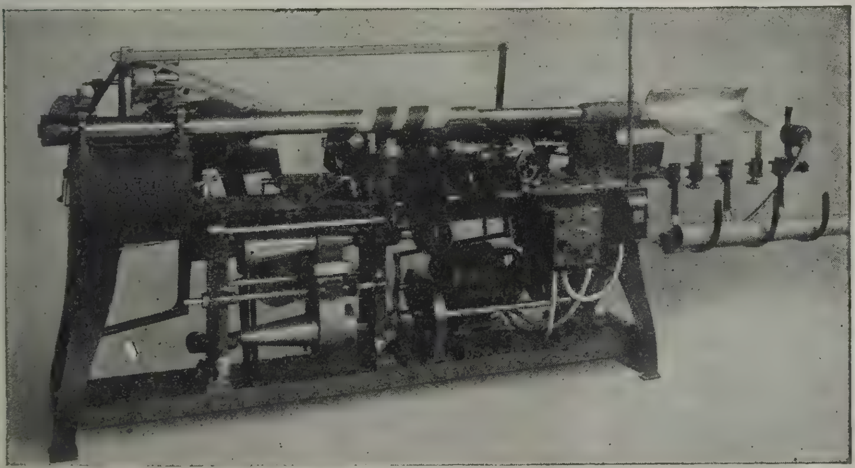
* * *

Continental Stock Issue

The Continental Paper & Bag Mills Corporation, a Delaware company, has now a total authorized capital stock of $17,500,000. It anticipates using about $2,356,550 of this amount in construction and mill work in Wisconsin.

Just what the proposed expansion is in Wisconsin is not known and no information could be elicited from the company.

Paper Tube and Can Manufacturers Will Be Interested in This Machine



Knowlton Spiral Tube Winder

The Knowlton Spiral Tube Winder is a most desirable machine for all round production of Paper Cans, such as for

Automobile Accessories
Baking Powder
Belt Dressing
Candy
Cereals
Coffee
Cores for Ribbon, Tape
Cloth and Paper
Chemical Powders
Disinfectant Powder
Dry Batteries
Foods
Hardware
Ice Cream
Insect Powder
Macaroni
Mailing Tubes
Patent Foods
Patent Medicine
Photographic Chemicals
Radio Coils
Small Metal Parts
Starch
Spices
Talcum Powder
Tire Repair Kits
Tobacco

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BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.75 @ .80
Manila No. 1	.70 @ .75
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	45.00 @ 50.00
Chip	40.00 @ 45.00

Paper and Board

New York, March 18—Reports from numerous quarters and almost without exception tell of demand for the various kinds of paper developing in a steady manner and in fair volume. It is true that the movement of some kinds of paper is not broad enough to keep all the mills of the country working at anything like capacity production, but at the same time it is generally admitted that paper is being consumed in fully normal volume and that users, dealers and distributors are absorbing supplies in a consistent way and in sufficient amounts to create a moderately active market.

Mills in a great many cases are operating on a larger scale than earlier in the year. The usual stimulation of spring business is beginning to be felt and it is noticeable that orders from consuming sources frequently mark an increase in the volume of buying. Paper buyers almost as a unit continue to purchase mainly against actual and immediate needs but the requirements of some are growing in such measure as to necessitate orders for bigger quantities of paper. The outlook for further increased business as the spring draws nearer is very favorable; in fact there are many in the trade who expect a marked broadening of demand within the next few weeks, and it can be said there are numerous signs that such expectations will be realized.

Print paper still leads all other descriptions of paper in point of demand. Newspaper publishers are absorbing newsprint in large tonnage—there is fully as heavy a movement into consuming channels at present as at anytime in the past year or so, if not a slightly larger movement in some directions—and most print paper mills are actively engaged turning out their product at close to maximum capacity. Prices of newsprint are firm. Sheet news is enjoying a brisk demand as well as roll news, and there is a good call for side runs. Available supplies of newsprint in the open market are far from what could be described as plentiful; instead a majority of manufacturers are sold well ahead and have but little of their output to offer to transient buyers.

Demand for book paper is holding up fairly well and reports state that a gradual increase in the movement is to be noted. Printers are buying in a reserved manner and seldom order paper until they are in need of it but there is nevertheless a vastly improved market situation in all kinds of book paper over that prevailing not long ago. Prices of book papers tend to harden. No actual advances are reported though it is not so easy for buyers to secure concessions as it was and quotations on some lines show a distinct tendency to rise.

Coarse papers are firmer in tone and are wanted in at least slightly larger quantities. One reason for the improvement in kraft wrapping is said to be the removal of the Scandinavian mills from competition, temporarily at least, owing to the difficulties in getting shipments out of Sweden due to the frozen Baltic. Domestic manufacturers of kraft are securing more orders and are speeding up their production to some extent.

There is a good demand for most specialties. Cover papers are finding a fairly broad outlet. Bristols are in better than average demand, and there is a steady movement of bonds and ledgers of various qualities with the lower grades leading in demand.

Box boards are comparatively slow. There have been reports of further price cutting on the part of some mills apparently in an effort to obtain a larger percentage of the business available, but board quotations continue to range around $42.50 a ton f. o. b. New York for plain chip, and $45 for news board. With the spring near a larger movement of board is anticipated,

SCANDINAVIAN PULP AGENCY, INC.

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FOREIGN and DOMESTIC

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ATHENS, Wis.

ALVAH MILLER TOM T. WALLER ARTHUR C. HASTINGS EDWARD A. WESTFALL NATHANIEL L. MILLER

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PAPER MERCHANTS

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BOX BOARD - WOOD PULP

52 Vanderbilt Avenue New York City

particularly since it is known that consumers have been buying for some time strictly against immediate wants.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.75	@	.80
Manila No. 1	.70	@	.75
White No. 2	.70	@	.75
Colored	.80	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.00	@	6.50
No. 2 Fiber	5.00	@	5.50
Card Middles	4.00	@	4.50
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	50.00	@	55.00
Binder Boards	80.00	@	85.00
Chip	40.00	@	45.00
Manila Lined Chip	65.00	@	70.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

Prices of ground wood have shown some easing, due, it would appear, to available stocks being fully up to the requirements of consumers, notwithstanding reports that certain grinders have been compelled to curtail their production because of unfavorable water conditions. Domestic grinders are reported selling spruce ground wood at $30 a ton in some cases though quotations generally run a little above this level, between $32 and $33 being the prices more commonly asked. Imported ground wood is reported available at around $32 a ton ex dock New York and other American Atlantic ports. There is a fairly good demand but buyers seem to be experiencing no trouble in covering their wants. The movement is confined largely to contracts, the transient demand being declared a more or less negligible quantity at the moment.

Foreign and Domestic Chemical Pulp

The tone of chemical wood pulp prices is slowly but surely strengthening. Those on the selling end of the trade appear less disposed to book ordres at other than the prices quoted, and conumers are finding it more and more difficult to buy pulp at the concessions which were rather freely granted up to a short while ago. Indications are that there is less pulp held unsold by producers, dealers and importers, and it is probably this which is leading to the firmer price undertone since selless disposed to book orders at other than the prices quoted has been thus far little advance in market levels. Buyers are evidently getting the supplies desired at such prices as have prevailed for some time and have not been obliged to pay higher figures.

Bleached sulphite is quoted at 3.75 cents to 4.25 cents a pound ex dock New York for No. 1 foreign sulphite, and 4 to 4.50 cents f. o. b. pulp mills for No. 1 domestic bleached sulphite. Scandinavian kraft pulp is selling at around 2.60 cents a pound ex dock New York, while foreign easy bleaching sulphite is quoted at 2.75 to 3 cents on the dock. News grade sulphite is moving fairly freely at a price range of 2.50 to 2.75 cents at pulp plants. Quotations ex dock New York and f. o. b. pulp mills follow:

Sulphite foreign—			
Bleached No. 1	3.75	@	4.25
Unbleached No. 1	2.60	@	2.80
Unbleached No. 2	2.40	@	2.60
Easy Bleaching	2.75	@	3.00
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.60	@	3.00
Unbleached news grade	2.50	@	2.75
Easy Bleaching	2.75	@	3.00
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.60	@	2.90
Sulphite screenings, refined	1.50	@	1.75

Domestic Rags

There has been a slowing down of demand for most grades of papermaking rags. Apparently consumers have covered their wants for a while and therefore are in a position where they are able to hold off in buying to some extent, with the result prices on most classes of rags have eased slightly. It is noticeable that the price reaction has affected chiefly the lower qualities of rags. Roofing stock which was so strong in price is on a lower cost leve, sales of No. 1 packing at 2.40 cents a pound and of No. 2 grade at 2.25 cents f. o. b. New York having been reported, these prices representing declines of $3 to $4 a ton from recently ruling market levels. Old whites are fairly steady, and thirds and blues are holding in price. New cuttings of most kinds also are quotably steady. Dealers quote 14 cents a pound and higher for No. 1 white shirt cuttings f. o. b. New York, and blue overall cuttings are quoted

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Write us for prices and samples

GREEN BAY
WIRE WORKS
GREEN BAY
WISCONSIN

Paper Testing Methods
(1922)

A large edition of this handbook for paper mill laboratories was exhausted shortly after the type had been distributed. In view of the insistent demand the Technical Association has arranged for a republication and *Paper Testing Methods* is again available at $3 per copy.

The work covers detailed procedure for microscopical analysis, physical testing and chemical analysis of the paper with descriptions of the apparatus employed.

It is the only complete and up-to-date handbook on paper testing published in the English language.

It should be in the hands of every paper manufacturer and paper dealer as well as concerns who are large users of paper.

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at 9.50 cents, unbleached muslins at 12.25 cents, and washables at 5.50 cents. F. o. b. New York prices are:

New Shirt Cuttings, No. 1	14.00 @ 14.50	Overall Cuttings, Blue	9.25 @ 9.50
No. 2	6.75 @ 7.00	Washables	5.50 @ 5.75
Fancy Shirt Cuttings ..	7.00 @ 7.50	New Black Mixed	5.00 @ 5.25
No. 1 Whites, repacked	7.50 @ 8.50	Soiled Whites, house..	3.50 @ 4.00
No. 2 Whites, repacked	4.50 @ 5.00	Soiled Whites, street..	3.50 @ 3.75
White Lawns	11.50 @ 11.75	Thirds & Blues, repacked	3.50 @ 3.75
New Muslins, unbleached	12.25 @ 12.50	Thirds & Blues, misc..	3.00 @ 3.25
Light Silesias	9.00 @ 9.25	Black Cotton Stockings	4.00 @ 4.25
Black Silesias	5.50 @ 5.75	Roofing Rags, No. 1 ..	2.40 @ 2.50
		Roofing Rags, No. 2 ..	2.20 @ 2.30

Imported Rags

A fair demand is reported for foreign papermaking rags and no broad changes are noted in quoted prices though some of the cheaper grades have declined slightly. Dark colored cottons are quoted at 2.40 cents a pound ex dock New York, and in exceptional cases at a trifle less, recording a little drop in the value of these rags. Quotations on an ex dock New York basis are as follows:

Lins., White, No. 1 ..	15.00 @ 16.00	German Linen, blue ...	4.50 @ 5.00
Ger. Blue Cottons	3.25 @ 3.50	German Linen, grey ..	6.00 @ 6.50
French Light Blues ..	3.50 @ 3.75	German S. P. F.'s ...	6.00 @ 9.00
New Light Prints ...	6.50 @ 7.00	German Light Prints ..	4.00 @ 4.25
New Unbleached	10.50 @ 11.00	Dk. Colored Cottons ..	2.35 @ 2.50

Bagging, Rope, Etc.

Old rope continues in good demand and firm in price. Dealers report sales at 6.50 to 6.75 cents per pound f. o. b. New York for No. 1 domestic manila rope, and foreign manila rope is generally quoted at 6.25 to 6.50 cents ex dock at this port though paper mills are said to be reluctant to meet these figures on imported rope. Old bagging is quiet. Such buying as is being done is chiefly by roofing manufacturers, who are granting about 1.25 cents a pound f. o. b. New York. Quotations f. o. b. this city are:

Gunny No. 1	1.50 @ 1.60	Wool Tares, heavy	1.50 @ 1.60
Foreign	1.40 @ 1.50	For. Manila Rope	6.25 @ 6.50
Wool Tares, light	1.20 @ 1.40	Domestic Rope	6.50 @ 6.75
Wool Tares, heavy ...	1.40 @ 1.60	Mixed Strings	1.25 @ 1.50
Roofing Bagging	1.25 @ 1.35		

Old Paper

A quieter situation exists in old paper. Demand from consuming sources is much smaller in volume than it was a few days ago, and those buyers who are operating in the market are offering lower prices and seem to be securing the supplies wanted at reduced rates. Mixed paper of No. 1 grade is reported selling at 60 cents a hundred pounds f. o. b. New York, and there have been reports of lower prices than this prevailing. Folded newspapers are available at 80 cents a hundred pounds New York, common mixed paper at 50 cents, box board chips at 75 cents, and bogus mill wrappers at 90 cents. Shavings are quoted at last prices but the tendency is downward, and old magazines have eased off to 1.40 cents a pound f. o. b. New York for heavy flat stock. White blank news cuttings are down to 2.15 cents a pound New York. Quotations f. o. b. New York are as follows:

No. 1 Hard White Shavings	3.75 @ 4.00	Ledger Stock	1.85 @ 2.00
No. 2 Hard White Shavings	3.25 @ 3.50	Kraft, No. 1	2.25 @ 2.35
No. 1 Soft White Shavings	2.80 @ 3.00	New Manila Cuttings .	2.00 @ 2.25
Box Board Chips	.75 @ .80	New Manila Env. Cuttings	2.75 @ 3.00
No. 1 Colored Shavings	1.60 @ 1.75	Bogus & Mill Wrappers	.90 @ .95
Magazine flat stock .	1.40 @ 1.60	News, strictly overissue	1.10 @ 1.20
No. 1 Crumpled	1.25 @ 1.35	Folded News	.80 @ .90
Solid Ledger Books ..	2.00 @ 2.15	No. 1 Mixed Papers ..	.60 @ .65
		White Blank News ...	2.15 @ 2.25
		Common Paper	.50 @ .55

Twines

Business in twines is still mainly of routine character and is marked by no feature. Buyers are coming into view only when pressed by necessity to absorb supplies and even then are resorting to a good deal of "shopping" before placing orders. However, the firmness of raw materials serves to sustain prices and quotations display little change at about the following ranges:

Sisal Hay, pure	12.25 @ 13.25	Jute Wrapping twine, A grade	20.00 @
Manila Hay, pure	16.25 @ 17.25	Papermakers Twine ...	11.50 @
Sisal Lath Yarn	12.25 @ 13.25	B. C. Hemp, 18	.39 @ .40
Manila Rope, pure, ¾ inch diameter ...	14.25 @ 15.25	B. C. Hemp, 24	.38 @ .39
Hardware Rope	11.25 @ 12.25	B. C. Hemp, 36	.37 @ .38
Jute rope, ¼ diam. and over, coils	14.00 @ 15.00	America Light India— No. 6	14.50 @
Sail twine, A grade ...	20.00 @	No. 7	13.50 @

Chemicals

There is a fair demand for most papermaking chemicals and no important changes are noted in quoted prices. Casein is priced at 13 to 15 cents per pound, bleaching powder at around 1.60 cents, caustic soda at 3.10 to 3.20 cents, and soda ash at 1.40 cents.

IMPORTS AT NEW YORK

Week of March 10-15

Paper

Str. Eastern Victor, Rotterdam—Republic Bag & Paper Company, 6,543 rolls and 794 bls. wrapping; J. P. Heffernan Paper Company, 158 bls. wrapping; Wilkinson Bros. & Co., 24 rolls wrapping; Import Paper Company, 9 bls. wrapping; Birn & Wachenheim, 29 cs. wrapping; Steiner Paper Company, 46 cs. onionskin; I. I. Frank, 25 cs. onionskin; Altek Photographic Company, 8 cs. photo.

Str. Paris, Havre—Coenca-Morrison Company, 6 cs.; Dupont Cellophane Company, 19 cs.; Thomas & Pierson, 7 cs.; Whiting-Patterson Company, 16 cs. hanging.

Str. Orduna, Hamburg—International Acceptance Bank, 446 rolls newsprint; Order, 138 rolls newsprint.

Str. Aquitania, Southampton—A. C. Dodman, Jr., 7 bls. hanging; F. J. Emmerich & Co., 5 bls. hanging.

Str. Cedric, Liverpool—W. H. S. Lloyd & Co., 74 pkgs. hanging; F. C. Strype, 13 cs. tissue.

Str. Cleveland, Hamburg—F. J. Emmerich & Co., 4 bls. hanging; P. H. Petry & Co., 9 cs. pasteboard; Eastern Calendar Company, 16 cs. pasteboard; Guaranty Trust Company, 10 bls. hanging; C. Steiner, 16 bls.; Wilkinson Bros. & Co., 131 bls. cardboard; Publicity Paper Corporation, 61 bls. wrapping; Order, 81 bls. wrapping.

Str. Assyria, Glasgow—Blauvelt-Wiley Paper Mfg. Company, 242 bls. wrapping.

Str. Minnekahda, Hamburg—International Acceptance Bank, 106 rolls newsprint; Andrews Company, 54 bls. printing; Wilkinson Bros. & Co., 133 bls. wrapping; W. Hartmann & Co., 83 cs. printing; Chemical National Bank, 26 rolls newsprint; P. H. Petry & Co., 4 cs.; Bernard, Judae & Co., 10 bls. wrapping; C. G. Keferstein, 428 rolls printing; National City Bank, 481 bls. hanging; Gibson Bros., 314 rolls wrapping; Metropolitan Import & Mfg. Company, 33 cs. pasteboard; J. P. Heffernan Paper Company, 13 bls. wrapping; A. M. Capens' Sons, 25 bls. wrapping.

Str. Nieuw Amsterdam, Rotterdam—Steffens, Jones & Co., 8 cs. printing; E. Dietzgen & Co., 37 cs. drawing; W. Van Doorn, 8 bls.

Str. Cameronia, Liverpool—A. C. Dodman, Jr., 11 bls. hanging; B. F. Drakenfeld & Co., 35 cs. printing; F. J. Emmerich & Co., 16 bls. hanging.

Str. Delaware, Christiania—E. Naumberg & Co., 485 rolls newsprint.

Str. Kungsholm, Gothenburg—Johaneson, Wales & Sparre, 55 rolls newspint; C. K. MacAlpine & Co., 272 rolls and 48 bls. wrapping; Wilkinson Bros. & Co., 212 bls. wrapping and 42 rolls pulp board; Kircheimer Bros. & Co., 47 rolls; Baxter Paper Company, 38 bls.; Blauvelt-Wiley Paper Mfg. Company, 26 bls.; D. S. Walton & Co., 1,263 rolls wrapping; H. Reeve Angel & Co., 433 rolls; Bernard, Judae & Co., 5 cs.; Order, 566 rolls and 127 bls. wrapping.

Str. Saxonia, Hamburg—P. H. Petry & Co., 13 cs.; W. Hartmann & Co., 108 rolls newsprint; Bank of the Manhattan Company, 6 bls.

Str. Hektor, Marseilles—P. J. Schweitzer, 26 cs. cigarette; E. Dietzgen & Co., 14 cs. writing; from Barcelona—Order, 50 cs. cigarette.

Wood Pulp

Str. Eastern Victor, Rotterdam—Castle & Overton, 124 bls.; Hartig Pulp Company, 520 bls.

Str. Blommersdyk, Rotterdam—M. Gottesman & Co., 750 bls.

Str. Delaware, Greaker—J. Andersen & Co., 9,600 bls.; Boregaard Company, 2 bls.

Old Rope

Str. Danier, Antwerp—Brown Bros. & Co., 102 bls. and 76 coils; National City Bank, 58 coils.

Str. Nieuw Amsterdam, Rotterdam—Brown Bros. & Co., 68 bls.; Order, 54 coils.

Str. Hektor, Marseilles—Brown Bros. & Co., 75 bls. and 39 coils; from Barcelona—W. Schall & Co., 74 bls.

Old Bagging

Str. Danier, Antwerp—Guaranty Trust Company, 100 bls.; Chase National Bank, 36 bls.

Str. Ninian, Manchester—Equitable Trust Company, 57 bls.

Str. East Side, Dublin—Prince & Kennedy, 102 bls.; Order, 57 bls.

Rags

Str. Eastern Victor, Rotterdam—E. J. Keller Company, 741 bls.; Robert Blank, 47 bls.

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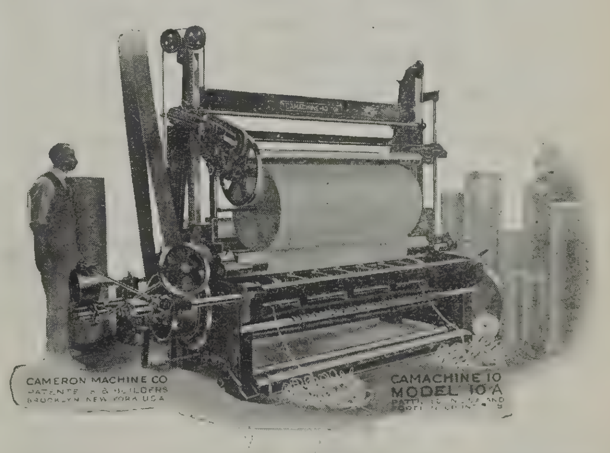

Of universal application to the needs of wholesale paper warehouses, paper dealers, paper converting plants and paper mill finishing rooms is CAMACHINE Universal Type 10 Model 10A, illustrated here. This machine is built in widths 42", 52", 62", 72" and 82" and will wind rolls to a maximum diameter of 36". Descriptive literature covering this and others of the complete line of Camachines, which cover every roll requirement, will be sent on request.

Cameron Machine Company
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Str. Danier, Antwerp—National City Bank, 302 bls.; Brown Bros. & Co., 1,151 bls.; National Union Bank of Boston, 108 bls.; Chase National Bank, 61 bls.; International Acceptance Bank, 35 bls.; Equitable Trust Company, 32 bls.; Guaranty Trust Company, 172 bls.; Coal & Iron National Bank, 49 bls.; Bankers Trust Company, 197 bls.; Order, 50 bls.

Str. Paris, Havre—Kidder-Peabody Acceptance Corporation, 169 bls.; Equitable Trust Company, 35 bls.; Stone Bros. & Victor Galaup Company, 26 bls.

Str. Ninian, Manchester—Guaranty Trust Company, 171 bls.; R. F. Downing & Co., 68 bls.; Anglo-South American Trust Company, 26 bls.; Order, 122 bls.

Str. Blommersdyk, Rotterdam—E. J. Keller Company, 440 bls.; Robert Blank, 250 bls.; A. W. Fenton, Inc., 54 bls.; E. Butterworth & Co., 155 bls.

Str. Cedric, Liverpool—Order, 377 bls.

Str. Cleveland, Hamburg—Salomon Bros. & Co., 141 bls.

Str. East Side, Dublin—C. R. Spence & Co., 155 bls.; Coal & Iron National Bank, 104 bls.; from Belfast—Philadelphia National Bank, 104 bls.; Castle & Overton, 98 bls.; Guaranty Trust Company, 24 bls.

Str. Assyria, Glasgow—Brown Bros. & Co., 56 bls.; State Bank, 184 bls.; C. R. Spence & Co., 24 bls.; George M. Graves Company, 67 bls.; A. H. Searle, 230 bls.; Coal & Iron National Bank, 100 bls.; Baring Bros. & Co., 60 bls.; Order, 144 bls.

Str. Nieuw Amsterdam, Rotterdam—Daniel M. Hicks, Inc., 518 bls.; E. J. Keller Company, 349 bls.; C. G. Keferstein, 80 bls.; Goldman, Sachs & Co., 100 bls.

Str. President Monroe, London—Manufacturers Trust Company, 18 bls.

Str. Saxonia, Hamburg—Chemical National Bank, 143 bls.; Goldman, Sachs & Co., 174 bls.

Str. Hektor, Marseilles—Chase National Bank, 38 bls.; from Barcelona—EquitableTrust Company, 66 bls; Order, 433 bls.

Paper Stock

Str. Eastern Victor, Rotterdam—E. J. Keller Company, 68 bls.

Str. Blommersdyk, Rotterdam—E. J. Keller Company, 114 bls.; Order, 51 coils.

Str. Cleveland, Hamburg—Order, 77 bls.

Str. East Side, Dublin—Brown Bros. & Co., 109 bls.

Str. Quernmore, Belfast—Order, 90 bls.

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TO SHOW VARIOUS USES OF GLASSINE PAPERS

Westfield River Paper Company Will Have Unique Exhibit Among Many Others To Be Shown

An exhibit of glassine paper showing the many uses to which this practically transparent form of paper is put, will be the feature of one of the exhibits at the Second Paper Industries Exposition to be held at the Grand Central Palace, New York City, during Paper Week, beginning April 7th, at the time of the conventions of the American Paper and Pulp, National Paper Trade and affiliated associations.

The Westfield River Paper Company is working out this exhibit, which will show both plain and embossed glassine papers, together with two specialties, celloglas and silver-coated paper glas. The variety of uses for such papers will be shown in an unusual form in this exhibit.

A novel display of paper cans and paper milk bottles and similar paper vessels will be made by the Purity Paper Vessels Company of Baltimore, together with appliances for the ice cream and other branches of industry handling food products. Allyn G. Whitehead, supervisor of sales in the Eastern district will be in charge, and he will be assisted by John A. Owen, Jr., and William A. Palmer, supervisor of sales in the Metropolitan district, while W. R. Lenderking, vice president and general manager will be in attendance throughout the Exposition.

The Sealright Company of Fulton, N. Y., will have an exhibit of its complete line of paper cans for liquid and semi-liquid moist foods, paper milk bottles and paper milk bottle caps. Dr. Wilbur L. Wright, president of the company, will have personal charge of this exhibit, and special letters are being sent to all concerns handling this company's products, inviting them to be the guests of the company at the Exposition.

Another exhibitor has arranged for a special exhibit by loan from the United States Forest Service laboratory at Madison, Wis., which will show the progress of a log through the pulp and paper mill to the finished sheet. This will be done by means of photographs, together with wood in the rough and chip form, with bottles of pulp, chemicals and sheets of the finished papers. A series of framed pictures will show the development of papermaking from the earliest times, as a display of particular historical interest.

In the machinery and equipment section there will also be most interesting exhibits. The Potdevin Machine Company will have in operation pasting, gumming and glueing machinery for edge, strip and solid surface covering of paper cardboard cloth and similar materials in chests. There will also be in operation a two-color printing flat and square glassine paper bag machine and postage stamp bags will be distributed at the rate of 100,000 daily, made from a roll of paper in the company's booth.

The Mayer Coating Machines Company will have exhibits showing its machines for coating of paper with clay and other special solutions, together with asphalt coating and duplexing machines.

The Armstrong Machine Works will have in operation a glass model of a steam trap working under steam pressure and A. E. Armstrong the company's president will be in attendance to explain the use of these traps as applied to paper machines.

The Cameron Machine Company will have in operation three machines for the production of small, medium and large rolls of paper and paper boxes. The exhibit will show the company's entire line of winders with other equipment made by this company.

Among the other equipment exhibits will be those of the Locke Regulator Company, Westinghouse Electric & Manufacturing Company, Reed Air Filter Company, Booth Chemical Company and the Faatz Manufacturing Company. The latter company's exhibit will consist of power savers, while the evolution in belting practice will be shown by F. L. Smith & Company.

The space available for exhibits is rapidly being taken up, and by the time the Exposition is opened it is probable that there will not be a booth unsold.

EXHIBITS FAST COMING IN FOR GRAPHIC ARTS

Switzerland Company Takes Space in the Milwaukee Graphic Arts Exposition

RUDOLPH FRETZ of Fretz Brothers, Zurich, Switzerland, who is in America studying the latest development of printing and lithographing has expressed much interest in the Graphic Arts Exposition to be held in Milwaukee, August 18 to 23, and has written his firm for authority to take space.

"There was a lack of development in the graphic arts industries in Europe during the war and as a result the American firms spurted ahead of us," said Mr. Fretz. "Especially in the offset process have you progressed further than we and it is to catch up that I have come to this country to work in various plants and learn what is being done.

"I have observed several outstanding differences in the manner in which establishments are conducted here and in Switzerland, and the rest of Europe. You are a country of specialists. In Europe the craftsman learns every phase of his process and is able to perform almost any equally well. As Herbert Hoover expressed it to me our development is on a horizontal line and yours on a vertical. The same thing holds good in plant management. In Europe the owner knows not only of the business and practical end of managing the firm but he also knows the technical side. In this country there are heads of many firms who are not technicians."

Mr. Fretz declared that in the last two years the advertising business has increased in Europe as the result of the American influence. American ads have appeared in the press, and American visitors have told of the value of advertising. Europe lacks capital, however, and its firms are not as large as those of this country, so advertising is not on as great a scale.

Business in the printing and lithographing lines was dull the first part of the war, then picked up, only to slump again on account of the amazing fluctuations in the exchange rates. Switzerland was especially hard hit because her exchange remained high while that of other countries sank lower and lower, making trade with Switzerland expensive. The year 1923 was the worst experienced but now business has picked up, according to Mr. Fretz.

He expressed confidence that many European firms would be represented at the exposition and convention of the International Association of Printing House Craftsmen because of the opportunity of seeing under one roof all the latest developments in the industry in America.

"The exposition presents a wonderful opportunity for European firms to see your latest machines and processes with a minimum of effort," said Mr. Fretz.

The number of foreign diplomats and firms which have replied to invitations to be represented at the exposition has increased from 100 to 150. Many have stated they will send representatives while others are considering the matter.

H. & D. Bischoff of Munich, Germany, is one of the foreign firms which has taken space at the exposition. This firm specialized in fine reproductions of oil paintings.

Mr. Fretz is at present employed by the Gugler Lithographing Company of Milwaukee. He spent several weeks in New York and one year in Paris. He has spent approximately two years in his study tour thus far.

* * *

Top-Heavy With Borrowed Money

American business is gradually becoming top-heavy with borrowed money, says a Financier, who is an observer.

Industry is acquiring altogether too many creditors and too few partners. It is financing itself in a troublesome degree by the sale of bonds and notes with but indifferent success at the sale of ownership participation in the form of stock, says *The Paper Dealer.*

That there is something radically wrong in the public attitude which necessitates this sort of financing is indicated by the fact that share certificates of American industry are far more valuable on any basis of comparison than ever before.

In general, he says, the average business should not be financed by a capital structure that consists of more than 50 per cent borrowed money. The percentage that has prevailed during the last ten years shows but a negligible amount of stock. In other words, this country is borrowing against the future to finance its present needs. Unless a decidedly different trend is achieved in the not distant future refinancing and collection day will become a serious problem.

The securities of dozens of important industrials are selling today in the open market for less than the actual cash in excess of dividends added to surplus since 1914. The stock of a long list of companies is selling for less in the market than the total of cash in banks and liquid securities owned by those companies.

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DIAMOND Alkali Co, Pittsburgh, Pa.

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FERGUSON—Hardy S., New York City.
HARDY—George F., New York City.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
WALLACE—Joseph H., & Co., New York and Montreal.

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BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BELT CONVEYORS

LINK-BELT Co., Chicago, Ill.

BLEACHING POWDER

MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

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KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.

BOX BOARDS

STANDARD Paper Co., Kalamazoo, Mich.

BRIMSTONE

UNION Sulphur Co., New York.

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Pulp

Easton Car & Construction Co., 196 Fulton Street, New York City.
Chase Foundry & Mfg. Co., 2800 Parsons Ave., Columbus, Ohio.

CASEIN

California Central Creameries, Inc., 425 Battery, San Francisco, Calif.
Bird & Co., J. A. & W., 88 Pearl St., Boston, Mass.
King, E. & F. & Co., 367 Atlantic Ave., Boston, Mass.
Reardon Company, 127 Clinton, St. Louis, Mo.
Wiarda, John C. & Co., 91 Provost St., Brooklyn, N. Y.
Sheffield By-Products Co., Hobart, N. Y.
Atterbury Bros., 145 Nassau St., (French Imported) New York City.
Casein Mfg. Co., 15 Park Row, New York City.
Duche & Sons, T. M., (Imported), 376 Greenwich St., New York City.
Hamilton Company, 50 Church St., New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff, New York City.
Kalbfleisch Corp., The, 31 Union Sq., New York City.
Peek & Velsor, 8 Gold, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Amalgamated Gum Co., (Vegetable for Wall Paper & Paper Coater Mfgrs.) Troy, N. Y.

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MATHIESON Alkali Works, Inc., 25 W. 43rd St, New York, N. Y.
DIAMOND Alkali Co, Pittsburgh, Pa.

CHAINS AND WHEELS

LINK-BELT Co., Chicago, Ill.

CHEMICALS

Papermakers

du Pont, E. I. de Nemours & Co., Inc., Lithopone, Pigments & Heavy Chemicals Div., Wilmington, Del.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
American Woodpulp Corp., 347 Madison Avenue, New York City.
Battelle & Renwick, 80 Maiden Lane, New York City.
Burns Mfg. Co., 46 W. Broadway, New York City.
Cooper, Charles, & Co., 194 Worth, (Job), New York City.
DIAMOND Alkali Co., Pittsburgh, Pa.
KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.
National Sales Co., Cincinnati, O., (Bentonite).
Paper Makers Chemical Co., Easton, Pa.
PENNSYLVANIA Salt Mfg. Co., Chestnut St., (Bleach), Philadelphia, Pa.
EMPIRE Size & Chemical Co., (Rosin Size—Foam Killer—Felt Soap), Albany, N. Y.
Philadelphia Quartz Co., 121 So. 32 St., Philadelphia, Pa., Silicate of Soda.

CLAY

China

United Clay Mines Corp., Trenton, N. J.
Bernhan Chemical & Metal Corp., 309 Broadway, (Job), New York City.
Bingswanger, H. P., 7 West 16, New York City.
Chrystal, Chas. B., Co., Inc., 99 John, (Imp.), New York City.
Drakenfeld, B. F., & Co., Inc., 50 Murray, New York City.
English China Clays Sales Corp., 33 West 42nd St., New York City.
General Mineral Co., Inc., 104 Spring, New York City, (Imp., Exp. & Mfrs. Agts.)
Hammell & Gillespie, 240 Front, New York City.
Higman Company, John W., 29 Broadway, New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff (Job), New York City.
Keystone Minerals Co., 41 Union Square, New York City.
Penn-Keystone Co., 41 Union Square New York City.
Roessler & Hasslacher Chem. Co., 709 6th Avenue, New York City.
Salomon & Bro., L. A., 216 Pearl, (Imptr., Exptr. & Dir.), New York City.
Scheel, Wm. H., (Dept. A.), 159 Maiden Lane, (Imptrs., Exptr. & Dir.), New York City.
Smith & Co., J. Lee, 23 Jacob, New York City.
Taintor Mfg. Co., H. F., 2 Rector, (Bolted), New York City.
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Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City
Vanderbilt, R. T. Co., Inc., 50 East 42nd St., New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Hardis Kaolin Co., Dillsboro, N. C.
Onondaga Pottery Co., (Vitrified), Syracuse, N. Y.
Excelsior Ball Clay Co., 31 East 13th, Cincinnati, Ohio.
National Sales Co., 31 East 13th, Cincinnati, Ohio.
Harshaw, Fuller & Goodwin Co., (Imptr.), Cleveland, Ohio.
Florida China Clay Corp., (Fla.), Easton, Pa.
Immaculate Kaolin Co., (For filling, coating & pottery purposes), Easton, Pa.
Peper Makers Chemical Co., (Eng.), Easton, Pa.
Williams, C. K., & Co., (Bolted), (Imptrs.), Easton, Pa.
Atlas Mineral Products Co., Mertztown, Pa.
Star Clay Co. (powdered & lump washed), Mertztown, Pa.
Fergusson, Alex. C., Jr., 460 Chestnut, Philadelphia, Pa.
Foote Mineral Co., Inc., 113 No. 19th, Philadelphia, Pa.
Nevins Co., Samuel, 109 So. 2nd, (Dried, Grd. & Bolted), Philadelphia, Pa.
Philadelphia Clay Co., 1201 Chestnut, Philadelphia, Pa.
Wayner, Chas. A. Co., Inc., 814 Noble St., Philadelphia, Pa.
Lyon & Bro. S. C., Bennington, Vt.
Horn, Crockett & Co., (Miners & Refiners), Brandon, Vt.
Dill-Coppage, Inc., 235 Pine (Imptrs. & Exptrs.), San Francisco, Calif.
Savannah Kaolin Co., Savannah, Ga.
Bennett & Davis, Inc., 327 So. LaSalle, Chicago. Ill.
Mepham, Geo. S., & Co., East St. Louis, Mo.
Cooley Ball & Sagger Clay Co., Hazel, Ky.
Kentucky Const. & Improvement Co., Pryersburg, Ky.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McHose Clay Co., Perth Amboy, N. J.
McHose, L. H., Inc., P. O. Box 345, Perth Amboy, N. J.
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General Mineral Co., Inc., 104 Spring, (Imptrs. & Exptrs., Mfg. Agts.), New York City.
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Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
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Aniline Sales Corp., 480 W. B'way, New York City.
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Certified Chemical Corp., 80 Maiden Lane, New York City.
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Wetterwald & Pfister Co., (Brunswick Color & Chem. Co.), 276 Spring, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front, New York City.
Palatine Aniline & Chem. Co, Poughkeepsie, N. Y.
Siegle, G. Corp. of America, Rosebank, N. Y.
Standard Printing Ink Co., 1638-1648 Providence, Cincinnnati, O.
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PORTLAND Co., (copper, paper & pulp mill), Portland, Me.
McNamara Bros. Co., Westport, Baltimore, Md.
Dillon Steam Boiler Wks., D. M., (paper & pulp mill, rotary), Fitchburg, Mass.
EASTWOOD Wire Mfg. Co., (papermaking), Belleville, N. J.
Reeves Bros. Co., 338 Rush Street, (pulp & paper mill), Alliance, O.
Tudor Boiler Mfg. Co., 715 E. 3rd St., (pulp), Cincinnati, Ohio.
Riter-Conley Co., 318 Oliver Bldg., (papermaking), Pittsburgh, Pa.
McAleenan Bros. Co., 25th & Railroad Sts., (pulp paper mill), Pittsburgh, Pa.
West Point Boiler & Tank Works, 23rd & Smallman, (paper making), Pittsburgh, Pa.
Petroleum Iron Works Co., Drawer 539 (pulp), Sharon, Pa.
Manitowoc Shipbuilding Corp., (paper mill, sulphate, rotary & soda), Manitowoc, Wis.

DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

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Paper & Pulp Makers

Mintin, Ogden. Greenwich, Conn.
Smith & Winchester Mfg. Co., So. Windham, Conn.
Gordon, Robert, Inc., 1355 W. Washington Blvd., Chicago, Ill.
Rice Barton & Fales Machine & Iron Co., Worcester, Mass.
St. Louis Ventilating & Sheet Metal Co., 1306 Ann Avenue, St. Louis, Mo.
Carrier Eng. Corp., 39 Cortlandt, New York City.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Bartlett & Snow Co., C. OO French & Columbus, Cleveland, Ohio.
French & Columbus, Cleveland, O.
Cummer, F. D. & Son Co., Hanna Bldg., Cleveland, Ohio.
Kilby Mfg. Co., 4623 Lakeside Ave., Cleveland, Ohio.
Proctor & Schwartz, Inc., 7th St. & Tabor Road, Philadelphia, Pa.
Gordon Dryer Corporation, 275 W. Exchange, Providence, R. I.

EQUIPMENT

Crandon Mfg. Co., (special electrical, for pulp & paper mills), Portland, Me.

EVAPORATORS

Soda Pulp

Buffalo Foundry & Machine Co., 43 Winchester Avenue, Buffalo, N. Y.
Devine, J. P., Co., 1380 Clinton, Buffalo, N. Y.
Zaremba Co., 508 Niagara Life Bldg., Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City.
International Process Co., 5 Beekman, New York City.
Odrway, Charles 25 Church, New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Kestner Evaporator Co., North Philadelphia, Pa.

FELTS

Dryer, Jackets

FITCHBURG Duck Mills, Fitchburg, Mass.
F. C. HUYCK & Sons, (Kenwood Mills), Albany, N. Y.
Albany Felt Co., Albany, N. Y.
Appleton Woolen Mills, Appleton, Wis.
ORR Felt & Blanket Co., Piqua, Ohio.
WATERBURY Felt Co., Skaneateles Falls, N. Y.
Lockport Felt Co., Lockport, N. Y.
SHULER & Benninghofen, Hamilton, Ohio.

FILLERS

Papermakers

U. S Gypsum Co., 205 W. Monroe. (Terra Alba & Select), Chicago, Ill.
Macneal's Varnish & Color Works, 1600 Block Warner, Baltimore, Md.
Western Paper Makers Chemical Co., (Pearl), Kalamazoo, Mich.
American Chemical & Mfg. Corp., Kenilworth, N. J.
Carbola Chemical Co.. Inc., 229 Ely Avenue. (Fillers for every purpose). Long Island City, N. Y.
Park Row, New York City.
Talc Products Co., 120 B'way, New York City.
Solvay Process Co., Syracuse, N. Y.
Lookout Paint Mfg. Co., Chattanooga, Tenn.

FILTERS

Pulp and Paper

Oliver Continuous Filter Co., 503 Market, San Francisco, Calif.
Redlich Mfg. Co., 637 W. Oak, Chicago, Ill.
Ordway, Charles, 25 Church, New York City.
Permutit Co., The, 4th Ave. & 30th, New York City.
Kiefer, Kary Machine Co., 919 Martin, Cincinnati, Ohio.
Loew Mfg. Co., 9100 Madison Ave., Cleveland, Ohio.

GRINDERS

Wood Pulp

Pusey & Jones Co., Wilmington, Del.
Stroud, E. H. & Co, 928-934 Fullerton Ave,. Chicago, Ill.
Holyoke Machine Co., Holyoke, Mass.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Carthage Machine Co., Carthage, N. Y.
Dilts Machine Co., Inc., Fulton, N. Y.
Glens Falls Machine Wks., Glens Falls, N. Y.
Sandy Hill Iron & Brass Wks., Hudson Falls, N. Y.
Brown Co., A. & F., 79 Barclay, New York City.
Bagley & Sewall Co., Watertown, N. Y.
Jeffrey Mfg. Co., 956 No. 4th, Columbus, Ohio.
Dayton Globe Iron Works Co., Dayton, Ohio.
Scott, Olin, Est. of, Bennington, Vt.

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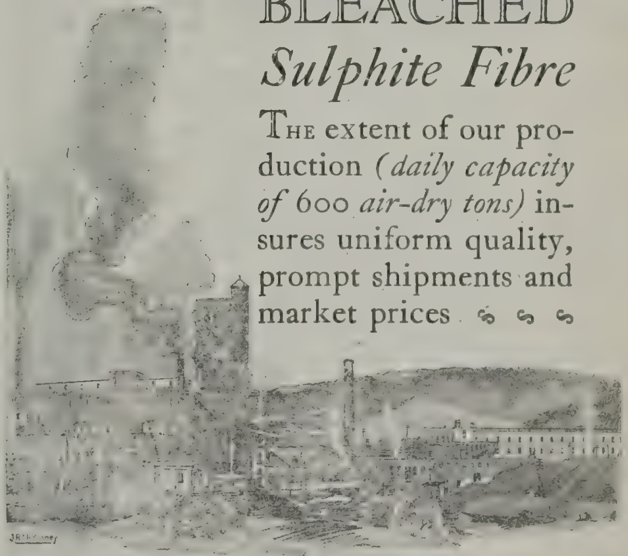

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Coes & Co., Loring (inc.), Worcester, Mass.
Branch Saw Co., 3000 N. B'way, St. Louis, Mo.
Dilts Machine Co., Inc., Fulton, N. Y.
Lancaster Machine & Knife Wks., Lancaster, N. Y.
Cocker Mfg. Co., Lockport, N. Y.
Haring, Ellsworth, 116 Liberty, New York City.
Cleveland Knife & Forge Co., Cleveland, Ohio.
Worden Tool Co., (1854 Scranton Rd.), Cleveland, Ohio.
Simonds & Sons Co., A. A., Dayton, Ohio.

KRAFT PAPER

BROWN Company, Portland, Me.

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Truing, Pulpstone

Fulton Mach. & Vise Co., Lowville, N. Y.

LIQUID CHLORINE

MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

LAY-BOY

Erie Automatic

Eric Lay-Boy Co., Westerly, R. I.

LAY-BOY

Overlapping Delivery Erie

Maxson Automatic Machinery Co., Westerly, R. I.

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Barking

Fibre Making Processes, Inc., 6 N. Michigan Ave., Chicago, Ill.
Union Iron Works (Improved), Bangor, Me.
Portland Co., Portland, Me.
Waterville Iron Wks., (for paper mills), Waterville, Me.
Holyoke Mach. Co., Holyoke, Mass.
Carthage Machine Co., Carthage, N. Y.
Sandy Hill Iron & Brass Wks., (pulp mill), Hudson Falls, N. Y.
TOMPKINS-HAWLEY-FULLER Co., (Paper Creping), Valatie, N. Y.
Scott, Olin, Est. of, Bennington, Vt.
Valley Iron Works Co., (wood), Appleton, Wis.
Green Bay Barker Co., Green Bay, Wis.

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Mamco

Maxson Automatic Machinery Co., Westerly, R. I.

Paper Combining

Jagenberg Machine Co., Inc., 133 W. 24th, New York City.

Paper Goods

Aicher Machine Works, 1634 Stockton (Slitting & Printing), San Francisco, Calif.
Specialty Automatic Machine Co., Chelsea, Mass.
Rice, Barton & Fales Machine & Iron Co., (Pasting, waxing, trimming, etc.), Worcester, Mass.
Paper Working Machine Co., Ave. U & 56th, (Corrugated), Brooklyn, N. Y.
Vierengel, M., Machine Co., Inc.. 370 Troutman St., (special), Brooklyn, N. Y.
KNOWLTON Co., M. D., 26 Industrial, (corrugated), Rochester, N. Y.

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McKim Foundry & Machine Co., Lockport, N. Y.

Paper Cup

Ludington Machine Co., Waterbury, Conn.

Paper Cutting

Smith & Winchester Mfg. Co., So. Windham, Conn.
Child Acme Cutter & Press Co., 250 Devonshire, Boston, Mass.
McLauthlin, Geo. T. Co., 120 Fulton, (power & hand), Boston, Mass.
Hamblett Mach. Co., Lawrence, Mass.
Dillon Mach. Co., Lawrence, Mass.
Challenge Machinery Co., The, (Hand & Power), Grand Haven, Mich.
Swift, Geo. W., Jr., Inc., Bordentown, N. J.
Langston, Samuel M., Co., Camden, N. J.
American Type Founders, 4-6 Communipaw Ave., (lever & power), Jersey City, N. J.
CAMERON Machine Co., 57-61 Poplar, Brooklyn, N. Y.
Morgans & Wilcox Mfg. Co., (printers), Middletown, N. Y.
Fuller, E. C. Co., 28 Reade St., New York City.
Hoffman Type & Engraving Co., 112 East 13th St., (mnfrs., reps. & imptrs.), New York City.
KNOWLTON, M. D. Co., 26 Industrial, Rochester, N. Y.
Seybold Machine Co., Dayton, Ohio.
Sheridan, T. W. & C. B., 434 B'way, New York City.
Grammes & Sons, L. F., 1922 T. Union St., Allentown, Pa.
Beck, Chas., Machine Co., 605 Chestnut, (Sheet, Card, Film), Philadelphia, Pa.
Beloit Iron Works, (Board & Paper), Beloit, Wis.

Paper and Pulp Mill

Farrel Fdry. & Mach. Co., Ansonia, Conn.
PICKLES—W. F., Buckland, Conn.
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Swenson Evaporator Co., 53 W Jackson Blvd., Chicago, Ill.
Williams-Gray Co., 30 N. LaSalle, Chicago, Ill.
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Record Foundry & Machine Co., Livermoe Falls, Me.
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Emerson Machine Co., Lawrence, Mass.
Horne, J. H. & Sons, Co., Lawrence, Mass.
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Jones, E. D. & Sons Co., Pittsfield, Mass.
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Montague Machine Co., (power transmission), turners Falls, Mass.
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Waterville Iron Wks., Waterville, Me.
Davis, Frank H., Co., 175 Richdale Ave., Boston, Mass.
Meisel Press Mfg. Co., 949 Dorchester Ave. 25, Boston, Mass.
Union Machine Co., Fitchburg, Mass.
Norwood Engineering Co., (paper finishing, calendering, rag thrashing, platers), Florence, Mass.
Golding Mfg. Co., Franklin, Mass.
Holyoke Mach. Co., Holyoke, Mass.
Jolly, Inc., J. & W., Holyoke, Mass.
Perkins, B. F. & Sons, Inc., (rag cutting), Holyoke, Mass.
Central Mfg. Co., Kalamazoo, Mich.
Standard Machinery Co., Owosso, Mich.
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Paper Engineering Co., St. Joseph. Mich.
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SHERMAN Paper Co., Watertown, N. Y.
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Crown-Willamette Paper Co., 248 Battery (sulphite fibre), San Francisco, Calif.
New Haven Pulp & Board Co., (mechanically ground), New Haven, Conn.
du Pont, E. I. de Nemours & Co., (explosives dept.), Wilmington, Del.
Hercules Power Co., Wilmington, Del.
Grass Fibre Pulp Paper Corp., Leesburg, Fla.
Pynetree Paper Co., (Soda Pulp), Gordon, Ga.
Atlantic Paper & Pulp Corp., (wet), Savannah, Ga.
Cushnoc Paper Co., (Wood, Grd. & Sulphite fibre), Augusta, Maine.
Day Lumber Co., (Spruce & Fir Pulpwood), Bangor, Maine.
Orono Pulp & Paper Co., (unbleached sulphite fibre), Bangor, Maine.
Eastern Mfg. Co., (sulphite fibre), Bangor, Maine.
Eastern Pulp Wood Co., Calais, Me.
Cherryfield Lumber Co., (Wood), Cherryfield, Me.
Howland Pulp Corp., The, (Sulphite Fibre), Howland, Maine.
Pejepscot Paper Co., (Br.), (Sulphite Fibre), Lisbon Falls, Me.
Nekonegan Paper Co., (Ground Wood), Oldtown, Me.
BROWN Company, (Sulphate Fibre), Portland, Maine.
Riverside Pulp Co., (groundwood), Skowhegan, Maine.
Skowhegan Pulp Co., (groundwood), Skowhegan, Maine.
Forest Paper Co., (soda fibre), Yarmouthville, Me.
Advance Bag & Paper Co., Inc., 301 Congress St., Boston, Mass.
Hollingsworth & Whitney Co., 185 Devonshire (sulphite fibre & groundwood), Boston, Mass.
Mount Tom Sulphite Pulp Co., 50 State (bleached sulphite pulp), Boston, Mass.
Penobscot Chemical Fibre Co., 49 Federal (wood pulp), Boston, Mass.
St. Croix Paper Co., 244 Wash'n, (sulphite fibre & ground wood pulp), Boston, Mass.
Train-Smith Co., 294 Washington (wood), Boston, Mass.
Champion-International Co., (for own use), Lawrence, Mass.
Ramage Paper Co., James, (wood), Monroe Bridge, Mass.
Fletcher Paper Co., (groundwood & sulphite fibre), Alpena, Mich.
Cheboygan Paper Co., (groundwood), Cheboygan, Mich.
Detroit Sulphite Pulp & Paper Co., 9131 W. Jefferson Ave., (sulphite fibre), Detroit, Mich.
Johnston, W. J., (wood), De Tour, Mich.
Escanaba Paper Co., (Duplicate), Escanaba, Mich.
Filer Fibre Co., (Kraft Sulphate Pulp), Filer City, Mich.
Itaska Paper Co., (Ground Wood Pulp), Grand Rapids, Mich.
Central Paper Co., (sulphite fibre also paper), Muskegon, Mich.
French Paper Co., (ground wood pulp), Niles, Mich.
Port Huron Sulphite & Paper Co., (Mitscherlich Process), Port Huron, Mich.
Northern Cedar & Lumber Co., (wood), Blackduck, Minn.
Northwest Paper Co., (ground wood, sulphite pulp), Cloquet, Minn.
Hennepin Paper Co., (ground wood), 401 E. Main, Minneapolis, Minn.
Minnesota & Ontario Paper Co., 1100 Builders' Exch., (ground wood Pulp & Sulphite Fibre). Minneapolis, Minn.
Mason-Perkins Paper Co., (wood), Bristol, N. H.
Groveton Paper Co., Inc., (sulphite), Groveton, N. H.
Veazie, Geo. A., Littleton, N. H.
Livermore Falls Pulp Co., (air dried ground wood pulp), Plymouth, N. H.
Crabtree & Sons, Edwin, (Ground Wood Pulp), Wendell, N. H.
Rogers & Co., J. & J., (ground wood & sulphite), Ausable Fork, N. Y.
Lewis Co., The J. P., (ground wood), Beaver Falls, N. Y.
Lewis, Slocum & Lefevre, (ground wood), Beaver Falls, N. Y.
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Taylor, Stiles & Co., (paper stock, rag cutters), Riegelsville, N. J.
Townsend Foundry & Mach. Shop Co., Albany, N. Y.
Sowers Mfg. Co., (coaters), Black Rock, N. Y.
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Farnham Mfg. Co., 39 Indiana, (paper coating), Buffalo, N. Y.
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Sandy Hill Iron & Brass Works, (fourdrinier), Hudson Falls, N. Y.
Trevor Mfg. Co., 168 Market (wood pulp splitting, wood pulp, wet), Lockport, N. Y.
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Jagenberg Machne Co., Inc., 133 W. 24th Street, (hot air dryers, gas heated, for coated paper, either in sheets or rolls), New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Knowlton Co., M. D., 26 Industrial (rolling & saturating corrugated & creasers), Rochester, N. Y.
Mayer Coating Machines, Inc., (coating for carbon paper, waxed & oil paper, etc.), Rochester, N. Y.
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Ticonderoga Machine Wks., (wire carrying rolls stock, thickening winders, felt spreaders, calender doctors valves, etc.), Ticonderoga, N. Y.
Bagley & Sewall Co., (cylinder tubes, for all classes of Paper), Watertown, N. Y.
Stebbins Engineering & Mfg. Co., Watertown, N. Y.
Baker, Joseph, Sons, & Perkins Co., Inc., (pulpers, dissolvers), White Plains, N. Y.
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Tinker, F. & Sons Co., 57th & Harrison, Pittsburgh, Pa.
Textile Finishing Machy. Co., 83 Exchange Pl., (finishing machy. for writing, ledger, coated & glazed papers), Providence, R. I.
Stellman, L. H. & Son, Battleboro, Vt.
Hooker Mfg. Corp., St. Johnsbury, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works (cylinder & fourdrinier), Appleton, Wis.
Beloit Iron Works, (tissue news, bookboard), Beloit, Wis.
Lawton, C. A. Co., The, De Pere, Wis.
Moloch Co., (paper, wall paper & sulphite), Kaukauna, Wis.
Manitowoc Ship Building Corp., Manitowoc, Wis.
MURRAY Mfg. Co., D. J., Wausau, Wis.

Slitters and Rewinders

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Koegel's, Chas., Sons Inc., Holyoke, Mass.
Perkins, B. F. & Sons, Inc., Holyoke, Mass.
Kidder Press Co., Dover, N. H.
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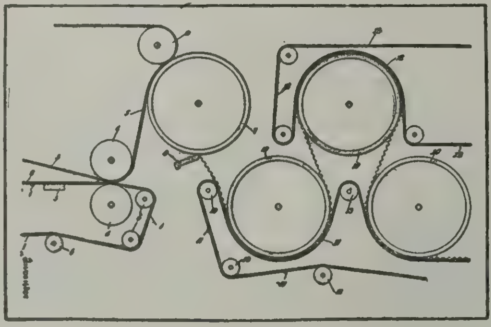

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Island Paper Co., (ground wood dry), Carthage, N. Y.
Chateaugay Pulp Co., (ground wood), Chateaugay, N. Y.
High Falls Pulp Co., (ground wood, dr), Chateaugay, N. Y.
Dexter Sulphite Pulp & Paper Co., (Mechanical ground wood & Mitscherlich sulphite), Dexter, N. Y.
Fort Miller Pulp & Paper Co., (ground wood), Fort Miller, N. Y.
Arrowhead Milling Co., (sulphite Pulp), Fulton, N. Y.
Oswego Falls Pulp & Paper Co., (wood), Fulton, N. Y.
Finch, Pruyn & Co., Inc., (gorund wood pulp), Glens Falls, N. Y.
Blandy Paper Co., (ground wood pulp), Greenwich, N. Y.
Mohican Pulp & Paper Co., (wood pulp), Greenwich, N. Y.
Hinckley Fibre Co., (sulphite fibre), Hinckley, N. Y.
Tindale, Wm. H., (wood), Keeseville, N. Y.
United Indurated Fibre Co. of N. Y., (ground wood, dry), Lockport, N. Y.
Gould Paper Co., (ground wood), Lyon Falls, N. Y.
Malone Paper Mill, (sulphite fibre: gound wood), Malone, N. Y.
Hoornbeek's, John C., Sons, (ground wood, dry), Napanock, N. Y.
American Woodpulp Corp., 347 Madison Ave., (wood, chemical & mechanical, Kraft), New York City.
ANDERSEN—J. & Co., 21 East 40th St., (Imptrs. of chemical Pulps, Kraft), New York City.
Atterbury Bros., 145 Nassau, (foreign & domestic wood), New York City.
Beebe & Co., Ira L., 132 Nassau, (wood pulp), New York City.
Butterworth, E. & Co., 1123 B'way, (wood & bleached sulphite pulp), New York City.
CASTLE & OVERTON, 200 Fifth Avenue, (wood sulphite), New York City.
CRAIG-BECKER Co., Inc., 52 Vanderbilt Ave., (wood), (Mill Agts., Imp. & Exp.), New York City.
De Bary, Albert, Jr., Inc., 6 Church, (Exptrs.), New York City.
Great Northern Paper Co., 49 Wall, (ground wood pulp), New York City.
Helwig, Rudolph, 451 Wash'n., (sulphite pulp), New York City.
International Paper Co., (ground wood pulp & sulphite), New York City,.
International Pulp Co., 41 Park Row, (asbestine), New York City.
Interstate Pulp & Paper Co., Inc., Grand Central Terminal, (wood), New York City.
Meigs Pulp Wood Co., Inc., 10 East 43rd, (pulp wood), New York City.
Nashwaack Pulp & Paper Co., Ltd., (Canadian bleached sulphite), New York City.
New York Overseas Co., Inc., 44 Beaver, (imp), (wood), New York City.
New York & Penna. Co., 200 Fifth Ave., New York City.
Oxford Paper Co., 200 Fifth Ave., New York City.
Paine, A. G., Jr., 200 Fifth Ave., New York City.
PERKINS-GOODWIN Co., 33 W. 42nd St., New York City.
Price & Pierce, 30 East 42nd St., New York City.
Union Bag & Paper Corp., Woolworth Bldg., (ground wood, sulphite & kraft pulps), New York City.
SCANDINAVIAN Pulp Agency, (Inc.), 342 Madison Ave., (wood pulp), New York City.
Cliff Paper Co., (fibre & ground wood, dry), Niagra Falls, N. Y.
Defiance Paper Co., (ground wood), Niagara Falls, N. Y.
Niagara River Mfg. Co., (ground wood pulp), Niagra Falls, N. Y.
Pettebone-Cataract Paper Co., (ground wood), Niagara Falls, N. Y.
Defiance Paper Co., (ground wood), Norwood, N. Y.
Martin Pulp & Paper Co., (wood), Ogdensburg, N. Y.
Lake Champlain Pulp & Paper Corp., (Dry ground pulp), Plattsburg, N. Y.
Saranac Co., (ground wood pulp), Plattsburg, N. Y.
Underwood Paper Mills, Inc., (ground wood), Plattsburg, N. Y.
Hannawa Falls Water Power Co., (ground wood, pulp), Potsdam, N. Y.
Raquette River Paper Co., (ground wood sulphite), Potsdam, N. Y.
Johnston & Son, (dry ground wood), Port Leyden, N. Y.
St. Regis Falls Wood Corp., (ground wood pulp), St. Regis Falls, N. Y.
American Wood Board Co., (ground wood pulp), Schuylerville, N. Y.
Blandy Paper Co., (ground wood), Schuylerville, N. Y.
Iroquois Pulp & Paper Co., (ground wood pulp), Thomson, N. Y.
Ticonderoga Pulp & Paper Co., (Soda Fibre, Wood), Ticonderoga, N. Y.
Santa Clara Lumber Co., (pulp), Tupper Lake, N. Y.
Schroon River Pulp & Paper Co., (ground wood, dry), Warrensburg, N. Y.
Diana Paper Co., (ground wood pulp), Watertown, N. Y.
St. Regis Paper Co., (ground, wood, dry sulphite fibre), Watertown, N. Y.
SHERMAN Paper Co., (ground wood pulp), Watertown, N. Y.
Champion Fibre Co., (paper pulp), Canton, N. C.
Halifax Paper Corpn., (sulphite fibre & ground wood), Roanoke Rapids, N. C.
Mead Pulp & Paper Co., (soda fibre), Dayton, Ohio.
SRERE Pulp & Paper Co., Franklin, Ohio.
Williamette Pulp & Paper Co., (sulphite fibre, also paper), Oregon City, Ore.
Oregon Pulp & Paper Co., (bleached & unbleached sulphite pulp), Salem, Ore.
Bayless Mfg. Corp'n (ground wood, sulphite fibre, also paper), Austin, Pa.
Durham Paper & Pulp Co., Durham, Pa.
Williams & Co., C. K., (mineral), Easton, Pa.
HAMMERMILL Paper Co., (unbleached sulphite), Erie, Pa.
Analomink Paper Co., (ground wood pulp), North Water Gap Pa
Cherry River Paper Co., (sulphite pulp), 2129 Land Title Bldg., Philadelphia, Pa.
Dill & Collins Co., 140 N. 6th, (soda fibre, paper), Philadelphia, Pa.
Jessup & Moore Paper Co., Com'l Tr. Bldg. (soda pulp), Philadelphia, Pa.
Parson Pulp & Lumber Co., (spruce bleached & unbleached sulphite pulp), Finance Bldg., Philadelphia, Pa.
Bare, D. M., Paper Co., (soda fibre, also paper), Roaring Spring, Pa.
Glatfelter, P. H. Co., (soda fibre, also paper), Spring House, Pa.
Carolina Fibre Co., (ground wood, dry, sulphite also paper), Hartsville, S. C.
Tenn. Fibre Co., (cotton hull, fibre, dry), Southern Ry & Linden, Memphis, Tenn.
Yellow Pine Paper Mill Co., (sulphite fibre), Orange, Tex.
Sugarland Pulp & Paper Co., Sugarland, Tex.
Ryegate Paper Co., (Pulp), East Ryegate, Vt.
Parks Paper Co., (ground wood), Fitzdale, Vt.
Groton Mfg. Co., (wood pulp), Groton, Vt.

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Hummel-Ross Fibre Corp., (sulphate pulp), Hopewell, Va.
Stamsocott Co., The, Inc., (cotton linter pulp), Hopewell, Va.
Virginia Carolina Tie & Wood Co., (wood), Norfolk, Va.
Chesapeake Corp., (papermakers' pulp), Westpoint, Va.
Washington Pulp & Paper Co., (ground wood), Port Angeles, Wash.
Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
Combined Locks Paper Co., (sulphite fibre), Appleton, Wis.
Marshall Paper Co., (wood), Appleton, Wis.
Riverside Fibre Co., (bleached — unbleached sulphite fibre also paper), Appleton, Wis.
Ashland Paper Co., (spruce ground wood), Ashland, Wis.
Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.
Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.
Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.
Kaukauna Ground Pulp Co., Kaukauna, Wis.
Outagamie Paper Co., (ground wood), Kaukauna, Wis.
Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
Medford Lumber Co., (wood), Medford, Wis.
Mellen Lumber Co., Mellen, Wis.
Island Paper Co., (sulphite fibre), Menasha, Wis.
Ewing Everest Pulp Co., (ground wood), Merrill, Wis.
Grandfather Falls Co., (ground wood pulp), Merrill, Wis.
Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Elambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.
Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS
Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES
Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia. Pa.

RAGS

American Woodpulp Corporation, New York.
Keller Co., Inc., E. J., New York.
CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill.

ROPE DRIVE

LINK-BELT Co., Chicago, Ill.

SCREENS
Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del.
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill.
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman, H. L. (centrifugal), Dayton, Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale, Pa.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill.

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS
Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS
Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.

Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE
Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific, Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.
Paper Makers Chem. Co., (combination), Easton, Pa.
Boley, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.
Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.
Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel, T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
MURRAY Mfg. Co., D. J., Wausau, Wis.
Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.
Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Co., (Cylinder; Hot Air), Cohoes,
Cohoes Iron Foundry & Machine N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.
Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA
Ash

DIAMOND Alkali Co., Pittsburgh,
MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

SODA
Pulp

Mead Fibre Co., The, (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SPLITTERS
Wood

Grace, C. M. & Co., Huntsville, Ala.
Ripley, Lewis R., Harvard, Mass.
Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.
Ryther & Pringle Co., Carthage, N. Y.
Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Multnomah Iron Works, Portland, Ore.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works, Co., Appleton, Wis.
Smalley Mfg. Co., Manitowoc, Wis.

SPROCKET WHEELS

LINK-BELT Co., Chicago, Ill

STOCK REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

STONES
Wood Pulp

Pusey & Jones Co., (Kollergang), Wilmington, Del.
Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.
Lombard & Co., 238 A Street, Boston, Mass.
JONES Bros. Co., Boston, Mass.
Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.
Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.
Empire Pulp Stone Co., Empire, Ohio.
C. & M. Quarries Co., Marietta, Ohio.
Smallwood Stone Co., Steubenville, Ohio.
American Stone Co., Wheeling, W. Va.
JONES Bros. Co., Barre, Vt.

SUCTION BOX COVERS

Menasha Wood Split Pulley Co., Menasha, Wis.

SULPHATE MILL EQUIPMENT

STEBBINS Eng. & Mfg. Co Watertown, N. Y.

SULPHITE FITTINGS

EASTWOOD Wire Mfg. Co., Belleville, N. J.

SULPHUR

UNION Sulphur Co., New York.

SULPHUR BURNERS

STEBBINS Eng. & Mfg. Co. Watertown, N. Y.
TRIMBEY Machine Works, Glen Falls, N. Y.

CHAIN DRIVE SILENT

LINK-BELT Co., Chicago, Ill.

TANKS
Settling & Pulp Thickening

Chicago Bridge & Iron Works, 203 Transportation Bldg., Chicago, Il
Eagle Tank Co., 2436 No. Crawfor Ave., Chicago, Ill.
Johnson & Carlson, 848 Eastman (Wood), Chicago, Ill.
New York Central Iron Works Co. Inc., Hagerstown, Md.
New England Tank & Tower Co. Boston Postal District, Everett Mass.
Acme Tank Co., 41 Cortlandt St. (Wood), New York City, N. Y
Biggs Boiler Works Co., Kent St & B. & O. R. R., Akron, Ohio
Hendrick Mfg. Co., 75 Dundaff St. Carbondale, Pa.
Schlichter, E. F. Co., Fuller Bldg. Philadelphia, Pa.
Woodford Wood Tanks, Lincol Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawe 539, Sharon, Pa.
Newport Foundry & Machine Corp. (Siphon), Newport, R. I.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.
Textile Finishing Mach. Co., Providence, R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill.

DE-INKING PROCESS

CASTLE & OVERTON, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

VALVES
Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.
WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

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Appleton Wire Works, Appleton, Wis.
BLACK-CLAWSON Co., Hamilton, Ohio.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

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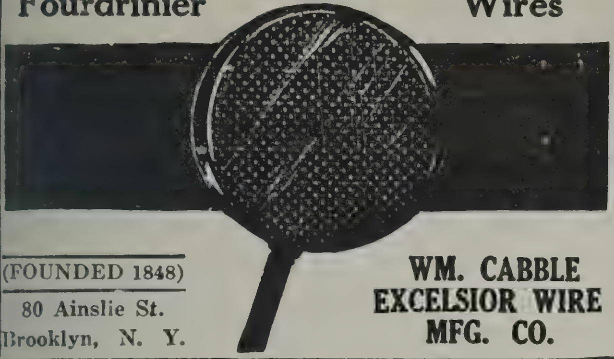
WOLVERINE Paper Co., Otsego, Mich.



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Drives—One No. 1 Reeves Class E; two No. 3 Reeves Class E, 4 to 1; one No. 3 Class E; one No. 6 Large Reeves; one No. 10 Reeves, F-3 to 1 with extra disc.

Dryers—48x116.

Exhausters—One Sturtevant.

Fans—3 Hunberry; 2 Perkins.

Jordans—One N & W Monarch, with new shell two Horne; two Emerson, large size, one base; one N & W Pony, with extra plug.

Pulleys—One 98″x34″ face, double arm, modern, Iron pulleys; Cone pulleys for Marshall Drives.

Pumps—One dry suction Knowles 12x22x18; one 1000 gal. Blake Tank pump; two Lawrence Mch. Co.'s Class A 8″ high duty; two 6″ Emerson make; one 4″ Centrifugal; one Type 4 Gould 5″ triplex, self contained. Two Lawrence Machine Co.'s Class A, No. 4, double suction pump for high elevation or for low speed. Thoroughly rebuilt and ready for shipment.

Press Rolls—One pair new, one RC 18x80″; one Gun metal 18x81″; one 16x75″; one RC 15½x73½″.

Rag Cutters—Two No. 2 Daniels; one Perkins.

Screens—4-8 pl. New Success.

Slitters—One 86″ P & J.

Winders—One 86″ P & J; one 100″ P & J; one 112″ M & W.

Wet Machines—One N & W with cut offs, mould 30x52″; two spare moulds.

One set Dillion Doctors for 80″ calender rolls.

MILLS MACHINE COMPANY
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THE CLEARING HOUSE—Continued

MISCELLANEOUS

WANTED—A second hand 80 or 84 inch Fourdrinier paper machine in good condition. In reply state full particulars and price. Address Box 1284, care of PAPER.

Representation is solicited of responsible mill which seeks to sell paper or pulp in this country. Considerable experience and success enjoyed in the industry. Age 34; university training and well connected. Will share expense of a trip to home office of mill interested in interview. Address Box 1289, care of PAPER.

SALES AGENT with ten years' experience in paper mills and several years' selling experience, having steady outlook for considerable straw, chip and test jute, container board tonnage, desires to represent mills on commission basis in metropolitan district; highest references. Address Box 1286, care of PAPER.

TECHNOLOGIST in stained paper field, about 30 years' practical experience, specialist in paper, cardboard and paper board fields. Can furnish formulae. Solve manufacturing difficulties and install new improvements, particularly in the following fields—glazed paper, chromo papers, art printing papers, stained paper, marbled paper, carbon paper, waxed paper, etc. Can secure all materials as well as machines. Regular technical advice given.

WILHELM REINICKE,
34 Melanchthonstr.,
Crimmitschau i.Sa., Germany

GOVERNMENT BIDS

Treasury Department,, Bureau of Engraving and Printing, Washington, D. C., March 1, 1924. Sealed proposals are invited to furnish Dextrine, Oils, Textiles, Dry Colors, Paper Boxes, Paper and Check Paper, during the fiscal year beginning July 1, 1924. The right is reserved to reject any or all bids or parts of bids. Samples of Dextrine, Oils, Textiles and Dry Colors must be received at the Bureau of Engraving and Printing not later than 2 P.M., Wednesday April 9, 1924. Samples of Paper Box Blanks, Paper and Check Paper, must be received not later than 2 P.M. Monday, April 7, 1924. Blank forms with specifications for proposals, giving dates on which the bids for the several schedules will be opened, and further information will be furnished on application to Paul E. Twyman, Assistant Director.

New Type Elevator

The accompanying illustration shows a new type of elevator designed to solve the problem of handling loaded trucks, wheelbarrows, etc., from one elevation to another, in places where the common freight elevator would not be practical.

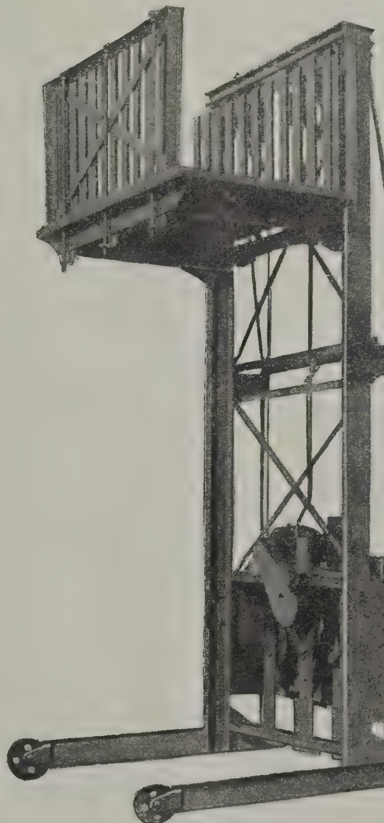
It is especially suitable for serving elevated charging platforms of foundry cupolas, gas generators, grinding, mixing machines, hoppers, etc., for serving mezzanine floors, between two floors, from floor to box cars and between different floors levels.

It may be used for portable or fixed position work.

Standard capacities range from 1000 to 6000 lbs., and platform sizes from 3'—6" to 6'x10'.

Its novelty lies in the following points:

A unit elevator with large platform requiring no support from the building.



A large platform that remains level under the eccentric loading of moving trucks.

An electric control that automatically stops the platform at the high and low points.

An electric brake that stops the platform at a set level regardless of wear.

Control from high or low levels or from platform.

A control that stops the motor and sets the brake from low voltage, failure of current or loose wire.

No mechanical adjustments for safe operation.

No instructions or mechanical knowledge necessary to operate.

The machine is built by New Jersey Foundry & Machine Co., 90 West Street, New York City.

MEETING OF KRAFT BY PRODUCTS ASSN

Interesting Gathering of Members Held in Chicago Recently

A MEETING of the Kraft By Products Association was held in Chicago, Illinois, on Friday, March 8th at the Old Colony Club.

The following members were in attendance:

Mr. O. Bache-Wiig representing Wausau Sulphate Fibre Co.; Mr. E. G. Goodell representing Stevens Point Pulp & Paper Co.; Mr. G. W. Forrester representing Minnesota & Ontario Paper Co.; Mr. J. H. Delbridge representing Falls Manufacturing Co.; Mr. B. T. McBain representing Nekoosa Edwards Paper Co.; Prof. A. H. H. White, Consulting Engineer of the University of Michigan.

Professor White made a report on the laboratory work done to date on his proposed method of recalcinating lime and reclaiming chemicals in one operation, and it is very probable that within a short time the reclamation of by-products in the connection with the production of kraft pulp will be an important factor.

After final figures and data is collected one of these plants will no doubt be erected at one of the above Company's plants for use in the recalcining and reclaiming of lime.

Much interest is centered on the installation of such a plant which will allow the reclaiming of valuable by-products now lost to the industry.

B. T. McBain of the Nekoosa Edwards Paper Company, is Chairman of this association, and John E. Alexander of the same company is Secretary and Treasurer.

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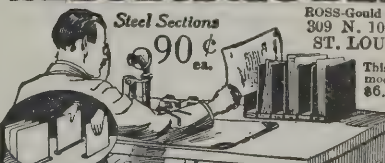

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Volume XXXIII, No. 23

PAPER

March 27, 1924

The Magazine of the Paper Industry

RUSSELL C. HUGHES, Publisher

THOMAS J. KEENAN, F.C.S., Technical Editor

ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

SPRING, with its exuberance, is here. It is here on the calendar and in actuality, judging from the weather during the last few days.

With it comes hope springing eternal—and annual conventions. The fag end of March is now with us. April is already preparing for its grand entree. It totes along with it what is expected to be one of the livest and biggest annual conventions of the American Paper and Pulp Association that has even seen the light of day.

The rush of activity at the Association headquarters in 41st Street, New York, is a criterion that the convention is going to be something unusual, both in scope and interest. While it is not known how many speakers will "point with pride" and "view with alarm" at the various gatherings of the big week, it is certain that those selfsame addresses will take on a brilliancy not customary. One reason is that foreign competition is causing a dangerous situation. Another is that because business is not so good, drastic remedies will be suggested. Still another reason is that an exceptional group of orators are on the programs.

There is only one place for a mill official or executive the week of April 7, and that is at the convention.

* * *

The impression has arisen that because the paper industry of America is beginning to take cognizance of the fact that quantities of paper are coming into this country under misclassification or in violation of the Anti-Dumping law, the industry is criticizing the administration of the customs in the United States.

Such is not the case at all. The paper industry of America has the greatest respect for the customs officials, but as PAPER stated last week, these officials are only appraisers and are not detectives. They are doing their work well. The paper industry only wants to work with them—not against them.

* * *

The oil situation continues to ooze over everything. Business doesn't know where the next splash will fall. Finances, the delicate pulse of the country, scarcely knows how to beat. The uncertainty of the outcome is clogging the wheels of progress. And the paper business suffers with the general debility.

* * *

The annual number of the *Pulp and Paper Magazine of Canada* is a splendid piece of work. It contains some 240 pages and is both typographically excellent, and is textually valuable. It is profusely illustrated, the faces of many of the men who are responsible for the vast growth of the Canadian pulp and paper industry, appearing in halftone. The advertising pages contain many color ads, some concerns taking many pages to tell their comprehensive story. PAPER offers its congratulations to Mr. J. N. Stephenson.

* * *

Which is a gentle reminder that PAPER itself is going to have a Convention Number that will be worth while. We are putting special effort on it to make it something that will be examined time after time doing the year, which will be attractive industrially, technically, ethically and graphically.

By all means have your advertisement in that issue. For almost everybody else will.

* * *

And, don't forget to come around and see us at the convention.

RUSSELL C. HUGHES,
Publisher.

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For all paper making purposes

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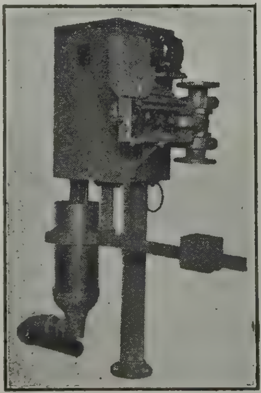

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You used the TRIMBEY AUTOMATIC CONSISTENCY REGULATOR

More than 210 in use - - - Ask us about it

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TRIMBEY MACHINE WORKS, Glens Falls, N. Y.

Bacteria That Dissolves Paper

An Account of Certain Fresh-Water Micro-Organisms That Cause Rusty Water And Spoil Pulp in the Beater

By WM. H. GESELL

At the March meeting of the Society of Chemical Industry, held at the Chemist's Club, New York, the accompanying paper attracted considerable attention. Imagine the development in the reserve water supply of a mill making bread wrappers of a species of bacteria that abstracts iron from the water and grows upon it. Magnified, the iron bacterium resembles a tall narrow vase filled with marbles. The outer sheath, of a mucilaginous substance, secretes the iron. Frequently papermakers are surprised by the appearance on the machine of a brown sludge which ruins that run of paper. It is noticed usually when a change is made in the weight of the paper or when a sudden increased demand is made on the water supply.

My discussion this evening will be about one of the most common substances used in a chemical plant and incidentally one which happens to be the world's most common substance. It is water, and although I am sure that what I shall tell you will not be new to many of you, I am sure it will be of interest, seeing that so many of the difficulties in paper mills and chemical plants are caused by impurities in the water.

Quite frequently when I have heard my friends discussing difficulties they have had in their respective plants, such difficulties as impure products, dirty chemicals, spoiled textiles in bleacheries, dirty spots on the paper in paper mills, I have mentioned the experiences I had some years ago. My experience seemed so new to them that I felt a few minutes discussion on this subject would be interesting.

Iron Bacteria

I refer to the capacity of most classes of fresh water micro-organisms of abstracting iron from water, and collecting it in the form of ferric hydroxide on their surfaces. Certain protozoa, algae and htread fungi have this property. It is also characteristic of certain representatives of each class of bcteria and in these cases the phenomenon is very marked because the bacteria not only collect the iron very rapidly but have an excellent structure for storing the ultimate product — ferric hydroxide — in the mucilaginous sheaths which surround their bodies. This deposition is often so great that it exceeds the volume of organism itself. This class of iron itself. This class of iron bacteria exhibits a higher phase of development than is met with in the vast majority of bacteria; they lead a communal life and for that reason multiply very rapidly.

First Experience a Puzzling One

My first experience with them was a most puzzling one. We had a deep well the water of which was used for the drinking fountains in our plant. It had a receiver with an opening on top and so arranged that the excess water would run back into the well. Quite frequently the water would become rusty and a few days later a distinct butyric-acid-like odor would be noticed. Examination revealed iron bacteria. We realized that these iron bacteria were wind-borne and by covering the receiver and repiping so that the overflow did not go back into the well, we soon overcame this difficulty. The rusty water was the accumulation of ferric hydroxide in the membranes of the bacteria and the odor was the decomposition of the sheath.

Sudden Appearance on Paper Machine

I have experienced this same type of thing in bleacheries where the water is rich in organic matter; in plants where the water is obtained from a mountain stream; and particularly in a paper mill. Quite frequently our reservoir woud become brown in a day. Often after carefully bleaching and washing the pulp it would suddenly spoil in the beaters and the discharge water be brown although the reservoir was colorless. Or very often sudden rushes of brown sludge appeared on the paper machine, particularly when the weight of paper was changed or when a sudden demand was made on the water supply.

Bacteria to Blame, Not Corrosion

Many chemists and engineers blame rusty water on corrosion in the pipe or even electrolytic reactions. But invariably on color examination, except in boiler feed water conditions, we found these rusty waters to be caused by iron bacteria.

As I have said before some iron bacteria can change the character of the water in twenty-four hours, that is over Sunday; others multiply in attachment to iron pipes and so accelerate the formation of incrustation as to necessitate the installation of new pipes. Particularly common varieties are:

Common Varieties Water Bacteria

1—Leptothrix Ochracea.

2—Crenothrix polyspora is dreaded on account of the suddenness of its attack. It will take up manganese as readily as iron.

Crenothrix polyspora is the one which produces the offensive odor.

Achieves a Calamity Growth

on occasions this organism achieves a calamity growth when multiplication is so rapid that its results are visible to the naked eye in the form of a transformation of the normal color of the water into a reddish brown. One sees countless specks which are coated and permeated with a ferruginous compound. Growth is greatest in April, in the open, but will occur in a plant and in pipe lines, whenever temperature and conditions conducive to its growth are present.

These bacteria multiply rapidly. If a single thread produces 100 reproductive cells in twenty-four hours, and if they all germinate this process continues unchecked.

In 1 day we have 10_2 filaments.
In 2 days we have 10_4 filaments.
In 4 days we have 10^{1}_{6} filaments.

Other less common ones are:

Cladothrix Dichotoma
Clonothrix Fusca
Gallionella ferruginea

How They Grow

All iron bacteria will remain alive in water until desiccated. The minimum and maximum temperatures of their growth are respectively 5° C., 23° to 25° C., 40° C. They grow in darkness or in diffused daylight. They grow better the greater the amount of oxygen in solution. They all have a mucilaginous sheath which will adhere anywhere and which is an excellent apparatus for retaining the iron.

These bacteria are usually present in waters containing organic matter and of an acid character due to the presence of carbonic acid. Such acid waters usually have iron in solution. There is a further assumption that the organic matter may cotain iron. In the iron waters the organic matter is absorbed and digested by the iron bacteria and is held in the sheath and oxidized to ferric hydroxide.

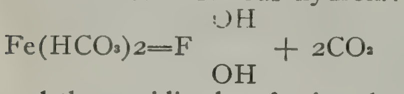
The reactions which occur may be considered as follows:

$Fe + H.OH + CO_2 = FeCO_3 + H_2$

and absorbs more $CO^2$and the Ferrous Carb. is changed to bicarb:

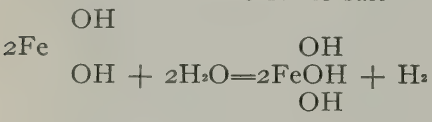
$FeCO_3 + HOH + CO_2 =$
$Fe(H.CO_3)2$

then bicarb. to ferrous hydrox.:



$$Fe(HCO_3)2 = F\begin{matrix}OH\\ \\OH\end{matrix} + 2CO_2$$

and then oxidized to ferric salt



$$2Fe\begin{matrix}OH\\ \\OH\end{matrix} + 2H_2O = 2Fe\begin{matrix}OH\\OH\\OH\end{matrix} + H_2$$

How to Remove the Trouble

Various remedies are available—carbon dioxide is prevented from going into solution or is rendered inactive by the addition of the bicarbonates of lime, magnesia, or copper. Maintaining an alkaline reaction of the water wiss prevent consequent calcareous deposition in the pipes, also acids. And of course the removal or organic matter will starve the bacteria and remove the trouble.

Bacteria That Absorb Other Metals

Might I add one other thing which has nothing to do with iron bacteria. There is a group of zygnemaceae which absorb aluminum, iron and chromium. There is also a group, and in this same paper mill where we encountered so many difficulties in the water, we managed to produce a particularly tinny sheet of paper owing to the presence of organisms which had the power of binding silicates.

* * *

New England Steady

The New England market shows steadiness in chemical pulps but there was a sharp decline in domestic mechanical pulp with quotations dropping as low as $28 f.o.b. mill. Cheaper pulpwood, lighter demand, and satisfactory operating conditions throughout New England are reported. Foreign chemical pulps remain unchanged.

Boston pulp interests are at present actively engaged in a controversy with the Shipping Board over the Board's removal of Boston as an entry port for the steamers from Scandinavian ports in the woodpulp trade. There are at present 100,000 tons of chemical and mechanical woodpulp booked for shipment via Boston from Norway alone and over 100,000 tons of pulp came to Boston last year from Scandinavian points, with approximately half that amount to Portland, Me.

* * *

New Mill Completed

The new mill for the manufacture of tissue paper which has been in the course of construction at Yaleville, north of Norwood, by the Martin Pulp and Paper Company since the fall of 1922, is practically completed, and the first machine installed started up for a try out last week with favorable results.

The plant consists of a beater room 31x72, machine room 132x60, boiler room 30x48, and coal pit 30x20 feet. The basement is 12½ feet high and the machine room 20 feet. 300 tons of steel were used in the construction.

The mill is equipped with two 1,000 pound Horne beaters, a Noble & Wood jordan and a 94 inch single cylinder B. & S. tissue machine. The machine is speeded to manufacture 425 feet of tissue per minute, which will mean about five tons of nine pound tissue every 24 hours. The power is directly connected twin cylinder variable speed engine, connected to two boilers of 150 horse power each.

The proprietors of the mill are the Martin Brothers, sons of the late O. E. Martin of Norwood, and well known in Potsdam.

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

W. G. DAVIS,

Delmar, N. Y.

What A Difference

At the English Stationers' Social Society dinner held last month in London, one of the speakers told this story, which may strike a responsive chord in some of our own paper salesmen:—

"One evening in a well-known commercial hotel in the Midlands a paper man sat down to dinner apparently well satisfied with himself. He first sampled an appetizer, then went through the whole course including soup, fish, meat, sweets and cheese. Then he indulged in a bottle of wine, followed by coffee and a good cigar. Opposite him sat a modest gentleman who ordered buttered toast and coffee. The prosperous man turned to his table companion and said, 'I suppose you are on special diet, old man.' The moderate diner replied weakly, 'No, only on commission.' "

* * *

Eaton & Dikeman Report

The balance sheet of the Eaton & Dikeman Co., of Lee, Mass., as submitted to the corporation department, shows a total of $444,893. The company has a capital of $90,000, a surplus of $127,272, machinery listed at $114,237, real estate at $81,993, merchandise at $205,380 and accounts receivable at $25,887.

* * *

To Build Pulp Mill

The Farlinger Company of Sioux Lookout, Ont., will build a pulp mill in the near future, and eventually add a paper mill. Engineers are already at work to develop the required water power on the English River. The company is capitalized at $2,500,000.

* * *

With Allan Company

Thomas J. Boddy, formerly of the Buntin Reid Paper Company, Toronto, and a well known paper salesman, has joined the staff of the Allan Paper Company, Simcoe Street, Toronto, and will take the place of the late C. W. Price as city traveller.

DECLINE IN PULP IMPORT REPORTED

Receipts 26.5 Per Cent Less in Januar Than in January, 1923

IMPORTS of wood pulp and other pap base stocks into the United States du ing January, 1924, declined 26.5 per cen in volume and 20 per cent in value com pared with the same month last year, a cording to Commerce Department figure

The greatest decreases were in receip of bleached sulphite, which dropped 30 p cent in quantity and 33.5 per cent in valu and of unbleached sulphite which showe a loss of 21.8 per cent in quantity and 12 per cent in value. Of the chemical pulp imports of unbleached sulphate (kraf show the smallest loss, receipts durin January amounting to 19,124 tons, value at $1,152,551, a decline of only 12 per cen in quantity and 10 per cent in value com pared with January, 1923. Imports bleached sulphate were almost negligib amounting to only 88 tons, valued at $5, 774, a loss of approximately 95 per cen compared with last year.

Imports of mechanical groundwood f off 45.6 per cent in quantity and 31.5 p cent in value, while imports of rags we approximately the same as last year, an imports of old rope and similar stock sho a decrease of 13 per cent in volume.

Canadian Exports During 1923

Exports of paper and board from Ca ada during the calendar year 1923, we valued at $93,770,957, an increase of $16, 945,064, or 25 per cent over the previou year. During the same period 875,35 tons of wood pulp, valued at $47,027,49 were shipped abroad, an increase of 7 p cent in quantity and 14.6 per cent in valu compared with 1922. The most importan gains were registered in exports of news print to the United States, which exceede those of 1922 by $20,966,939, and also i exports of wood pulp and paper board t the United States, and of book, bond, writ ing, and wrapping papers to Australi New Zealand, and Japan.

* * *

Modern Methods Shown

A recent issue of the Sunday Oregonian Portland, Oregon, devotes a full page t photographic views taken by H. M. Brow at Youngs River Falls camp of the Crown Willamette Paper Company, twenty mile south of Astoria, Oregon. It shows th modern methods utilized by the big pape company in its logging work at this cam

There are eight of the views. Two show the log-loading with the use of moder tackle and a donkey engine; one toppin a spar tree preliminary to attaching tackl to it; two pictures show the use of a skyline in logging operations; one gives a panoramic view of the logging operations with the logging camp in the foreground; and there are two views of log-loaded cars one of these is of a trainload of logs and the other is of one mighty log containing 11,680 feet on a flatcar. Two men shown in this last picture appear like Lilliputian men when compared with the Oregon giant log by which one of the men is standing.

* * *

A Rare Bid

The Municipal Council, Haverhill, Mass., in opening six bids for the collection of waste paper throughout the city found a most singular announcement by one Albert Robertson, who agreed to pay $25 more than the highest bidder and an additional $2,000 for the contract. The other five bids for the privilege ranged from $105 to $1,500. The Municipal Council will authorize the collection of waste paper from householders by contract.

NEWSPRINT DEMAND IS HOLDING UP WELL

Monthly Summary of News Print Service Bureau Has Favorable Report

THE newsprint situation continues favorable. The demand is steady, and shipments are well up to production, is the sense of the report of the February newsprint statistics by the News Print Service Bureau.

The report says:

All Companies Reporting

The 46 United States companies reporting produced 117,322 tons and shipped 115,427 tons, the 20 Canadian companies produced 111,664 tons and shipped 109,901 tons, making a total production of 228,986 tons and shipments of 225,328 tons in both countries. These companies also produced 1,226 tons of hanging, of which 406 tons were made in Canada. Production exceeded shipments in United States by 1,895 tons and in Canada by 1,763 tons. Stocks at the end of February totaled 30,288 tons in the United States and 18,195 tons in Canada, a combined total of 48,483 tons which is equivalent to 5.1 days' average production.

Comparative Reports

Comparing production of 55 identical companies during the first two months of 1924 with that of the same period of 1923 the United States companies show an increase of 4,244 tons or 2 per cent., the Canadian companies an increase of 30,516 tons or 16 per cent. and the total of all these companies shows an increase of 34,760 tons or 8 per cent.

The average daily production of newsprint paper by these 55 companies reporting for February amounted to 92.9 per cent. of the average daily output during the three months of greatest production in 1923, with allowances for changes in machines.

* * *

Paper and the Newspaper

The Denver *Post* does publish a very large edition every Sunday, and a good sized edition every week day. Many other newspapers do likewise, but not many go into the details as concerns the paper feature.

Here is what the editor of the post says:

"Twenty-five acres of green forest were required to make the 125 tons, or 50 acres of newsprint used in printing our Sunday edition. It took 1,750 man hours of labor, 875 tons of steam and 145,000 kilo-watt hours of electrical energy to unroll that forest, converting a twelve foot log into a half-mile sheet of paper every three minutes. It took fifty years to grow the trees which, in the form of paper, shot through the mammoth presses of the *Post* in a few hours.

Not so many hundred years ago this marvelous transition of a tree into a newspaper, telling what all the world is doing, would have been looked upon as sorcery or some kind of black magic. The human brain has changed as much since those dark ages as a tree changes in becoming a newspaper. You may wonder if twenty-five acres of forest is not an extravagant price to pay for even one great newspaper. Statisticians figure all the wood used for the paper industry is only 4 per cent of the total cut and only one nineteenth of that consumed by forest fires. In 1923, more cords of wood were cut for firewood than the paper and pulp industry has used in the last fifty years.

The trees consumed by forest fires are lost. That benefits nobody. The trees used for newspapers are an educational force unequaled by any other in the world. What buys education is never wasted. Ignorance is the real extravagance.

The reforestation work which is being carried on in Colorado continuously is similar to that which is being done by the big paper mills. They have an eye to the future. One of the largest mills is planting 5,000,000 trees annually. Another never cuts the mother conifer,—the trees from which the seeds come."

* * *

BAKER GIVES ADVICE TO MASSACHUSETTS

Says State Could Use Forest Land To Raise Revenue

HOW Massachusetts could use its forest lands to meet the high and increasing cost of government was pointed out before the Kiwanis Club today by Dr. Hugh P. Beker, executive secretary of the American Paper and Pulp Association.

"Massachusetts state taxes have increased," he said, "from $7,988,000 in 1919 to $18,513,000 in 1922. The cost of government increased from $17,052,000 in 1913 to $42,967,000 in 1922, and the total per capita tax, federal, state and local is now $124.41. On the other hand, the state has 3,000,000 acres of forest land, only a little of which is actually producing trees. And yet this area, if devoted to the production of timber—the same timber which once provided the raw material needed by the state for building and industrial use, could once again supply the state in large part with the timber it needs, and save the great cost of transportation of the lumber now brought in from the south and the Pacific states.

"Out of a total land area in the state of 5,321,000 acres, only 908,000 are under the plough, and the state owns only 65,000 of the 3,000,000 acres of forest land. By developing its forests Massachusetts could bring back its wood using industries, and woodworking communities, provide more permanent springs and streams and thereby have fewer floods and droughts, have more fish and game, give the people forest playgrounds, utilize the now idle acres for financial profit, and thereby help build up the agricultural industry.

"Here in Springfield is the great fine paper manufacturing district—with Holyoke the greatest center of fine paper manufacturing in the world. More than 95 per cent of all the paper produced in this country is made entirely or in part from wood. By restoring the pine and hardwood forests it would be possible eo relieve the drain on northern New England and New York, so that those states could provide the fir and spruce needed by the paper mills. The paper mills are often charged with devastating the forests, yet they use only 4 per cent of the total wood cut of the country. As a matter of fact, the paper industry is today doing more than any other wood using industry to promote forestry."

* * *

Forest Changes Name

What was Battlement national forest, located on the western slope of the divide around Grand Junction, Colorado, has been renamed by a proclamation signed by President Coolidge. The new name is derived from a great natural geographic feature, the mesa, which is visible for miles around that section, hence Grand Mesa national forest.

The Grand Mesa forest covers 659,863 acres, the section abounding being a wonderful fruit raising country. Water from 125 lakes is used for irrigation.

MORE WOODPULP CONSUMED IN 1923

Report from Identical Mills to the Government Shows a Splendid Increase

THE Department of Commerce announces that according to preliminary statistics compiled by the Bureau of the Census, acting in co-operation with the Forest Service, United States Department of Agriculture, the total quantity of pulpwood consumed by 127 mills was 3,247,165 cords in 1923 as against 3,033,543 cords by the same mills in 1922. The production of woodpulp by these mills in 1923 amounted to 2,079,772 tons as against 1,883,827 tons in 1922. These plants consumed more than 54 per cent of the total quantity of pulpwood used in 1922 and produced nearly the same per cent of the total quantity of pulp.

In this comparative statement, which covers nearly one half of the total number of active mills, 20 states are represented. The returns indicate that the total figures for 1923 of consumption of pulpwood will exceed those of 1922 by about 7 per cent, predicating a total consumption of approximately 5,940,000 cords of wood, providing the percentage of increase holds true for the mills which have not reported.

Figures for 1923 are preliminary and subject to change if necessary.

Comparative statement of 127 identical mills follows:

	1923	1922
Cords of pulpwood consumed	3,247,165	3,033,543
Tons of woodpulp produced	3,079,772	1,883,827

* * *

Compare Glue and Casein

A preliminary printing test was recently carried out at the Government Printing Office on glue-bound papers as compared with those bound with casein. No printing difficulties of any kind were encountered, the glue-bound papers giving as good results as the casein-bound ones. The test indicated that no modification of ink is necessary for printing glue-bound papers, and that the adhesive quality of the glue is satisfactory. It is planned to make more extensive printing tests after the coating process has been further improved.

Ten additional machine runs were made during the month in order to obtain more information concerning the selection of paperstock and clay as well as the elimination of foaming of the coating mixture, which causes pinholes. Some progress was made in connection with laboratory tests to determine the waterproof quality of the coating.

* * *

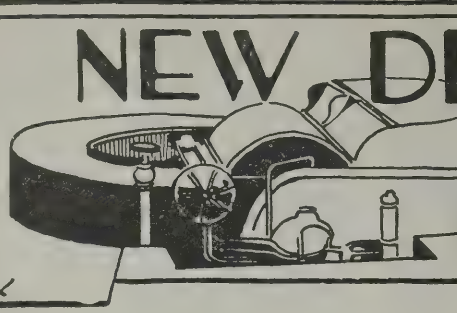
To Manufacture Paper

The Blake & Higgins Company, a new organization, has been issued a charter of incorporation in Vermont and will locate at Brattleboro, Vt., and operate in Windham County. The company will manufacture paper and kindred articles. The new company has a capitalization of $300,000, of which $100,000 will be preferred stock and $200,000 common. The incorporators are Herbert G. Barber, Frank E. Barber and C. Menzies Miller, all of Brattleboro.

* * *

New Firm Started

The Bay State Scrap Iron & Paper Company, recently organized to deal in paper stock, is located at 175 Marion Street, East Boston, Mass.



NEW DEVELOPMENTS IN PAPERMAKING

Determination of Lignin in Wood

In Cellulosechemie, volume 4, pages 109 to 113, there is contained a critical examination of the Schmidt and Graumann method of determining the percentage of lignin in wood. It is shown that this method in which chlorine dioxide is employed is inaccurate. It is shown that the aqueous solution of chlorine dioxide does not attack albuminous matters, so that in addition to mineral substances (about 0.2 percent.), the so-called "skeleton-substance" contains wood protein (about 0.8 percent.), an error of one percent. in the determination of carbohydrates being therefore possible. A more important error is also possible, since wood gum, containing xylose, mannose and chiefly dextrose, may be removed from the skeleton-substance by the treatment described by Schmidt and Graumann.

* * *

Beating Engine

An interesting improvement in the design of beaters, which consists essentially in the transverse sub-division of the bedplate into sections of one or more bars, is patented in British Patent No. 208,371, the details of which are seen in the accompanying illusrtations.

In the ordinary beater the pulp is circulated over the top of the bed plate and the beater roll in one continuous mass, to be ultimately discharged by the bars of the roller into the trough.

However in the improved design of beater the bedplate is divided into groups or sections of one or more bars each and the pulp is circulated through the spaces between the bars or groups of bars of the bed-plate. This arrangement ensures that each bar or group of bars in the bed-plate is supplied with pulp for beating, so that the pulp supply is efficiently and more uniformly distributed to the several bars of the bed-plate.

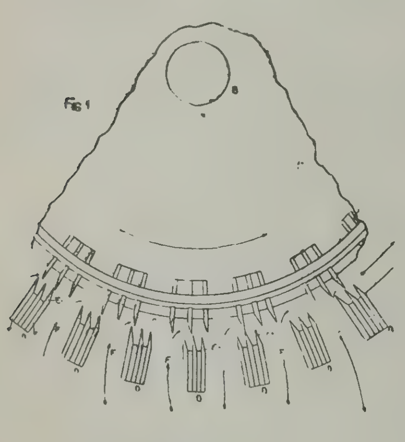


Fig 1

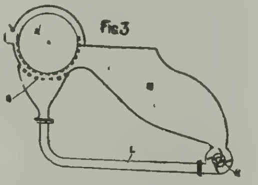


Fig 3

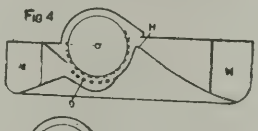


Fig 4

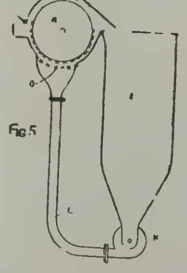


Fig 5

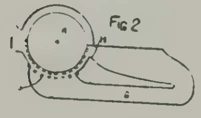


Fig 2

The beater roll may be fixed or adjusted to and from the bedplate in the known manner and the trough may be of any suitable shape. The beater roll preferably delivers the pulp over a curved guide to the trough which may have a slightly sloping bottom towards the back of the bed-plates, so as to facilitate the circulation of the pulp.

By the use of a pump system of circulation the bars or groups of bars may be situated in any position on the periphery of the roll, that is to say either below or above the roll or in any intermediate position.

Figure 1 shows the detail of a sub-divided beater bed-plate while the other figures 2, 3, 4 and 5 show the application of this type of beater roll to various styles of beaters.

In figures 1 A is the usual beater roll, B the shaft and C the bars of the beater roll which act in conjunction with the bed-plate. The bed-plate is divided itno seven sects of bars D, each consisting of three bars E. Any number of bars may be used in a group. There is a gap F between each set of bars. The bars are tapered at their inner edges at E. This system of bars extends all around the circumference of the beater roll. The flow of pulp is indicated by the arrows.

In figure 2 the beater roll is seen applied to a beater in which the pulp is contained in the trough G, circulated up through the bed-plate D and discharged by the bars of the beater roll A over a guide H which divides the trough G. In figure 3 the pulp is shown circulateh by the pump K through the pipe L and up through the bed-plate D, returning throuyh the trough M. Figure 4 shows a hollander with an annular trough N, the bed-plate D being disposed just below the level of the pulp in the trough N, to which the pulp after passing through the bed-plate D is returned, the pulp being discharged over the guide H by the oars of the heater roll A.

* * *

Drying Cylinders

In British Patent No. 208,732 there is described an improved arrangement of the draining bucket of drying machines that are internally heated by steam. The object is to provide a means for carrying off the water of condensation through one of the hollow trunnions of the cylinder. The improved bucket is cast integral with the end of the cylinder. In a modified construction of the bucket, the discharge ends of the pipes which collect the water do not cross the axial line of the trunnion as heretofore, but stop short of it to allow for a partition plate arranged longitudinally to the axial chamber and in line with the axis of the trunnion.

The water is picked up by each end of the bucket as the cylinder revolves and is directed into one of the pipes and discharged into the central chamber and then out through the hollow trunnion. The other discharge pipe is at this time in line with the upper part of the bore of the trunnion so that no water can return from it to the cylinder. The same conditions occur when the positions of both pipes are reversed. In a modified construction the pipe ends terminate a little distance short of the axis of the cylinder, and leave space to allow the water to escape on to the partition and out through the trunnion.

* * *

Making Copying Paper

Five parts by weight of a potash soap are neutralized with concentrated acetic acid. Then there are added two parts by weight of glycerine, 26 degrees Be, and to this there are also added one part by weight of melted grape sugar and a half a part by weight of potassium bichromate. When the surface of the paper is coated with a thin coating of this very difficulty volatile mass, a very effective copying paper is secured. The paper which may be made in any thickness suitable to the purpose to which it is going to be put can be manufactured in the translucent condition by varying the ingredients that are used in making it or else it may be rendered transparent with the aid of oil. The process is patented in German patent No. 388,103.

* * *

Improved Hair Felt

The improved hair felt, patented in British Patent No. 208,610, has a warp and a cotton weft. It is so woven that the hair is on the surface and carries the pulp. The felt is far more durable than one composed of cotton, which is soon destroyed by the deleterious matter in the pulp.

Substitutes for China Clay

Claims for Superiority of California Talc over Canadian Talc Considered by Author of Article on Uses of Canadian Talc in Papermaking—Question of Fineness of Product is One of Grinding, He Says

THE reproduction in Paper for January 31, 1924, of a dissertation by William C. Lodge on the use of Canadian talc for papermaking, which was presented by him at the annual convention of the Technical Section of the Canadian Pulp and Paper Association in Montreal, has attracted the interested attention of several producers of American clay and talcs.

From the foothills of the Sierra Nevada rangs of mountains, leading to far-famed Mt. Whitney, we have received a communication in which the writer asserts the superiority of the talcs mined there to those of Canadian origin. This was brought to the attention of Mr. Lodge, who has been good enough to comment as follows:

"At the time I wrote the paper published in Paper for January 31, I was interested in talc as a substitute for china clay, in view of the fact that we are producing talc in Canada, while all the china clay is imported.

"With reference to your correspondent's claim that the California talc is finer than the Canadian article, I think it is entirely a question of grinding. I believe that Canadian talc is produced in as fine grades as anywhere in the world. In fact, the bulk of it, as the present time, goes to the United States. I believe that reference to my paper will make this point sufficiently clear.

"For the purpose of our tests we used different grades of talc, using the coarest grade that was suitable for the purpose we had in hand. For instance, with blotters we used a talc giving a residue of 4% on a 200-mesh sieve. On the other hand, in newsprint and fine papers, the talc used carried less than 1% residue. In connection with the residue itself, this consists entirely of unground talc particles and not

"So far as the respective merits of Canadian and California talc is concerned I do not, at this writing, feel qualified to give any opinion. Naturally every manufacturer claims that the article he makes is the best on the market, bar none. Offhand I should say that there would be very little to choose between them. As I have stated above, Canadian talc can be ground, and is ground, to any degree of fineness desired.

"It would seem to me that it would help the talc producers generally if the advantage of talc *per se* were emphasized rather than emphasizing the relative merits and demerits of the different brands. Rightly or wrongly a great many of the paper manufacturers entertain strong prejudice against the use of talc at all and it would be well to get some line on the reasons behind these opinions and if possible, overcome their objections."

It will be of great interest to paper manufacturers generally to know that a talc is obtainable in California such as is adapted for use in papermaking. The talc mined in Eastern Canada and in Northern New York must be of quite a different geological formation. We have accordingly asked our California correspondent to send particulars of the varieties of talc that are mined in California, together with an account of their chracteristics, chemical constitution, grit, color, etc. It is hoped that this will reach us in time for publication in the Annual Convention Number of Paper, to which Mr. Lodge has promised to contribute an article on the talclays of Canada.

Notes of the New York Trade

Owen Sheperd, treasurer of the International Paper Company, has been elected treasurer, a director and a member of the finance committee of the Continental Paper and Bag Mills, succeeding Chester W. Lyman, who resigned.

* * *

L. B. Steward, formerly secretary and treasurer of the American Paper and Pulp Association, and widely known in the paper trade, has been appointed general manager of the Bayless Manufacturing Corporation, paper manufacturers with mills in Austin, Pa., and offices in New York City.

* * *

James Rosenberg, formerly president of the American Woodpulp Corporation, of 347 Madison avenue, New York, which firm recently filed schedules in bankruptcy, is now associated with M. Gottesman & Company, Inc., wood pulp importers of 18 East Forty-first street, New York.

* * *

Fred Enders, of Bulkey, Dunton & Company, wood pulp and paper importers and dealers of 75 Duane street, New York, sailed on the steamship Olympic March 22 for a several months' business trip to Europe. Mr. Enders will visit Scandinavia and other countries in Europe. During his absence V. R. Hann has charge of the wood pulp department of Bulkley, Dunton & Company.

* * *

The Bishop Paper Company, jobbers of 541 Pearl street, New York, has announced that J. W. Haraux, long known to the paper trade as an executive, is now associated with that company as an officer and director.

* * *

F. H. Luning, dealer in paper mill supplies of 436 Canal street, New York, will move on or about April 1 to new quarters at 592 Smith street, Brooklyn. The building Mr. Luning is now occupying is required for necessary construction work on the new vehicle tunnel connecting New York and Jersey City under the Hudson River. Mr. Luning's new location in Brooklyn will provide increased facilities for storing, grading and packing paper makers' supplies.

* * *

David Sternhardt, Burn Budd and Stuart Eaton have been appointed trustees of the American Corporation, of 347 Madison avenue, New York, under a joint bond of $10,000. The corporation has filed a schedule in bankruptcy, placing its liabilities at $221,774 and its assets at $321,587, the main items being notes $122,557, accounts $110,497, stocks $31,412, and insurance $39,512. There is a fairly large number of creditors named, most of whom are banks.

* * *

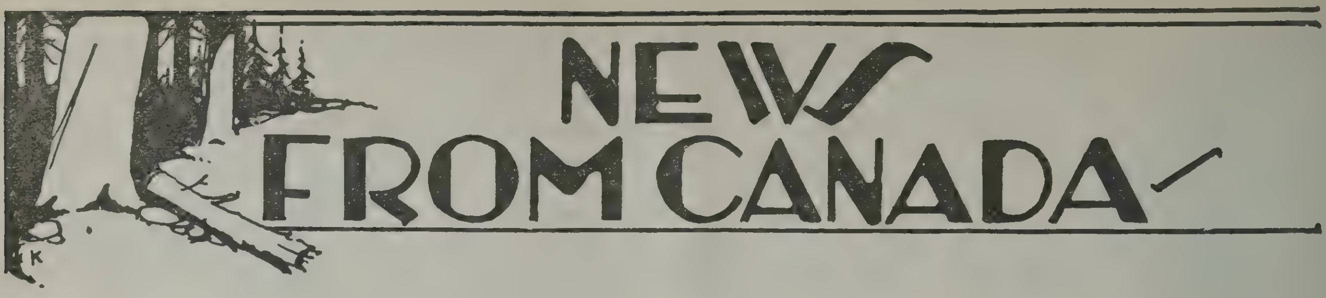
The partnership between George R. Kelsey, Raymond E. Risden and Robert S. Cooper, carrying on a paper jobbing business under the name of Kelsey, Risden & Cooper at 156 West Broadway, New York, has been dissolved by mutual consent. Mr. Cooper has sold his shares in the business to Messrs. Kelsey and Risden, who will continue same.

* * *

The Specialty Paper & Twine Corporation was incorporated several days ago under New York State laws to conduct a jobbing business in New York City in paper and twine with a capital of $10,000. The incorporators were I. H. Smith, C. J. Pintel and I. Schlanger.

* * *

The Wilson Paper Stock Company, one of the largest packers of waste paper in New York City with officers and warehouse at 452 West Nineteenth street, has taken over the five-story building at 228 West Houston street. The building adds about 16,000 square feet of floor space to the present facilities of the concern, which was obliged to secure more warehouse room because of its rapidly growing business.



NEWS FROM CANADA

CANADA TO STAND OUT IN BRITISH EMPIRE EXPOSITION

Model Groundwood Pulp Mill Will be One of the Features of the Exhibit This Year

CANADA'S pulp and paper exhibit at the British Empire Exhibition, which is to be held in London next summer will not only be unique, but one of the most striking features of a really great show. In the Natural Resources display there will be a model groundwood pulp mill with the forest background, a running river with a waterfall, a boom of logs, with the mill, townsite, railway sidings and wharfs. In the industrial exhibits of the Canadian pavilion the largest single exhibit will be that of the pulp and paper industry, which will occupy 1,000 square feet. It consists of five booths, each of which is divided into two showcases. The expenses in connection with the exhibit are being borne by 29 Canadian firms.

Those exhibiting or cooperating in it are: Howard Smith Paper Mills, Limited, Montreal; Barber Ellis, Limited, Toronto; Price Brothers & Co., Limited, Quebec; Laurentide Company, Limited, Grand Mere, Que.; Brompton Pulp and Paper Company, Limited, East Angus, Quebec; Abitibi Power & Paper Company, Limited, Montreal; J. R. Booth, Ottawa; Donnacona Paper Company, Donnacona, Que.; E. B. Eddy Company, Limited, Hull; St. Lawrence Paper Mills, Limited, Three Rivers; Spanish River Pulp and Paper Mills, Limited, Sault Ste Marie; Powell River Company, Limited; Belgo-Canadian Paper Company, Limited, Shawinigan Falls; Interlake Tissue Mills, Limited, Toronto; Provincial Paper Mills, Limited, Toronto; Canada Paper Company, Ltd., Windsor Mills, Que.; McLeod Pulp and Paper Company, Limited, Liverpool, N. S.; Gulf Pulp and Paper Company, Limited, Quebec; Riordon Company, Limited, Montreal; Spruce Falls Company, Limited, Kapiskasing, Ont.; Canadian Paper Board Company, Limited, Montreal; Dominion Envelope and Carton, Limited, Toronto; Wayagamack Pulp and Paper Company, Limited, Three Rivers; Industrial and Educational Publishing Company, Limited, Gardenvale, Quebec; Canadian Vegetable Parchment Company, Limited, St. Catherines; Garden City Paper Mills, St. Catherines, Ont.

The Newsprint department has received special attention. Among other things a collection has been made of papers printed on Canadian newsprint, which will be displayed in suitable form, together with a sign giving some information respecting the size and growth of the industry. The increase in production will be set forth by a row of rolls of standard newsprint of various heights and contributed by some of the exhibitors. There will also be a display of newsprint in the Natural Resources exhibit. This will consist of one roll of paper 18 feet long which will require a searchlight playing on the top of it in order to show its extreme length as it stands on end. Around this will be arranged three rolls 12 feet in length, these representing the widest and fastest machine in operation anywhere. There will also be other rolls showing the normal size of the newsprint roll as it reaches the publisher.

Tissue paper manufactured products will be attractively displayed. There will also be exhibits of towels, tablecloths, and other novelties. This branch is becoming an important one in the Canadian papermaking industry. A joint exhibit of pulp, paperboard and other wood fiber products will be another very fine feature. A series of graduated lengths of pulpwood sticks will show the increase in consumption of pulpwood by Canadian mills; a series of rolls of bleached sulphite will also show the increase in the production of sulphite fiber. Products of a new industry in Canada, that is from cellulose silk manufactured from pulp, will also be shown.

One of the exhibits representing the manufacture of envelopes and like products will show a distant mountain and lake scene with forests in the middle foreground, also a pulp and paper mill, a box factory and a line of automobiles carrying the products to the steamer.

A huge map of Canada six by nine feet will show with numbered buttons each of a color representing the kind of pulp and paper made, the location of Canada's pulp and paper mills, also the location of projected enterprises. Photographs of a number of plants will be shown. There will be fine exhibits of Canada's high grade papers, and a number of very excellent views of the Forest Products Laboratories of Canada.

* * *

Increase Water Storage

The Powell River Lumber Company, Powell River, B. C., preparatory to increasing their manufacturing facilities and turning out more newsprint, have completed plans for increasing the height of the water storage dam at the outlet of Powell River to give more extensive water storage in Powell Lake and make possible a consequent increase in the amount of electrical energy that will be required when additional papermaking machines are installed. The dam will be raised about another fifteen feet and the work is to cost in the neighborhood of $200,000. The project has been passed by the board of directors and arrangements are now being made to award the contract. It is expected that work will start early in April.

ORGANIZER DISAPPEARED WITH FUNDS

This Is What Is Alleged to Have Happened in Canada, According to Story Getting Through

CONSIDERABLE excitement has been aroused by the demand of the labor officials headed by Tom Moore, president of the Canadian Trades and Labor Congress, that an investigation be made of the statements that an organizer of the International Pulp and Sulphite Workers, decamped with nearly a thousand dollars belonging to pulp and paper workers. Some of the labor men have taken offense at the charge made by P. J. Veniet, premier of New Brunswick, that such an organizer disappeared with the funds collected from the employes of pulp and paper mills. He stated he was at one of the meetings and knew of this matter personally. He said the organizer came to Bathurst and attempted to organize employes of the Bathurst Company, pulp and paper manufacturers. A meeting was called for and about seventeen hundred attended. The organizer spoke for an hour and a half and collected a fee of fifteen dollars from each of the men desirous of joining the union. The organizer then went out a rear door of the theatre in which the meeting was held and vanished with the money.

The labor officials deny that any labor organizer disappeared with the funds. They claim the money was expended properly. Mr. Veniet insists that the men who paid the fees did not receive the value of their money. He also claimed that some of the subscribers paid less than others because the organizer reduced his fee from fifteen dollars to much less in order to secure all the money available. In order to combat the charge made against the official organization of pulp and paper workers a representative of the organization is at present in eastern Canada demanding an inquiry into the charges. He has made a categorical denial to all the charges and emphatically denies that money was collected by an organizer who subsequently disappeared with the money. He declares the charges have been made with the intention of injuring the union, and expresses his intention of bringing suit if necessary. The statements were made in hearings on the request of pulp and paper companies for reductions in compensation rates, it being stated that outside labor organizers mostly from the United States, were creating most of the trouble between labor and capital in the pulp and paper industry insofar as Canada was concerned.

* * *

New Paper Box Factory

The new paper box factory for Kilgour Brothers at Windsor Mills, Que., has started operations. This is a branch of a well known Toronto firm, but in future will be operated independently.

Discuss A Merger

At the annual meeting of the Provincial Paper Mills, Limited, in Toronto last week, the subject of the proposed merger between that company and the Howard Smith Paper Company was not up for discussion so it is presumed that the deal is off for the meanwhile at least. Following the meeting S. F. Duncan, secretary, stated that the matter of the purchase and installation of a second machine at the Port Arthur plant of the company had been endorsed by the directors who have left the matter in the hands of the executive of the concerns, but it was hardly considered likely that the new machine would be put in this year. The Board of directors was re-elected with the exception that R. S. Waldie, of Toronto, succeeds to the vacancy created by the death of C. A. Peck of Kalamazoo, Mich. I. H. Weldon is the president; T. A. Weldon, vice-president, S. F. Duncan, treasurer and W. S. Barber, secretary. Manufacturing profits for the year amounted to $493,333, as compared with $729,261 in 1922. Sundry revenue of $9,989 brought total income to $503,322, which, added to the surplus brought forward of $833,468, made $1,336,790 available. There is an increase of $80,000 in reserve for depreciation on buildings and plant and a reduction of $35,000 in dividend disbursements, accounted for by the fact that no bonus was paid during 1923. The balance sheet shows assets of about $500,000. Decrease in profits is attributed by President Weldon to the first six months of operation, in which profits from all the mills were low, due chiefly to manufacturing costs. During that period the new mill at Port Arthur, Ont., was completed and put in operation. Regarding the outlook President Weldon says: "I do not anticipate much change in the market for paper this year, but do believe that manufacturing conditions will be better."

* * *

Cut Up 11,000 Cords

The Porcupine Pulp & Lumber Co., Ltd., Hoyle, Ont., have cut up to date 11,400 cords of pulpwood, which has all been hauled, 3,500 cords direct to the mill at Hoyle, and the balance to various points along the Porcupine River. The company's total cut will be from 12,500 to 13,000 cords whereas last season they took out only 4,300 cords. The Cliff Paper Company of Niagara Falls, N. Y., to whom the company ships its wood after it is rossed, have provided storage space for 7,000 cords. Hence the company will load this amount, with chutes from the conveyor, as it is rossed directly onto cars for shipment to the T. & N. O. According to M. E. Crouch, the manager, the company will go ahead with the construction of a sawmill in the early fall, at the end of the rossing season. This will be a sawmill to start with of about 15,000 feet capacity per day. The company anticipates no difficulty in getting all the men they want for the coming drive and for rossing operations through the spring and summer.

* * *

Lumber Camps Break Up

The lumber camps in the Sault Ste Marie district, and in fact all over Algoma, are breaking up, causing a steady influx of men into the city of Sault Ste Marie, Ont. Most of the companies have finished most of their winter cutting and no fear is felt for low water preventing driving. The camp of the Spanish River Pulp and Paper Mills, Limited, however, is still going strong and will not break up for some time yet.

NO EARLY ACTION ON EMBARGO NOW

Nothing to Show That Canadian Government Will Act Hastily

THERE is nothing in the Canadian Government's legislative programme announced at the opening of Parliament to suggest early action on the proposed embargo of exports of pulp wood. For one thing, the Pulp Wood Commission has not completed its work, and until it does so and makes its report it will be impossible for the Government to announce any change in policy. The character of the programme inclines one strongly to the view that, in face of the strenuous opposition of settlers to the proposed embargo, the present Government will not introduce it. The Government is dependent on the support of the farmers and is quite unlikely to do anything to offend them. On the other hand the Ontario Government is about to introduce legislation providing for the placing of an export duty on exports of hard wood cut on Crown lands within the province. It is indicated that this will be tantamount to an embargo. The extent to which American interests have lately been drawing on these resources is one reason for such action, serious inroads having it is said, been made into available supplies. The success that has followed the placing of an embargo on exports of pulpwood cut on Crown lands in Ontario encourages the Government in its new policy. In doing what it is, the Government is not running up against settlers as it would be were the embargo placed on pulpwood exports.

* * *

To Get Together

Coincident with the announcement of the appointment of W. H. Kilby as Chief of Forest Protection of the Canadian National Railways is the extending by the railways of an invitation to Dominion and Provincial forestry officers and officers of forest protection associations to a meeting to be held in Montreal next week for the purpose of discussing and determining upon co-operative methods of forest protection and fire control between the National Railways and the forest organizations. The meeting, which is unique in transportation annals, since the invitation is issued by the railways to the forest officers, will bring together a large number of Canadian experts in silvaculture.

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To Extend Property

The tendency for American pulp and paper companies to launch out in Canada is to be seen in the announcement that the Brown Corporation which operates an important sulphite pulp mill at La Tuque, Que., with a daily capacity of 320 tons, is contemplating extensions to its property that will permit of it turning out quite a much larger range of by-products. At present turpentine is being manufactured at La Tuque, and with the addition of other machinery it will be possible not only to manufacture it, but also chloroform, industrial alcohol, bi-sulphite of carbonate, caustic soda and bi-carbonate of soda. Most of these are made from the waste liquor drained out of the digester after the sulphite pulp is manufactured. There is also a possibility that fiber tubing may be manufactured. This is made by pressing groundwood pulp, mixed with waste liquor and tar, and provides a material that is not only insulated but waterproof. At present the Brown Corporation manufactures no paper in Canada, confines its efforts entirely to sulphite that is taken by its mills in the United States.

Improvements Completed

Within the next two or three weeks a number of extensive improvements that have been in progress at the Cornwall, Ont., plant of the Howard Smith Paper Company will have been completed. An addition to No. 3 and 4 machine room was put on which allow of the lengthening of the machines. A new machine shop has also been erected which is 120 feet long by 50 feet wide. The new finishing room is one of the most attractive and best arranged of any in Canada. It is 133 feet by 189 feet, three stories high and built of concrete cased with brick. This provides for taking the cars into the shipping room, the railway siding going right into the interior. At Gaspe the company will soon have completed their wood plant and will handle about 25,000 cords per year of wood from there and about 6,000,000 feet of lumber. All the conveyors and loaders are finished and a new wharf has been built. A new breakwater is also included in the work which is being carried out. The transportation of the wood will be done by boats which have been chartered for the coming season.

* * *

Mill Starts Again

The King Coating Division of the Allied Paper Mills, which has been down for several months has started up. Edward Coughlin former superintendent of the coating division at the Monarch Division of the Allied, is now superintendent at the King Division. Jacob Polderdyke formerly employed on the Coating machines at this division will be finishing room boss. Kelly Ingraham, who has been working at the Monarch Division, will go back to Kings as Coating room boss.

* * *

Snow Interferes

The recent heavy falls of snow have interfered seriously with the operations of logging and pulpwood companies in the bush and will add considerably to the cost of production. Thin ice has been a great inconvenience and a number of concerns have lost horses breaking through the ice and being drowned. There is a good demand for poplar pulpwood and large quantities are being moved along the C. N. R. from Renfrew west to various points in the United States.

* * *

Differences on River

Serious differences which have existed between the Abitibi Power and Paper Company and the Hollinger Mines regarding conflicting interests on the river, have been practically settled in Toronto at a conference attended by Noah Timmins and A. F. Brigham and the Minister of Lands and Forests. The Abitibi Company feared that the construction plans of the mining company would cause the site of their power lease to be flooded.

* * *

Change Name

It has been decided to change the name of the Thames Paper Company, Limited, of Purfleet, Essex, England, to Thames Board Mills, Limited.

This change is one of name only, and does not involve any alteration whatever in the constitution of the Company.

* * *

Northcliffe Shuts Down

The Northcliffe Paper Mill, Grand Falls, N. F., has been shut down as a result of a wage dispute. Workers in the mill claim they have been locked out by the management of the mill Some 800 men are affected.

All Aboard for Big Convention

Rush of Applications For Tickets For Annual Banquet of Paper and Pulp Association

JUDGING by the rush of applications for tickets for the annual banquet of the American Paper and Pulp Association, Thursday, April 10, the closing feature of the Forty-Seventh Annual Convention, the Paper Week slogan of "Business—not Politics," has struck a sympathetic note among the country's paper mills. Every indication is that the 1924 convention will strike a new high peak in association history.

Applications so far received are in excess of those received at the same time last year, and many of those asking for tickets are providing for a larger number of guests than they entertained a year ago.

Now that the banquet program is completed, the work of the Association staff is being devoted to the completion of the program for the forenoon session of Thursday. The discussion will be devoted to business conditions in the four great groups of the industry, the pulp, coarse and fine groups, and the situation among the paper board manufacturers. This latter is a new feature of the convention program for the board manufacturers, through their newly organized associations are working closely with the American Paper and Pulp Associations, and cooperating particularly in the gathering of production statistics.

In addition to these business reviews, there will be reports from the two companies which have been quietly spending several months of study upon affairs of the American Paper and Pulp Association, the committee on finance, and the committee which has been discussing the Association's program of activities for the coming year. Both of these reports will involve recommendations for important developments in Associations affairs, it is expected. Final meetings of the committees will be held before the convention date to formulate their recommendations.

There is every reason to believe that the Association's convention will mark an epoch in the affairs of the United States Paper Industry as represented in its association activities, and the appreciation of this is already evident in the volume of the demand for banquet reservations. It is possible that the high record of attendance at an Association banquet, of 1,200 reached in 1923 will be equalled.

Several conferences outside the ordinary program of convention week are being arranged. Not the least important of these is a special conference to be held Tuesday, forenoon, April 8, for the discussion by a group of leading manufacturers and merchants of the problem of simplification of paper sites. This is arranged by request of the Department of Commerce authorities who are working on this question, and follows a recent conference on the same subject at Washington, chiefly attended by the users of paper. The results of the Tuesday conference will be announced at the Thursday business session of the American Paper and Pulp Association.

Another interesting event of the week will be the meeting of waxed paper manufacturers Tuesday morning at which there will be discussed the need of a waxed paper manufacturers association to back up trade customs, handle complaints and improve credits, and the general development of the trade association work in the waxed paper industry. There has been strong sentiment expressed in favor of the reorganization of the waxed paper manufacturers, whose old association was dissolved several months ago.

The Association has just sen out a special announcement of the manner in which reduced railroad rates may be secured by those attending the various conventions being held during the week of April 7, and the rate has been secured also for those attending the Paper Industries Exposition.

An innovation in the banquet arrangements is being announced at the same time, in the issuance of complimentary tickets to families of those attending the banquet. These tickets will be for admission to the balconies after 9 P. M., for the evening's speaking program.

In general, the three days of convention will have as their main features the following in addition to the large number of meetings of the affiliated associations scheduled for 'Paper Week."

Tuesday April 8—Salesmen's Association annual meeting in the forenoon, dinner and smoker in the evening; meetings and annual banquet of the Technical Association of Pulp and Paper Industry; meetings of the National Paper Trade Association.

Wednesday, April 9—Woodlands Section Convention; Technical Association meetings; meetings of the National Paper Trade Association, with its annual dinner in the evening.

Thursday, April 10—American Paper and Pulp Association annual meeting in the forenoon, and the annual banquet in the evening meeting of Technical Association in afternoon at the Paper Industries Exposition.

As part of its general service to the industry the American Paper and Pulp Association is assisting in the holding of meetings of various groups not officially affiliated with it, such as the papermaker's advertising club, the bristol board manufacturers and other gorups.

A review of the program of Paper Week would not be complete without reference to the Second Paper Industries Exposition, held under the endorsement of the American Paper and Pulp Association at the Grand Central Palace. The Exposition opens Monday, and continues through Saturday, and its chief features are so arranged that the paper manufacturers will be able to attend without interference with the convention program, and the general public will be told of paper and how to buy the right paper for right uses during the entire week.

* * *

Tentative Outline of Program

Monday, April 7: Registration opens at the Waldorf-Astoria; committee meetings as arranged by the chairmen; smoker in the evening for junior members principally, at the Canadian Club.

Tuesday, April 8: 9:30 A. M., first business session, Waldorf-Astoria; 2:00 P. M., general technical session, Waldorf-Astoria; 7:00 P. M., annual dinner, Commodore Hotel.

Wednesday, April 9: 9:30 A. M., business session, election of officers, Waldorf-Astoria; 2:00 P. M., Sectional meetings.

Thursday, April 10: 9:30 A. M., technical sessions, Waldorf-Astoria; 11:00 A. M., American Paper and Pulp Association annual meeting; 2:00 P. M., Sessions at Grand Central Palace.

Friday, April 11: 9:30 A. M., meetings for unfinished business, Waldorf-Astoria.

* * *

Half Million Assets

The Newton Paper Co., of Holyoke, in its recent report filed with the state, shows total assets of $692,997. The company shows a capital of $72,000, accounts payable of $13,243; reserved for depreciation $233,523 and surplus of $374,231. Its real estate is listed at $224,584 and machinery at $292,587 and cash on hand of $91,627.

* * *

Announce New Paper

The West Virginia Pulp and Paper Company takes special pride in announcing Clear Spring Book Papers, because the company believes their use will usher in a new era for printers and publishers. Made in Super, English Finish and Text, these uncoated papers enable the printer to produce printed matter for illustrated and decorated work, and plain typography.

* * *

Supremely great human beings have al-had one quality in common—faith in themselves.

Through the Middle West

NEW MILL IS NEARING COMPLETION

Exterior Work of Riverside Fibre and Paper Company Progressing Well

EXTERIOR work for the new paper mill of the Riverside Fibre and Paper Company of Appleton has been practically completed, the last cement having been poured for what will be the stock building by C. R. Meyer and Sons' Company, the contractors.

The buildings are to be heated by the Ross system which utilizes the waste steam from the paper machines. The steam passes through "economizers" near the roof where it comes in contact with fresh air which it heats and is then conveyed to all parts of the buildings.

The new paper machine, manufactured by the Beloit Iron Works, has arrived and is being set up. It is 116 inches wide and is 200 feet in length. At least sixty days will be required to set up the machine and get it in operation. As soon as it is in operation the machine in the present mill on the canal bank on the West side of Lake street will be moved to the new structure.

Electric power will be used and two crews of electricians are installing the motors and switchboards. One of the elevators is in place and the other will be installed in about two weeks.

The finishing building and the machine building are two stories high and the stock building is of five stories. All of them are constructed of re-inforced concrete.

The gravity process will be used in handling the wet pulp from the pulp mill which means the pulp will be elevated to the upper story of the stock building and from there will find its way to the proper machine, doing away with the present laborious method of handling.

The new filtering plant on Lake street is completed and the filters, pumps, and piping are being installed. The plant is 30x240 feet in size and a 16 inch pipe connects it with the new mill. The plant has a capacity of three and one half million gallons.

The same contracting firm has just been awarded a contract for a new office building for the Riverside Company, to cost approximately $15,000. It will be located across the street from the new mill and work on it already has been started. It will be 32x55 feet in size, two stories high, and will be completed in sixty days. It will be of stucco and white cement. Only the first floor will be occupied at first. There will be a directors' room and six private offices, the latest office equipment being installed.

* * *

Short Newsy Items

The Tennessee Paper Co., of Chattanooga, Tenn., of which John Stagmaier is president, is installing two new 500 h. p. Heine boilers, equipped with Erie City coal pulverizing machinery, and has erected a self supporting steel smokestack, 8 feet by 185 feet and has put in two 500 k. w. direct connected generators.

The New Orleans Corrugated Box Co., Inc., New Orleans, La., has let contract for erection of $11,500 warehouse, in square of Oleander, Burdette and Lowerline streets.

C. Marshall Gravatt, Biltmore, N. C., is in the market for equipment for the manufacture of cardboard boxes.

Wisconsin Mill Notes

Joseph E. Hill, engineer of the plant of the Gilbert Paper Company of Menasha, and former Menasha mayor, suffered painful injuries in an accident, one of his feet being crushed.

The Knickerbocker Paper Company of Milwaukee, has been incorporated with capital stock of $25,000. Incorporators are A. Webster McGann, Joseph J. Gross and Guido J. Hansen.

Last week 185 cars of pulpwood were handled through the yards at Appleton Junction and it was estimated by railroad officials that nearly 500 additional cars arrived in the Fox River valley consigned to mills at Kimberly, Combined Locks, Little Chute and Kaukauna.

Foremen and superintendents of Appleton were interested auditors when members of the Lawrence college teams debated the Huber Unemployment Insurance plan at the Kimberly-Clark clubhouse.

S. F. Shattuck of the Kimberly-Clark Company explained "Industrial Relationship" to the Noon Lunch Club at Neenah. He discussed the operation and results obtained by the "shop committee" plan.

E. W. Young, formerly with the Kimberly-Clark Company at its Kimberly plant, has been promoted to general manager of the company's warehouses and will have his headquarters at Neenah. His activities in connection with the safety movement at Kimberly have been taken over by M. J. Ritten.

The Riverside Fibre and Paper Company had to use its hoist to fish a truck out of the canal where it lay completely under water. The motor truck, without a pilot, ran wild down the hill and into the canal.

* * *

A Booster Booklet

A neat little booklet recently was issued by the Kimberly-Clark Company entitled, "Niagara, Wisconsin—a Good Place to Live." In the booklet, which is of twenty-eight pages, there are pictures of the Niagara Club, the paper mills, foremen, views of public buildings, typical homes of workmen, camping scenes, the athletic club and the hospital. Under the direction of the Kimberly-Clark Company, Niagara is recognized as a model town in which to live and work and the booklet gives one a most favorable impression of the company's enterprise.

* * *

St. Patrick's Day Event

The green division of the Kimberly-Clark Company safety contest took advantage of St. Patrick's day to hold a safety rally at the Kimberly mill. Irish songs were sung and M. Carrigan gave a talk on Ireland. Six young women workers from the finishing room, clad in white middies, skirts trimmed with shamrocks and white hats, sang "My Irish Rose" and other Irish songs.

NORTHERN PAPER MILLS HAS WHITE RAPIDS

Rosebush Makes Statement Regarding the Change

SOMETHING of the vision of officials of the Northern Paper Mills, and perhaps just a glimpse of what the future holds for Green Bay as a paper manufacturing center, is contained in the announcement that the Northern has acquired the White Rapids power site on the Menominee river and will develop it and transmit the power to Green Bay for use in the manufacture of paper.

The site has been owned by the Northern Paper Mills for about three years since the purchase of the White Rapids company, of Oshkosh, at that time, and the transfer which brings it to the attention of the public is not news, but the plane for development have caused no little speculation, especially of late.

It is estimated that the White Rapids site will develop about 10,000 horsepower, and with the site there is included several miles of river front and a large acreage of flowage lands.

Judson G. Rosebush. treasurer and general manager of the company, confirmed the announcement from Menominee that the transfer had been recorded there.

"There is no plan to develop this property this year," he said. "Just what use will be made of the power has not yet been decided. However, it is planned to build a hydro-electric plant and to transmit the power to Green Bay."

The Northern PaperMills now use about 6,000 horsepower in their plant and whether the White Rapids power will be used exclusively for the Green Bay plant and others in the Fox River valley will probably be determined by conditions when the plans for the development are further along. The additional grinders installed at Green Bay could use the entire output, and while this was suggested as a possibility, Mr. Rosebush did not announce it as a certainty.

Surveys now being made of the property and figures on the cost of development are being prepared, but no definite announcement could be given except that it would not be made this year.

* * *

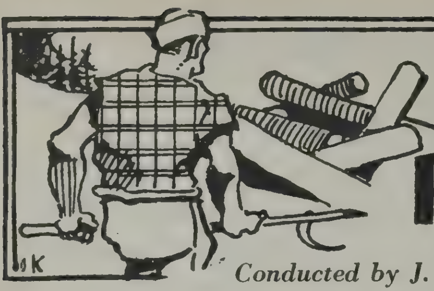
Shows Various Stages

Step by step the manufacture of paper is shown in a cabinet display received by the mechanical department of Marquette university college of journalism from the S. D. Warren Paper Company, Boston, and now on exhibit in the laboratory. Ingredients used in making paper are contained in labeled bottles which show every element needed, from the shipped bark and spruce to the chemicals. A representative of the Warren company recently appeared before the Marquette Press club and explained the papermaking industry in detail.

* * *

Injured in Mill

James Johnstone, a Peshtigo man employed in the Hoskins-Morainville paper mill at Menominee, Mich., was injured when his clothing caught in a set screw and he was drawn onto a revolving shaft. His injuries will not be fatal.



FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

FORMAL APPROVAL FOR McNARY-CLARKE FORESTRY BILL

National Chamber Backs Legislation As Step In Direction of Accomplishment

IN a letter to President Coolidge the Chamber of Commerce of the United States has given formal approval to the McNary-Clarke Forestry bill as a step in the direction of the adoption of a national forestry policy.

The measure, although much more limited in scope, is found to be in accord with the comprehensive policy, formulated by the National Chamber in a referendum submitted to its constituent members last November, which was strongly supported by the lumber interests throughout the country and which received a favorable vote.

The McNary-Clarke Forestry bill would provide that the Secretary of Agriculture, in cooperation with state officials or other agencies devise forest fire prevention systems the expense of which would be borne equally by state and the federal governments. The bill also would authorize the Secretary of Agriculture to make a study of tax laws applying to timber lands, methods and practices of forest perpetuation, and to investigate and promote protection of forests against fire, pests and tornadoes. Provision is also made for the encouragement of the development of wood lots and other forest growth by individual farmers, the distribution of seeds and the enlargement of National Forest areas by the inclusion of public lands best adapted to timber growing.

The forestry policy approved by the National Chamber calls for the acquiring by the federal and state governments of lands necessary for the protection of navigable headwaters, and replanting where necessary; the creation of competent agencies or commissions for forestry protection and development within the states; tax reform, improved practice in forest perpetuation; extension of fire prevention measures; a national survey and inventory of forest resources, and the extension of federal research in forest products.

The steps proposed in the Mc-Nary-Clarke bill are in line with these recommendations and it is believed that the investigation to be carried on by the Government, provision for which would be made under the terms of the bill would hasten the adoption of a national policy.

In his letter to the President, Elliot H. Goodwin, Resident Vice President of the National Chamber, calls attention to the referendum and the report of the committee upon which it was based,—composed of lumber manufacturers, users and foresters,—formulating principles for a national policy for meeting the nation's forest problem. It is pointed out that the McNary-Clarke bill is a step in the direction of its accomplishment.

The action of the Chamber is the result of the long investigation by its forestry committee of which Dr. Hugh P. Baker of the American Paper and Pulp Association was vice-chairman, so the action of the Chamber is in part result of the activity of the paper industry along forestry lines.

* * *

Meetings in Bay State

The Bay state heard the story of forestry from a variety of angles at the convention of the retail lumber dealers, who were told that the state could easily raise a large part of its timber requirements under proper working plans. It was shown that the state uses 900,000,000 feet of lumber per year, of which one third is in the building industry, and the balance in some twenty large industries which use wood as their major product.

Another talk a few days later by Dr. Hugh P. Baker of the American Paper & Pulp Association, who spoke before the Kiwanis Club at Springfield, pointed this statement before the lumbermen's convention by saying that the state has 3,000,000 acres of forest land now idle but capable of growing a crop of trees to restore the state's vanishing wood using industries. On the basis of as small a yield as 300 feet per acre from artificially grown trees, the state could produce the amount of lumber now used by its industries, in addition to the amount that is now being used from its scattered forest lands.

Dr. Baker pointed out in his address before this audience in the most important fine paper producing region in the world that Massachusetts does not naturally grow the trees most valuable for pulpwood, but that if pine could be produced in quantity, much strain would be released from the forests of the northern New England states. The growth in these states is largely spruce and fir, the most valuable of the pulpwoods.

* * *

Poplar For Reforestation

Among the many uses for Carolina poplar, not the least important is paper pulp. Unlike most of the forest trees, the Carolina poplar can be propagated from cuttings six to twelve inches in length which will make large trees.

The Conservation Commission in New York state has recently completed experiments which show that the best rooted cuttings are obtained from one-year-old growth, and that it is not economically profitable to undertake propagation of cuttings taken from wood of older growth. The one year wood rooted nearly 100 per cent in six weeks, many of the cuttings shoking shoots eighteen inches in length.

A RESOLUTION WELL RECEIVED

Forestry Men's Resolution Reaches Welcoming Hands

THE Forestry Association in New York State adopted a resolution on the McNary-Clarke legislation at its present annual meeting, and the Secretary was instructed to mail copies to the New York delegation, to Senator McNary and Congressman Clarke, and to the Chairmen of the committees. By return mail came acknowledgments from several of the legislators, including Senator Wadsworth, and Congressman Snell whose forestry bill of a year ago marks a step in the progress of the movement leading up to the present favorable situation. Fully half of the delegation has responded up to date, and it is announced that each and every response is favorable to the legislation.

It may be of interest here to state just what the resolution contained, for if there is any set form by which our representatives in Washington can be made to appreciate our viewpoint, we like to have a record of it for future reference. We lack the space to set down the encouraging responses mailed back by the senators and congressmen, but here is the resolution:

WHEREAS, the New York Forestry Association holds that it is not only desirable but necessary that our National forest policy be enlarged and extended, and for that reason has watched with great interest the work of the United States Senate Committee on Reforestation which has resulted in the introduction before Congress of a bill that embodies the steps, that, at this time, the Association feels are most needed for the advancement of forestry in the United States, therefore be it

Resolved, that the New York State Forestry Association heartily approves the provisions of the McNary Bill (S. 1182) now before the Committee on Agriculture and Forestry of the United States Senate, and of the Clarke Bill (H.R. 4830) now before the Committee on Agriculture of the House of Representatives, and urges their speedy enactment into law as a means of bringing about continuous forest production on all land chiefly suitable therefor, and be it further

Resolved, that copies of this resolution be forwarded to Senator McNary, Representative Clarke, the members of the New York delegation in Congress, and the Chairmen of the Committees before which these bills are pending.

* * *

An Interesting Experiment

A fairly definite answer to the question of where new tree growth on burned-over lands comes from, will be the result of present experiments in the Coeur d'Alene National Forest by the Forest Service, according to a recent announcement of that bureau of the United States Department of Agriculture. Experts from the Priest River Forest Experiment Station in Montana are conducting elaborate studies of areas burned over in 1910 and some reburned in the great fires of 1919 to determine the source of reproduction on both types of burn. This work involves a careful analysis of age, species, quantity and distribution of the young growth, in relation to the remaining seed trees and the character of the pre-fire forest. The information thus obtained will be of assistance to foresters and timberland owners in reclamation work.

* * *

Approaches Final Stages

By the time this article is in print there will be under way hearings on important forestry legislation in Washington and in Albany. A bill calling for regulation of timber cutting in the Adirondack area will be up for consideration in the Empire State, as well as the plan submitted by the technical foresters pursuant to the suggestion made them by the chairman of the committee on conservation. At about the same time there will be a hearing at Washington by the House Agricultural committee on the Clarke Bill, the House duplicate of the Senator McNary measure. The committee on agriculture has agreed to hold a hearing on this measure, and a determined effort will be made to have it recommended out of committee for passage, despite the difficulty Congress is having in doing anything constructive in legislation while the various investigations are under way.

* * *

Proclamations in Season

President Coolidge has set aside by presidential proclamation the week of April 21 to 27 as Forest Protection Week, with the request that schools, civic and other organizations plan such observance as will bring home to the public the need for preventing the disastrous fires in the woods, and the need of collective effort for conservation.

Governor Smith of New York is expected to issue his annual proclamation setting aside Conservation Week during the coming few days. It has been determined in advance to select the week of March 31 to April 8 for the observance this year. Most organizations will celebrate the week by undertaking some definite piece of forestry work. It has just been learned that several of the larger paper and pulp corporations in the east have adopted the plan of raising their own seedlings and transplants for reforestation purposes, thereby releasing more of the state department trees, which are sold at cost of production, for industries, private individuals and institutions.

* * *

Airplane in Ontario

In order to conserve Ontario's forest wealth and to protect the lumbering and paper industry, in which $75,000,000 is invested, the Ontario Government has purchased an airplane fleet consisting of thirteen machines to patrol the timber areas and detect fires in their incipient stages.

The planes are also to be used to make a survey of Ontario's forest wealth, with a view to checking up on the timber concessions and seeing that the Government is securing sufficient return from them, and also with a view to determining the amount of reforestation necessary.

During the past year, Hon. Mr. Lyons pointed out, fire has burned over 2,120,000 acres within the province, 28 per cent being timberland, 15 per cent cutover timberland, and 36 per cent young second growth.

NEWS AMONG EXPERIMENT STATIONS

This Branch Increases Usefulness To Paper Industry

FORTY Forest Service research specialists are spending two weeks in intensive discussion of forestry research plans for the future, with Chief Forester W. B. Greeley and Assistant Forester Earle H. Clapp in charge of research, as the leaders. The directors of the eight experiment stations, forest fire fighting specialists and the six western district foresters are among those in attendance, and the conference is particularly notable in that it is the first such gathering since 1917.

Technical problems in fire control, and particularly in the fire-weather prediction were the subjects which have first demanded the attention of the experts. The measuring of the moisture in forest fuels as a means of indicating the danger of fire was one of the technical discussions of the first week. The second week will be devoted particularly to the measures necessary to keep forest lands continuously producing timber. A study of this question made by special agents in all parts of the country will be reported, and may aid in the definition in specific terms of what is necessary in the way of forest fire prevention, and the methods of cutting needed to assure the natural regeneration of the forest.

* * *

Studying in Northern States

An interesting work on behalf of those interested in studying forestry work in the northeastern states is being done by S. T. Dana, director of the Northwestern Forest Experiment Station. He has begun the compilation of a list of places of interest for visiting foresters, and eventually hopes to prepare a map indicating the location of the places recommended for study. An interesting list of points of interest has been prepared for Maine, and the New York State Foresters are being asked to list the points which they believe would be of interest.

The Maine points of interest give surprising evidence of forestry work under way by paper companies, in the suggestion that visitors see the nursery of the Brown Company at Cupsuptic, the Orono Pulp and Paper plant at Mason Mills, the thirty acre plantation of the same company at Mt. Chase, Penobscot county, the hardwood utilization of the Oxford Paper Company at Rumford Falls, the nursery of the Lincoln Pulp Company at Trout Brook, as well as plantations and woods operations of various big paper and pulp companies.

Altogether there are twenty-one points of interest already listed in Maine alone.

* * *

Looking in the Future

Facts for the pulp and paper industry regarding red spruce in the Northeast will be secured from studies now being undertaken in Maine, and later to be extended to New Hampshire, New York, and possibly Vermont, by the United States Forest Service. This work, started last summer by the Northeastern Forest Experiment Station at Amherst, Mass., will be sufficiently comprehensive to make it possible to state the cut of spruce to be expected from a given tract 20, 30, and 40 years from now, or the exact amount of land necessary to supply any given mill with pulpwood permanently.

An obstacle to the work has appeared in the ravages of the spruce bud worm, which not only accounts for widespread destruction of timber but also has reduced growth rate through partial defoliation of the trees almost universally within the areas where it is found. A distortion of yield figures results which, although not by any means nullifying the present investigations, will make it necessary to establish at a later date permanent sample plots on which growth rates can be studied continuously from one cutting until the next harvest.

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ENROLL FOR COURSE IN PULPMAKING

Operatives, Managers, Etc., Enroll for Government Course

EIGHTY-NINE pulp mill operatives, managers, foremen, and technical men from all over the United States have enrolled in the extension course in pulpmaking conducted by the U. S. Forest Products Laboratory in cooperation with the University of Wisconsin Extension Division. Dr. C. E. Curran of the pulp and paper section of the Forest Products Laboratory has charge of the course.

The students have a wide geographical distribution. Although 52 of them are from Wisconsin there are representatives from New York, Maine, Illinois, Mississippi, Minnesota, North Carolina, Michigan, Ohio, Washington, Indiana, Pennsylvania, Maryland, Oregon, Tennessee, and Mexico. Among the students enrolled are mill managers, superintendents, chemists, plant engineers and assistants, foremen, cooks, liquor makers, machine tenders, clerks and salesmen, and other representing practically every department in the pulp and paper mill.

The course is the outgrowth of an effort made some time ago by the Technical Association of the Pulp and Paper Industry and the Technical Section of the Canadian Pulp and Paper Association to improve American paper mill practice by the education of mill operatives. To this end a fund was raised for the writing of a standard textbook on American mill practice. Hitherto the majority of all textbooks available were based on European practice and problems. This new work is used as a text in the correspondence course.

* * *

The ninth annual convention of the Technical Association of the Pulp and Paper Industry will be held in New York at the Waldorf-Astoria and the Grand Central Palace, April 7 to 11, 1924. In an announcement mailed to members, W. G. MacNaughton, secretary, urges them make plans now to be in attendance at this convention at which there will be much of interest to everyone engaged in pulp and paper manufacture.

Besides the general sessions, at which papers on general subjects will be presented, there will be arranged sectional meetings on Paper Drying, Mechanical, Soda, and Sulphite Pulp, Paper Testing, Standard Methods of Testing Materials, and Cellulose. There will also be a joint meeting of the Technical Association and Woodlands Section at which a progress report on the utilization of decayed pulpwood will be presented by J. D. Rue and other members of the Forest Products Laboratory.

The management of the Paper Industries Exposition wishes to know if there is any special line of exhibit desired by the technical men in the industry. If members can suggest any they should let Mr. MacNaughton know at once or write to C. F. Roth, manager , Paper Industries Exposition, Grand Central Palace, New York, and efforts will be made to arrange for it.

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Youth has exuberant vitality uncontrolled by wisdom, and therefore unappreciated. Age has wisdom unsupported by vitality, and therefore unappreciated.

The Editorial Page

Support the Wise Plan

AT the annual convention of the Salesman's Association of the American Paper and Pulp Association, Attorney Henry A. Wise will present his plan for an organized defense of the American paper industry from European competition. This defense will have as its principal weapon a strong, energetic, well-considered offense.

Because it is obviously impossible for the individual paper manufacturer of America to fight the business that is eating out the heart of the American paper industry at the present, the plan calls for the formal organization of a bureau or a committee to fight this battle. This committee would be forfeited with expert knowledge and expert legal advice. It would have for its business the gathering of facts and figures in all foreign countries regarding the cost of production, the cost of raw materials, labor, and everything that enters into the business of paper making. The price situation in those countries would also be examined into.

With this knowledge it would then watch imports as a hawk watches a chicken yard. It would see that there was no dumping violations, no misclassification or anything illegal.

At this time, the Wise plan appears to be the most practical solution of the problem of imports. Mr. Wise will explain this plan in an address at the Salesmen's Convention, on April 8. Action is expected to follow shortly, but this action will probably have to be the result of the entire American Paper and Pulp Association.

As it does not seem the most practical solution, the plan deserves the support of the members of the association. It will cost a little money to put it through, but the benefits derived will more than make up for the cost.

Unanimous support should be forthcoming when the time arrives.

The Need of Mergers

THE recent activity in almost all branches of paper manufacturing in amalgamating companies is only a result of the times. It is inevitable that there should be mergers.

When two companies making almost identically the same product find their market slipping from under them, when costs are mounting higher and the price of the finished product melting away, the natural tendency is to get together and see if there is not some way to conquer the situation.

It is found that money can be saved by a merger. The overhead is cut down, logging operations are combined, machines are kept more steadily on the same product. The financial arrangements are placed on a more solid foundation. And the market does not look so formidable with a combined company. So the two companies get together and a merger is the result.

In this land of the more or less free, there is a certain antipathy to mergers that smack of monoply. But there is no getting away from them from an economic and business standpoint. It is only by doing things on a big scale that a country can progress.

But, on the other hand, the larger and more powerful company must look upon the situation with a broader and more liberal mind. It should aim to benefit not injure its industry and its patrons. It must sometimes sacrifice profit for good will. It cannot make a god of Mammon. And therein lies the obstacle.

There is nothing so fine in a country as a beneficent trust, watching out for the interests of its country and its customers, with its costs cut to the bone, with its economic possibilities for service. When the beneficent monoply becomes a reality America will advance still more rapidly.

Until then it must look kindly on mergers.

Courtesy

SALESMEN frequently exclaim: "I prefer to do business with large companies. I am received more courteously. I see my man more promptly. I am treated more fairly."

Almost every business was once small.

Are courtesy, fairness, and promptness the ornaments of large businesses, like the polished door handles and bronze nameplates? Can't the small business man afford to be courteous, fair, and considerate? Or, is it possible that the proprietors of small businesses, who have these qualities, grow into big business men?

I am amused by the pictures Fontaine Fox draws of the Toonerville trolley. All of us are familiar with "Toonerville trolleys"—little businesses that are so slip-shod in their methods that only a sense of humor keeps the customers from murdering the proprietors, writes William Feather.

Rubber Latex in Papermaking

New Developments Point to Use of Rubber in the Making of Boards and Leather and Linoleum Substitutes

By T. J. KEENAN

Papermakers in all countries are following with keen interest the new developments in the use of rubber latex as a strengthening ingredient for paper. The accompanying account of the nature of the substance and its possibilities as an addition to the furnish in the beater presents a summary of the subject in its scientific and practical aspects that will be of suggestive value. The idea of vulcanizing the rubber while it is incorporated with the paper offers striking possibilities.

IT is little more than a year since it was first proposed to make use of the fresh milky sap of the rubber tree (*Hevea Braziliensis*) in the manufacture of certain kinds of paper. One of the journals of the rubber trade made its appearance in a cover containing about 1 percent of the sap or latex in the finished paper, and both the folding and tearing strengths of the paper were perceptibly increased, while water-repellent properties were at the same time imparted to the paper. It is now proposed to use rubber latex in the making of boards, leather substitutes, linoleum substitutes, etc., though much larger percentages of the latex must be introduced into the last named products than is necessary with paper. In the latter case, the object aimed at is to improve the quality of the paper by the addition of comparatively small percentages of rubber, without seriously changing or affecting the paper qualities.

Rubber latex consists of colloidal solution of rubber in water, which varies in rubber content from 20 percent in young trees to 40 percent in old trees.

By introducing rubber latex as an ingredient of paper boards, leather and linoleum substitutes it was sought to emphasize the rubber qualities of the product, whereby the strength, hardness, flexibility, elasticity, texture, etc., of the goods could be made capable of illimitable variation and development.

It is said that insects which destroy paper, wood and other cellulosic materials with rapidity and ease in tropical countries will not eat rubber. A latex board heavily loaded with talc or china clay should therefore have a usefulness in the tropics and in such countries as China and Japan. Boards made from waste paper and loaded heavily with talc or clay are much increased in strength by the use of latex. The strength of boards may be increased 50 or 100 percent, while the finish and folding properties are greatly improved. Thin boards containing latex may be obtainable in the not distant future, and the advantages of these for the making of containers would consist of light-weight and waterproof packages and boxes.

Perhaps the most important aspect of the utilization of rubber latex in the papermaking and allied industries is the ease with which rubber may be vulcanized when incorporated with paper. Small proportions of sodium sulphide are said to be capable of effecting a self-vulcanization process—say, half of 1 percent on the weight of the total material in the beater. This imparts to the paper board an increase of strength calculated at 20 percent or over. Thus a board, breaking with a load of 500 lb., would when subjected to the vulcanization process, break with a load of 600 lb. or an increase of 1 lb. for each square millimeter of cross-sectional area. These are the claims put forward for rubber latex as an ingredient of paper by Frederick Kaye, an English engineer, who was the first to propose its use as a strengthener of paper. Chemists are sceptical about the properties of sodium sulphide as a vulcanizer. Mr. Kaye appears to use it in an acid solution in extreme dilution.

Meanwhile the United States Rubber Company has developed a disk spray process, for producing rubber from the latex. In this process the latex is allowed to flow on to a rapidly revolving, horizontally mounted disk, from which it is thrown in an umbrella-shaped spray or mist into a heated current of air or inert gas. The process resembles that used in making powdered milk.

Until recently rubber was precipitated directly in the plantations, the latex being too unstable to be transported. A direct vulcanization and utilization of latex was also considered impossible of accomplishment, though several processes for the manufacture of rubber goods directly from it have since been developed. Some of these processes are still in the experimental stage, but as in the case of paper products there are a few fields in which latex appears to have decided advantages over rubber manufactured in the usual way. The latex has, for example, been applied successfully in the manufacture of tire treads, carcass compounds, inner tubes, soles, heels, belt covers, cements and rubber goods generally.

The kind and degree of subdivision and emulsification of the rubber globules in the latex differ from that in india rubber to which in physical properties it is superior. The so called "nerve" of the rubber, its strength and elasticity, which is greatly reduced by the process of precipitation, rolling, heating and treatment with solvents, is preserved in products derived directly from latex. Besides that the price of latex products is in all cases, where spraying or dipping is considered, lower than that of rubber solutions since it is used directly without the addition of expensive organic solvents.

Two interesting and important applications have been described recently by one inventor, Dr. Rudolf Ditmar, of Graz (Austria).

(1) Manufacture of a perfectly elastic, mothproof, airy, hygenic pillow filler which can be washed and sterilized. Fillers like kapok, horsehair, feathers, etc., are dipped in latex or sprayed with it. They can then be vulcanized.

(2) Use as a cement and adhesive for all kinds of materials. Latex is said to dry completely in four hours; to adhere to various materials much better than most adhesives known and used until the present time. It is also said to exhibit an exceptional mechanical strength and to be perfectly water-repellent. It naturally cannot be used for purposes where it may come into contact with rubber solvents.

Patents have been taken out covering the use of latex for paper sizing; but it has been demonstrated in American mills that latex has no advantages over resin sizing with regard to some essential properties of the paper.

* * *

Good Year's Report

The annual meeting of Ritchie and Ramsay, Limited, coated paper manufacturers, Toronto, was held recently when a report of the past year's operations was presented showing that a fair business had been done. The company has been incorporated twenty years and, for several years previous, the business was conducted under a partnership arrangement. C. N. Ramsay was elected President, George W. Pauline, Vice President and Managing Director and John M. Finlay, Secy.-Treas. J. D. Montgomery and A. V. Ritchie, Toronto, were elected members of the Board of Directors.

McBAIN'S PAGE

The Writings of B. T. McBain, Assistant General Manager of Nekoosa Edwards Paper Company Gathered Together in One page for Easy Persual.

Waste in the Pulp & Paper Industry

Farmers Can Teach Manufacturers

By **B. T. McBAIN**

A FEW days ago a group of well known Pulp and Paper Manufacturers were gathered together to do all within their power to aid in perpetuating the timber supply of the Lake States not alone that their business might continue but that the next generation might not be forced to import lumber for every known purpose as well as for pulp and paper manufacturing.

During the arguments brought up someone mentioned the Legislature of a particular State, which probably can be taken for most all States and wondered where the public had looked to select the membership thereof. Without any further comment that might in someway get me in bad and leaving that part to be told in private, one paper man asked the last speaker, "Would you be willing to put your business aside to run for the Legislature and if you won give six months of your time to consider all the fool questions that are brought up each session." "Indeed I wouldn't" answered Bill. The question was then asked of all ten present and the same kind of a reply received from each one. "Well, then quit your kickin'." I don't blame you. I wouldn't do it either if I thought I could be elected.

So it goes in every line of endeavor. We are all too busy to attend to the biggest work there is in the land. We all take care of our business from day to day working under the Laws forced on to us by men who know nothing about our business but who are elected to do the work we should do for ourselves, if we want it done differently than it is being done.

These men vote taxes on to the Public, which includes you and me; they vote restrictions against your business and mine; they vote licenses here and special privileges there all of which have a bearing on our future, but we sit aside complainingly to be sure, but instead of offering ourselves on the Altar of Public Sacrifice that the Ship of State may be properly guided through the troublesome waters of the present day seas of Political privilege we go about our business with the idea that we are too busy and haven't the time, trusting to luck that maybe the next bunch will show a gleam of human kindness or common horse sense and correct the errors of those preceding them.

Who among the Pulp and Paper Industry of the various States will step forward and offer to help? Will You?

Farmers Can Teach Manufacturers

By **B. T. McBAIN**

THE farmer has learned from experience that he cannot market his fruit or grain all at one time and get the best results for his year's efforts.

He has found from experience that he cannot regulate the supply to the demand by planting more one year than another.

He has organized his efforts with those of his fellow in business and formed co-operative warehousing and selling organizations, to the betterment of his industry, the public and himself.

The manufacturer is still trying to get by under the old practices of the farmer. He manufactures when there is a demand and finds it a difficult matter to produce enough. He shuts down his plant during the dull season at great loss to himself and his whole organization.

The manufacturer is not allowed under the Law to form co-operative selling organizations but as I am told by those who should know, there is nothing to prevent manufacturers from having enough confidence in each other to organize co-operative warehousing associations where their product can be stored during the slow periods and marketed when the demand warrants, each one for himself, of course, but shipped for him by the Warehousing Association's Department of Shipping on a co-operative basis of cost.

This would greatly relieve many manufacturers of shut down costs which are the causes of many losses in the wrapping game today.

Each day's shut down causes 4 to 5 percent increase in conversion costs and such an increase today is greater than the profit on many grades with many mills.

The farmer has learned from experience and to his sorrow that the way the manufacturer carries on his business is destructive **and impossible.** Why doesn't the manufacturer profit by the experience of the farmer?

This is one of the great Wastes in the Pulp and Paper Industry today.

Hurlburt Plant Closed

The Hurlburt Paper Manufacturing Company's plant in South Lee, Mass., owned by the American Writing Paper Company, will be closed for an indefinite period, according to notices posted at the plant. Practically all of the business which has recently been handled at South Lee will be transferred to the plants of the company at Holyoke, Mass. The Hurlburt mill is built on the site of the first paper mill ever built in Massachusetts and until the General Electric Co. plant was built at Pittsfield, was the chief support of the population of South Lee.

* * *

Warehouse Burned

The three story paper stock warehouse of Jacob Bargar & Sons at 240 Second Street, Chelsea, Mass., was gutted by fire Mar. 12 with a loss of $40,000 of which $10,000 is on the stock and the balance on the building. There was insurance on the building but none on the stock. Fire departments of both Chelsea and Everett, Mass. battled the flames for three hours.

* * *

Shows Good Report

The Perfect Paper Co., of Holyoke, Mass., a West Virginia corporation, in its recent balance sheet report to the state, shows total assets of $315,000 of which $99,286 is listed as surplus. The company is capitalized at $160,000.

Annual Report Good

The annual report of the F. N. Burt Company, one of whose activities is the manufacture of paper boxes, has been mailed to the shareholders and it shows a splendid increase in business, although decreased profits, owing to special expenditures made during the year in developing new lines of merchandise which are expected to be big producers in the future. An increase in profits during the year is also shown by the annual report of the American Sales Book Company, Limited. During 1924 the company is celebrating the fortieth anniversary of the founding of the sales book industry by S. J. Moore, of Toronto, who is president of both the F. N. Burt Company and the American Sales Book Company. Mr. Moore established the world's first sales book factory at Niagara Falls, N. Y., from which the first shipment of books was made in January, 1884. This anniversary is being featured in a national advertising campaign which the company is conducting, and which is expected to bring a further extension of business.

* * *

May Install New Machine

At the postponed annual meeting of the Provincial Paper Mills, Limited, which is to be held in Toronto on March 20 the question of installing a second book paper machine in the company's plant at Port Arthur, Ont., will be considered. The mill is now running at capacity with orders booked ahead until April 1st but whether or not the company will decide to make the proposed expansion this year will depend upon marked conditions later. Secretary S. F. Duncan stated that he was inclined to the belief that the new machine would not be installed this year although the matter would be definitely settled at the annual meeting.

* * *

Stops Inquiry

After six months' inquiry, extending from Sault Ste. Marie, Ont., through the Province of Quebec and the Maritime Provinces, the eastern branch of the Commission on Pulpwood, concluded its collection of evidence in the City of Quebec when Quebec forestry experts were heard in camera to supply the commissioners with technical and statistical reports concerning the pulpwood situation in the province. Joseph Picard, chairman of the Commission, stated that he expected the report of the commissioners would be presented to the Federal Government in May, as the western section of the Commission would complete its inquiry within three weeks time.

* * *

Lincoln Mills Fail

The Lincoln Mills, Limited, manufacturers of book, writing, wrapping paper and paper flour bags at Merritton, Ont., passed into the hands of a receiver by an order of the Ontario courts on Feb. 21. In a circular issued to the trade, R. Home Smith, of Toronto, the receiver and manager, states that the operations of the company will in no way be interfered with and that the action taken was wholly connected with the securities of the company. The receivership will only continue for such period of time as may be necessary in order to readjust the securities situation. The company is capitalized at $1,500,000 under the presidency of J. J. Warren. The mills superintendent is K. S. Maclachlan.

OPEN TOP CARS FOR PULPWOOD SHIPMENTS

These Cars Will Be Provided In Near Future

OPEN top cars for the shipment of pulpwood to New York State paper mills will be provided, and the feared withdrawal of this type of railroad equipment will not be carried into effect. This was the announcement made at the meeting at Philadelphia of the Middle Atlantic States Regional Advisory Board by A. H. Campbell of the International Paper Company, chairman of the paper and pulp commodity committee.

It is interesting to note that this problem of the paper manufacturers was the first to be settled through the organization during the last few weeks of the Advisory Board for this region. The Board is composed of shippers and railroad representatives, working together in an effort to solve the problem of adequate car supply to meet the shipping requirements of the region.

In making his report, Mr. Campbell merely called attention to the fact that the question of the supply of open top cars, which has been before the paper mills for eight months, without solution, has been readily solved through the agency of the Regional Advisory Board in five weeks.

After Mr. Campbell had reported, however, W. J. L. Banham, general chairman of the Board, commented that the chairman of the Paper and Pulp Committee had been altogether too modest, for through his aggressive work the first specific question to arise since the formation of the Advisory Board had been settled satisfactorily to all parties, and added that the question involved complications which made it not only the first such problem to be solved, but one more than ordinarily difficult to adjust.

The question of open top cars was submitted to the Paper and Pulp Committee by other paper mills than those of the company Mr. Campbell himself is connected with.

* * *

Increase Capacity

Abitibi Power and Paper Company is applying to the Ontario Legislature for a change in the corporate status of its subsidiary, the Abitibi Transportation and Navigation Company. The change is merely to give the company the power of a railway company and involves changing the name to the Abitibi Railway and Navigation Company. It does not imply any immediate change in extension of the company's activities. The company now operates a railway line from the mill at Iroquois Falls, northwards to the Canadian National Railway line, east of Cochrane. The railway is used for hauling wood to the Abitibi properties. Abitibi's annual statement will be issued in a few days and will indicate, it is anticipated, a very satisfactory year's record. Profits are likely to show some increase, for the corporation produced 4,000 tons more newsprint in 1923 than in 1922, its total production being around 145,000 tons. There will not be the same important deduction for depreciation of the "wood pile" that characterized the 1921 and 1922 reports. It is fully expected that Abitibi will increase its production this year by more than 4,000 tons. New records of daily production are being set up from week to week and there have been many days when the mill has gone over the 500-ton mark. The mill was originally built with a rated capacity of 425 tons a day, but bids fair to establish a normal output of 500 tons a day.

Make Good Report

In its annual financial report covering the year ended December 31, 1923, Howard Smith Paper Mills, Limited, shows considerably higher earnings than in either of the two preceding years. Operating profit was $767,377, as compared with $691,370 a year ago. Sundry revenue of $6,429, comparing with $2,169, brought total revenue to $772,807, as compared with $693,540. Bond interest required $220,466 and general interest $49,494. The sum of $60,287 was allowed for depreciation as compared with $95,491 the preceding year. These deductions left a balance of $442,560 as compared with $400,108 last year. Payment of deferred dividends amounting to $120,000, and common dividends amounting to $221,622 left a balance of $100,938, but this, together with the previous balance of $16,065, was completely wiped out by the appropriation of $78,180 to sinking fund and $38,823 to reserve and contingent funds. It might be that the sinking fund requirement will be considered by some a prior charge to dividends. Leaving this item out of consideration, however, the company shows 8.7 per cent on the common stock after depreciation.

* * *

Favors An Embargo

The first commercial organization to place itself on record as heartily in favor of the embargo on pulpwood exportation to the United States is the Chatham, N. B., Board of Trade. This body, at a special meeting, endorsed the campaign now being waged to introduce the embargo, on the ground that the measure would result in the building of additional pulp and paper mills in Canada, and also aid in the conservation of pulpwood. Chatham is one of the most important pulp centres of the Maritime provinces and is located in the pulpwood territory on the north shore of New Brunswick. A pulp mill controlled by the Fraser companies is located there, together with the offices of many pulpwood buying and operating concerns and individuals.

* * *

For Big Pulp and Paper Mill

The largest sales of timber in the history of Quebec occurred when 2,500 square miles of timber in the basin of the Manicouagan River were purchased recently, it is reported, by the Rothemere interests, for the sum of $1,000,000, payable in three installments, and an additional charge of $16,250 a year ground rental. The terms of the contract further provide that the purchasers are to erect a pulp and paper mill, with a daily capacity of 200 tons of pulp and 100 tons of paper, within five years, and to increase their output of paper to 200 tons within seven years.

* * *

Production Is Advanced

The International Paper Co., New York, is continuing the increased production schedule at its newsprint mills at Three Rivers, Que., and has not advanced the basis to 310 tons per day, as compared with a previous output of 240 tons per day. Another increase is expected to be made at an early date. The company has recently discontinued operations at two of its minor mills at Watertown, N. Y., due, it is stated, to over-production. One of the mills has been running on regular newsprint, and the other on a higher grade of special print stock.

A Warning

Against Buying Foreign Paper From Samples Submitted and on Promises of Early Delivery

Do not be misled into buying foreign paper from samples submitted and with promises of very early delivery.

Information has reached PAPER that paper is now being sold under false pretenses that closely border on absolute swindling. A test case was recently followed through to test the theory of American paper manufacturers that such was the case.

Samples of high grade vegetable parchment were shown in America, purporting to be the product of a big Belgian mill. Shipment was promised in two weeks. Some five months or more later the paper arrived. It was no more like the samples than good rag bond is cheap paper board. It was so far under the sample that it could not be utilized for the purpose it was intended at all.

And here is the poignant agony of the thing: The paper was paid for at shipment time and with international complications involved there was no practical redress to be found.

Of course the paper was sold cheap, comparatively speaking. But no paper is cheap if it is not as represented to be.

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SECOND ANNUAL
PAPER
INDUSTRIES EXPOSITION

PEOPLE connected with the Paper industry in different parts of the country far and near, are in a state of expectation. The time is drawing close when the great annual interchange of ideas, news and information will take place, at the Paper Exposition.

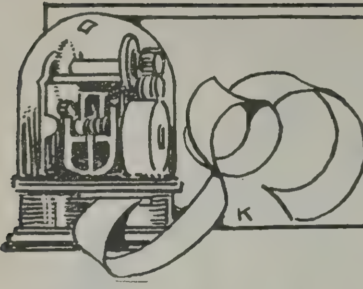
There will be men there who have studied the subject of PAPER from every viewpoint—men who will tell and show how they have solved vital problems—the same problems that come up in your organization.

Besides getting helpful ideas regarding essential materials, methods, equipment, etc., the light of information is thrown on such things as the manufacture of chlorine gas, control instruments, coagulants and causticizing apparatus, pumps of all kinds, stokers and furnace equipment, castings, tubes, silica iron apparatus, acid condensers, rolls and beaters, paper felts—in short, the entire line of paper mill supplies.

The Exposition will tell the complete story of paper—starting from the forest and the measures used to prevent waste and insure the supply of paper raw material for the future. It will cover everything in paper making up to the finished products among which will be shown the latest products of the paper maker and converter.

Come to the Paper Exposition. Send your assistants and employees. Results will show in the months to come.

PAPER INDUSTRIES EXPOSITION Grand Central Palace, New York City



LATEST MARKET REVIEW

OUTLOOK ONLY FAIR FOR PAPER PRODUCERS SAYS, REPORT

Output Moving Into Consumers' Hands Practically at Rate of Manufacture

WHILE the demand for paper products is not progressing on an even scale, conditions in the industry are described as about normal and seasonal expansion is being experienced in various grades, Increasing demand for raw materials and advancing prices for certain of these materials have been the first reflection of this expansion. Some strengthening of quotations on finished paper has been noted, without, however, any general tendency toward a higher level of prices.

Conspicuous absence of speculative interest in paper gives evidence of the increasing stability in the paper markets of the country, according to a review of the industry published by The Standard Daily Trade Service. Buying, it is added, is mainly on a basis of current needs, consumers anticipating neither a scarcity of leading grades nor any substantial advance in prices over prevailing levels. While consumption will be relatively high this Spring, an easy supply situation is now indicated, according to the review.

"The feature of the past month has been the marked scarcity and the steady upward price trend of rags and waste paper, an advance of 5 to 25 per cent. having been recorded for both domestic and foreign materials," says the review. "Despite reports of a possible embargo on French and Belgian papermaking rags, current prices are about as high as can be sustained, and further marked advances are improbable.

"Quotations on standard newsprint have held unchanged since August, 1923. Notwithstanding some recent slackening in forward business they probably will be maintained during the near-term at current levels. Spot demand is in sufficient volume to insure a steady movement of newsprint from the mills, even though consumers are not likely to anticipate their needs for an advance. Quotations on ground wood, however, have declined since January—a decline which has reacted to the advantage of the mills.

"Book, writing and wrapping papers have been in steady demand since the first of the year, with prices substantially unchanged. Buying of these grades is increasing in line with the general industrial trend, although sharp competition is acting to keep quotations at recent levels. Seasonal requirements of the clothing and millinery trades account for the slightly higher quotations of tissues, with prospects of further strength this month as buying from these trades promises to be well sustained.

"Production of paper, as reported by the American Pulp and Paper Association, increased 13 per cent in January over the seasonally low December total. Aggregated production was estimated in January at 419,615 tons, as compared with 370,605 tons in December and 409,139 tons in November. With the exception of book papers and wall papers, January outputs of leading grades showed an increase over the latter months of 1923. Much of the increasing output, however, went toward expanding stocks rather than into consuming channels in January. Book and wall paper stocks alone were smaller on February 1 than at the beginning of the year.

"Paper is now moving into consumers' hands practically at the rate of manufacture. With stocks of only about normal proportions, with demand promising to show further expansion during the Spring months, and with prices fairly well stabilized, the near-term outlook is at least moderately favorable to the paper producers."

* * *

Badly Damaged by Fire

The Old Mill Paper Products Company of 106-114 Lincoln Street, Boston, was badly damaged by fire February 27. The company occupies the third floor of the structure while the fire was on the sixth floor but considerable damage resulted from water and smoke.

Late Market Prices

Prices at closing Tuesday

	Bid	Asked
American Writing Paper........	2	2½
International Paper, Pf........	63	65
International Paper..............	36	37
Union Bag & Paper Co..........	52	52½

Deficit Announced

A deficit of $254,021.23 after all deductions for depreciation, bond interest, and taxes, is shown by the Eddy Paper Corporation, of Illinois, in its condensed statement for the year ending December 31, 1923. Geo. N. Seaman, president of the company, announces that $122,932.02 of the amount is accounted for by decrease in the value of the inventory to conform to present market prices. During the last year the general efficiency of the Three Rivers and White Pigeon mills were largely increased by the installation of new equipment.

* * *

Merger Progressing

It is stated that those desirous of consummating a merger between the Spanish River and Abitibi companies are said to be making rapid progress with their plans and are likely to be in a position to submit them to the companies concerned very shortly. The present plant consists of the formation of an entirely new company which will offer its stock to the two companies on the ratio of six sheets of new company for every five Abitibi held and two shares of new company for each one of Spanish common, in addition to provision for bonds and preferred stock.

* * *

A Busy Month

February was a busy month for Canadian paper mills according to the production figures which gave an output of 111,664 tons, which compares with 91,935 tons for February of the last year. January production was 109,875 tons, bringing the total for the two months up to 221,539 tons.

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BASIC MARKET QUOTATIONS

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NEWS	
Contract Basis	3.75 @
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.80 @ .90
Manila No. 1	.70 @ .80
WRAPPING	
No. 1 Domestic Kraft	6.25 @ 6.75
No. 1 Jute	8.25 @ 8.75
No. 1 Wood	4.75 @ 5.25
Butchers	4.00 @ 4.25
BOARD	
News	45.00 @ 50.00
Chip	40.00 @ 45.00

Paper and Board

New York, March 25—There have been several fairly important developments in the paper market within the last few days. Probably the most important is the report that one of the largest manufacturers in the country of wrapping papers, if not the largest, has advanced prices of kraft wrapping a quarter of a cent per pound, with some special lines of kraft paper priced at half a cent per pound above previously ruling levels. The reaction upward in kraft paper prices appears to be the culmination of numerous conditions in the market rerecently which have been creating a firmer situation in this class of paper. From all accounts, importations of kraft wrapping from German and Scandinavian sources have shown a decline, and with foreign competition less keen, domestic manufacturers of wrapping paper are in a more favorable position and apparently are trying to get market levels for their product back to where they can realize a fair rate of return in their manufacturing operations.

Another development is the reported firmer situation in tissue papers. The spring usually is an active period for this kind of paper especially the high grades of tissue which are used in the clothing trades and by retail establishments and some mills are reported to have jumped quotations 5 and 10 cents a ream No. 1 white tissue being quoted at 80 cents and higher, and No. 2 white and No. 1 manila tissue at about 75 cents a ream. Demand for tissue has improved quite perceptibly of late, according to reports. Merchants are laying in stocks for the Easter trade, and there has been a better call for supplies from converters. Tissue mills are said to be running at greater capacity than since last fall, with prospects of continued good business during the next several months.

The market for newsprint continues. Another large daily newspaper in New York City has gone out of existence, having been merged with one of the other morning dailies in this city. Newspapers have been disappearing so frequently in the metropolis in the past year or so that some concern has been felt in the paper trade regarding the likely effect on the newsprint market situation. It is stated, and statistics would seem to bear out the contentions, however, that the loss in print paper consumption in this city has been slight. When two papers are merged the decrease in circulation has been more or less negilible, so that very nearly as much newsprint is used as when the papers are printed separately.

It would appear as if newsprint is running neck and neck with the high level reached in the last year. One of the afternoon dailies printed a regular issue of 40 pages one day last week, which was something of a record for the newspaper in question. The morning dailies are running unusually large in size, while in the Sunday issues contain equally as many pages as during any period for a year or longer.

Newsprint production in the United States in February totaled 117,322 tons, compared with 128,772 tons in January, according to figures just issued. Shipments from mills were 115,427 tons in February, against 123,253 tons in January. Output of Canadian mills in February totaled 111,664 tons, contrasted with 109,875 tons in January, while shipments amounted to 109,901 tons, compared with 107,966 tons in January.

All records of newsprint consumption in the United States were exceeded in 1923, according to a report made public by the Government. The figures for 1920 were exceeded by about 28 per cent. and those of 1922 by about 15 per cent. Total net consumption, according to the Department of Commerce, amounted to approximately 2,800,000 tons, of which mills in the United States produced 1,506,204 tons. This production was practically all consumed in the United States, the exports during the year being approximately 16,360 tons. Production in this country for 1923 was about 1.8 per cent. less than that for 1920 and only about 2.55 per cent. above that in 1922. Canadian production increased largely, however, and increased imports took care of the heavier consumption in 1923.

Book paper is quotably steady and meeting with fair demand.

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Box boards are still somewhat unsettled in price but the market is improving in point of activity as the spring demand becomes more pronounced. Most mills in the East quote chip board at around $40 a ton f. o. b. New York, and news board at $45 per ton.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.25	@	6.75
No. 2 Domestic	5.25	@	5.75
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.80	@	.90
Manila No. 1	.70	@	.80
White No. 2	.70	@	.80
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	5.50	@	6.00
No. 2 Fiber	4.50	@	5.00
Card Middles	3.75	@	4.00
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	40.00	@	45.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

Ground wood prices seem to be holding at maintained levels following the recent downward movement, and while plentiful supplies are apparently afforded consumers, there are no signs that any unusual surplus of mechanical pulp is held unsold at present. Buyers are operating in the market on a most conservative scale. Few are ordering except to cover direct requirements and there is consequently a rather quiet market condition, yet business is of at least normal volume with both contract and transient buyers taking pulp in a steady way. Domestic producers quote around $32—as an average price—for spruce ground wood for prompt shipment, quotations of course depending on the air dry test and the haul from grinding to consuming points. Foreign ground wood is selling at about $32 to $33 a ton ex dock New York.

Foreign and Domestic Chemical Pulp

Probably the outstanding turn in the chemical pulp market is the firmer tone developing in bleached sulphite. This is due, from all appearances, to the strike situation in Norway, which, it is felt, may result in a curtailment of shipments of bleached sulphite from that country to the United States, and which would be an important factor since American paper mills secure a good part of the bleached sulphite they use from Norwegian manufacturers. Prices have not changed but the tendency is toward a stronger position. Kraft pulp also exhibits a firming tendency though buyers as a rule are covering their wants at the same prices obtaining recently, Scandinavian kraft being quoted at from 2.50 cents a pound upward ex dock New York, and No. 1 domestic kraft at from 2.60 cents upward at pulp mills. Demand for chemical pulp is at best spotty though some members of the trade aver that the aggregate volume of buying is not so small. Quotations ex dock New York and f. o. b. pulp mills are as follows:

Sulphite foreign—			
Bleached No. 1	3.75	@	4.25
Unbleached No. 1	2.60	@	2.80
Unbleached No. 2	2.40	@	2.60
Easy Bleaching	2.90	@	3.15
Unbleached news			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.60	@	3.00
grade	2.50	@	2.75
Sulphite, domestic—			
Easy Bleaching	3.00	@	3.25
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.60	@	2.90
Sulphite screenings, refined	1.50	@	1.75

Domestic Rags

There is a good deal of irregularity in the demand for papermaking rags, and while no further broad changes in prices have occurred, the market tone is on the soft side and buyers in frequent instances are securing the supplies wanted at concessions. It is the usual thing for rag prices to ease as the spring comes around, and it is probable that the prevailing easiness is due to the season, accompanied as it is by a decrease in demand from consuming quarters. On the other hand, there are some grades of rags holding quite firm in price. New cuttings show little disposition to sag in value, and the better qualities of old rags are holding their own in price. Roofing stock is selling on a basis of about 2.40 cents a pound f. o. b. New York for No. 1 packing and 2.25 to 2.30 cents for No. 2 grade. Old thirds and blues are quotably steady at 3.50

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to 4 cents a pound f. o. b. New York for repacked, and 3.25 cents for miscellaneous packing. Prices f. o. b. New York are:

New Shirt Cuttings, No. 1	14.00	@	14.50
No. 2	6.50	@	6.75
Fancy Shirt Cuttings	7.00	@	7.50
No. 1 Whites, repacked	7.50	@	8.50
No. 2 Whites, repacked	4.50	@	5.00
White Lawns	11.50	@	11.75
New Muslins, unbleached	12.00	@	12.25
Light Silesias	9.00	@	9.25
Black Silesias	5.50	@	5.75
Overall Cuttings, Blue	9.25	@	9.50
Washables	5.50	@	5.75
New Black Mixed	5.00	@	5.25
Soiled Whites, house	4.00	@	4.25
Soiled Whites, street	3.75	@	4.00
Thirds & Blues, repacked	3.50	@	4.00
Thirds & Blues, misc.	3.00	@	3.25
Black Cotton Stockings	4.00	@	4.25
Roofing Rags, No. 1	2.40	@	2.50
Roofing Rags, No. 2	2.25	@	2.35

Imported Rags

There is fair buying interest in foreign rag stock but papermakers are seeking to get the supplies desired at reduced prices, and indications are they are succeeding in a majority of cases. Dark colored cottons are selling at 2.25 cents a pound ex dock New York for spot lots, and these rags are said to have been bought down to 2 cents for forward shipment from Europe. Old blues are steady in price, and new cuttings show little or no change. Quotations ex dock New York are as follows:

Lins., White, No. 1	15.00	@	16.00
Ger. Blue Cottons	3.75	@	4.00
French Light Blues	4.00	@	4.50
New Light Prints	7.00	@	7.50
New Unbleached	10.50	@	11.00
German Linen, blue	5.00	@	5.25
German Linen, grey	6.50	@	7.00
German S. P. F.'s	6.00	@	9.00
German Light Prints	4.00	@	4.50
Dk. Colored Cottons	2.25	@	2.35

Bagging, Rope, Etc.

Old rope prices are well maintained under a fairly steady movement of this commodity to paper mills. Domestic No. 1 manila rope is fetching 6.50 to 6.75 cents a pound f. o. b. New York, and foreign manila rope is quoted by local importers at 6.25 cents or higher ex dock at this port. Most of the buying of bagging is being done by roofing paper manufacturers, who are paying in the vicinity of 1.40 cents a pound New York. F. o. b. New York prices follow:

Gunny No. 1	1.50	@	1.60
Foreign	1.40	@	1.50
Wool Tares, light	1.40	@	1.50
Roofing Bagging	1.35	@	1.50
Wool Tares, heavy	1.50	@	1.60
For. Manila Rope	6.25	@	6.50
Domestic Rope	6.50	@	6.75
Mixed Strings	1.25	@	1.50
Scrap. Bagging, No. 1	1.50	@	1.65

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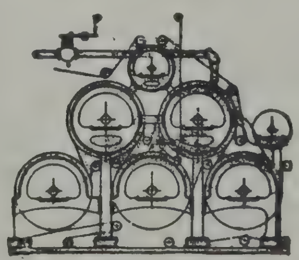

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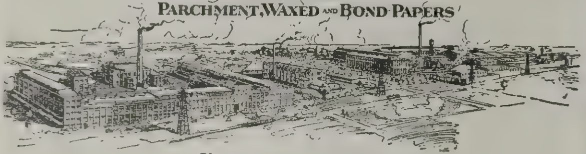

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Old Paper

The trend of old paper values continues downward. Demand apparently does not measure up to available supplies of this material, and, as is invariably the case when the movement to mills slackens, prices pursue a downward slide. Shavings are quoted at 3.75 cents a pound f. o. b. New York for No. 1 hard white and 2.75 cents for No. 1 soft white shavings, and it is more than likely that purchases have been made at lower figures. Folded newspapers are selling at 75 to 85 cents a hundred pounds New York, and No. 1 mixed papers at about 65 cents, with sales at cheaper figures also reported in these grades. Old magazines are quoted at 1.40 cents a pound New York for heavy flat stock, and ledgers at 1.85 cents. Quotations named by New York dealers f. o. b. this city are:

No. 1 Hard White Shavings	3.65	@	3.85	Ledger Stock	1.80	@	2.00
No. 2 Hard White Shavings	3.00	@	3.25	Kraft, No. 1	2.25	@	2.25
No. 1 Soft White Shavings	2.70	@	2.90	New Manila Cuttings	2.00	@	2.25
Box Board Chips	.70	@	.80	New Manila Env. Cuttings	2.75	@	3.00
No. 1 Colored Shavings	1.60	@	1.80	Bogus & Mill Wrappers	1.00	@	1.10
Magazine flat stock	1.40	@	1.60	News, strictly overissue	1.00	@	1.10
No. 1 Crumpled	1.20	@	1.35	Folded News	.75	@	.85
Solid Ledger Books	2.00	@	2.15	No. 1 Mixed Papers	.60	@	.65
				White Blank News	2.15	@	2.25
				Common Paper	.45	@	.55

Twines

The twine market is fairly active insofar as routine business is concerned. There is, however, a lack of new buying of importance. Consumers are merely filling their needs as they develop, and dealers in turn are ordering from mills in restricted fashion. Prices are quotably steady, the strength in raw material being a sustaining factor. Quotations are as follows:

Sisal Hay, pure	14.25	@	15.25	Jute Wrapping twine, A grade	20.00	@	
Manila Hay, pure	16.25	@	17.25	Papermakers Twine	11.50	@	
Sisal Lath yarn	13.25	@	14.25	B. C. Hemp, 18	.39	@	.40
Manila Rope, pure, ¾ inch diameter	16.25	@	17.25	B. C. Hemp, 24	.38	@	.39
Hardware Rope	14.25	@	15.25	B. C. Hemp, 36	.37	@	.38
Jute rope, ¼ diam. nnd over, coils	13.00	@	15.00	America Light India—No. 6	14.50	@	
Sail twine, A grade	20.00	@		No. 7	13.50	@	

Chemicals

There is no change of consequence reported in papermaking chemicals. Quoted prices are on about last reported levels, and demand is of strictly routine character.

IMPORTS AT NEW YORK

Week of March 17-22

Paper

Str. Montauk, Antwerp—C. W. Williams & Co., 24 cs.; Gevaert Company of America, 46 cs. photo; Steffens, Johns & Co., 9 cs. printing; from Hamburg—Baldwin Shipping Company, 6 cs.; Chemical National Bank, 134 rolls newsprint.

Str McKeesport, Rotterdam—Adrain Vuyck, 112 rolls straw board; Kolesch & Co., 12 cs.

Str. Pipestone County, Havre—Standard Products Corporation, 160 cs. cigarette.

Str. Hannover, Bremen—Martin & Bechtold, 20 cs printing; Globe Shipping Company, 80 cs. photo; A. Frankan & Co., 4 cs.; C. Steiner, 74 cs. printing.

Str. Havre Maru, Kobe—R. F. Downing & Co., 24 cs.

Str. President Roosevelt, Bremen—O. G. Hempstead & Sons, 5 cs. pasteboard; Order, 5 bls hanging.

Str. Rochambeau, Havre—Whiting-Patterson Company, 10 cs.; A. C. Dodman, Jr., 7 cs. hanging; Surburg Company, 17 cs. cigarette; Japan Paper Company, 14 cs. writing; Standard Products Corporation, 17 cs. cigarette; Erstein & Co., 10 cs. writing; Goubont Freres & Co., 45 cs. writing; Order, 4 cs.

Str. Ausonia, Liverpool—A. C. Dodman Jr., 2 bls. hanging; B. F. Drakenfeld & Co., 10 cs. printing; Order, 9 cs. printing and 7 cs. writing.

Str. Bremen, Bremen—Sinclair & Valentine, 4 cs.; C. G. Keferstein, 98 rolls printing; Globe Shipping Company, 174 cs. photo; National City Bank, 796 rolls newsprint.

Str. President Van Buren, London—R. F. Downing & Co., 8 bls. hanging.

Str. Mount Carrol, Hamburg—Friedman & Co., 9 cs. pasteboard; International Acceptance Bank, 150 rolls newsprint; J. H. Scott Paper Company, 110 rolls newsprint; Wilkinson Bros. & Co., 21 bls. wrapping; Corn Exchange National Bank of Philadelphia, 45 cs.; Chase National Bank, 14 rolls and 32 bls. wrapping.

Str. Colonian, Liverpool—F. J. Emmerich & Co., 21 bls hanging.

Str. Mississippi, London—A. C. Dodman, Jr., 5 cs. hanging; G. & H. Transport Company, 12 cs. filter; W. H. S. Lloyd & Co., 186 bls. hanging; Order, 28 pkgs. hanging.

Wood Pulp

Str Bornholm, Liverpool, N. S.—Tidewater Paper Mills Company, 12,350 bls. ground wood.

Old Rope

Str. McKeesport, Rotterdam—International Purchasing Company, 93 coils.

Str. Pipestone County, Havre—International Purchasing Company, 65 bls.; from Dunkirk—Castle & Overton, 131 bls.

Str. Bremen, Bremen—North German Lloyd, 44 bls.; Brown Bros. & Co., 34 coils.

Str. Galileo, Hull—Brown Bros, & Co., 487 coils; from Newcastle—Brown Bros. & Co., 77 coils; Equitable Trust Company, 242 coils.

Str. President Van Buren, London—Ellerman-Wilson S. S. Line, 66 coils.

Str. Mercier, Antwerp—Anglo-South American Trust Company, 76 coils.

Str. Oscar H. Christiania—Order, 16 coils; from Copenhagen—Goldman, Sachs & Co., 248 coils.

Old Bagging

Str. Pipestone County, Havre—Stone Bros. & Victor Galaup Company, 200 bls.

Str. Galileo, Newcastle—Brown Bros. & Co., 125 bls.

Str. Mercier, Antwerp—Guaranty Trust Company, 65 bls.; New York Trust Company, 50 bls.; Order, 81 bls.

Str. Oscar II, Copenhagen—Goldman, Sachs & Co., 137 bls.

Str. Colonian, Liverpool—Order, 89 bls.

Str. Mississippi, London—S. Birkenstein & Sons, 112 bls.

Rags

Str. Pipestone County, Havre—A. W. Fenton, Inc., 317 bls.; Robert Blank, 146 bls.

Str. Hannover, Bremen—Strupp & Co., 116 bls.; Chemical National Bank, 77 bls.; Chase National Bank, 114 bls.; Guaranty Trust Company, 584 bls.; Order, 355 bls.

Str. Rochambeau, Havre—International Acceptance Bank, 131 bls.; Order, 18 bls.

Str. Siboney, Havana—M. Wolfer & Co., 32 bls.

Str. Bremen, Bremen—Guaranty Trust Company, 30 bls.; Chemical National Bank, 33 bls.; Goldman, Sachs & Co., 84 bls.; American Exchange National Bank, 34 bls.; North German Lloyd, 220 bls.; Order, 107 bls.

Str. Galileo, Newcastle—C. R. Spence & Co., 17 bls.; International Acceptance Bank, 210 bls.; New York Trust Company, 179 bls.; Philadelphia National Bank, 160 bls.

Str. Ida, Naples—Stone Bros. & Victor Galaup Company, 120 bls.

Str. Mercier, Antwerp—Equitable Trust Company, 75 bls.; National City Bank, 60 bls.; Goldman, Sachs & Co., 358 bls.; Guaranty Trust Company, 388 bls.; First National Bank of Boston, 29 bls.; Order, 56 bls.

Str. Mount Carroll, Hamburg—Globe Shipping Company, 44 bls.; Order, 282 bls.

Str. Oscar II, Copenhagen—Goldman, Sachs & Co., 320 bls.; Funch, Edye & Co., 3 bls.

Str. Roussillon, Bordeaux—Goldman, Sachs & Co., 41 bls.; Guaranty Trust Company, 374 bls.; Order, 218 bls.

Str. Mississippi, London—Order, 40 bls.

Str. Troubadour, Buenos Aires—Irving Bank-Columbia Trust Company, 106 bls.; Order, 120 bls.

Str. Colonian, Manchester—Order, 18 bls.

Paper Stock

Str. Montauk, Antwerp—Equitable Trust Company, 140 bls.

Str. McKeesport, Rotterdam—Maurice O'Meara Company, 32 bls.

Str. Pipestone County, Dunkirk—Daniel M. Hicks, Inc., 75 bls.; Salomon Bros. & Co., 23 bls.

Str. Mercier, Antwerp—International Acceptance Bank, 107 bls.

Casein

Str. Southern Cross, Buenos Aires—Kalbfleisch Corporation, 3,249 bags.

Str. Troubadour, Buenos Aires—Order, 2,752 bags.

Talc

Str. Vincenzo Florio, Genoa—Italian Discount & Trust Company, 2,800 bags; L. A. Salomon & Bros., 200 bags.

Str. Roussillon, Bordeaux—Kirchberger & Co., 20 cks.

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WALLACE—Joseph H., & Co., New York and Montreal.

BEARINGS

LINK-BELT Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BELT CONVEYORS

LINK-BELT Co., Chicago, Ill.

BLEACHING POWDER

MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOND PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.

BOX BOARDS

STANDARD Paper Co., Kalamazoo, Mich.

BRIMSTONE

UNION Sulphur Co., New York.

CARS

Pulp

Easton Car & Construction Co., 196 Fulton Street, New York City.
Chase Foundry & Mfg. Co., 2800 Parsons Ave., Columbus, Ohio.

CASEIN

California Central Creameries, Inc., 425 Battery, San Francisco, Calif.
Bird & Co., J. A. & W., 88 Pearl St., Boston, Mass.
King, E. & F. & Co., 367 Atlantic Ave., Boston, Mass.
Reardon Company, 127 Clinton, St. Louis, Mo.
Wiarda, John C. & Co., 91 Provost St., Brooklyn, N. Y.
Sheffield By-Products Co., Hobart, N. Y.
Atterbury Bros., 145 Nassau St., (French Imported) New York City.
Casein Mfg. Co., 15 Park Row, New York City.
Duche & Sons, T. M., (Imported), 376 Greenwich St., New York City.
Hamilton Company, 50 Church St., New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff, New York City.
Kalbfleisch Corp., The, 31 Union Sq., New York City.
Peek & Velsor, 8 Gold, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Amalgamated Gum Co., (Vegetable for Wall Paper & Paper Coater Mfgrs.) Troy, N. Y.

CAUSTIC SODA

MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.
DIAMOND Alkali Co., Pittsburgh, Pa.

CHAINS AND WHEELS

LINK-BELT Co., Chicago, Ill.

CHEMICALS

Papermakers

du Pont, E. I. de Nemours & Co., Inc., Lithopone, Pigments & Heavy Chemicals Div., Wilmington, Del.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
American Woodpulp Corp., 347 Madison Avenue, New York City.
Battelle & Renwick, 80 Maiden Lane, New York City.
Burns Mfg. Co., 46 W. Broadway, New York City.
Cooper, Charles, & Co., 194 Worth, (Job), New York City.
DIAMOND Alkali Co., Pittsburgh, Pa.
KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.
National Sales Co., Cincinnati, O., (Bentonite).
Paper Makers Chemical Co., Easton, Pa.
PENNSYLVANIA Salt Mfg. Co., Chestnut St., (Bleach), Philadelphia, Pa.
EMPIRE Size & Chemical Co., (Rosin Size—Foam Killer—Felt Soap), Albany, N. Y.
Philadelphia Quartz Co., 121 So. 32 St., Philadelphia, Pa., Silicate of Soda.

CLAY

China

United Clay Mines Corp., Trenton, N. J.
Bernhan Chemical & Metal Corp., 309 Broadway, (Job), New York City.
Bingswanger, H. P., 7 West 16, New York City.
Chrystal, Chas. B., Co., Inc., 99 John, (Imp.), New York City.
Drakenfeld, B. F., & Co., Inc., 50 Murray, New York City.
English China Clays Sales Corp., 33 West 42nd St., New York City.
General Mineral Co., Inc., 104 Spring, New York City, (Imp., Exp. & Mfrs. Agts.)
Hammell & Gillespie, 240 Front, New York City.
Higman Company, John W., 29 Broadway, New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff (Job), New York City.
Keystone Minerals Co., 41 Union Square, New York City.
Penn-Keystone Co., 41 Union Square New York City.
Roessler & Hasslacher Chem. Co., 709 6th Avenue, New York City.
Salomon & Bro., L. A., 216 Pearl, (Imptr., Exptr. & Dir.), New York City.
Scheel, Wm. H., (Dept. A.), 159 Maiden Lane, (Imptrs., Exptr. & Dir.), New York City.
Smith & Co., J. Lee, 23 Jacob, New York City.
Taintor Mfg. Co., H. F., 2 Rector, (Bolted), New York City.
Tennant Sons & Co., C., 76 William New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City
Vanderbilt, R. T. Co., Inc., 50 East 42nd St., New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Hardis Kaolin Co., Dillsboro, N. C.
Onondaga Pottery Co., (Vitrified), Syracuse, N. Y.
Excelsior Ball Clay Co., 31 East 13th, Cincinnati, Ohio.
National Sales Co., 31 East 13th, Cincinnati, Ohio.
Harshaw, Fuller & Goodwin Co., (Imptr.), Cleveland, Ohio.
Florida China Clay Corp., (Fla.), Easton, Pa.
Immaculate Kaolin Co., (For filling, coating & pottery purposes), Easton, Pa.
Peper Makers Chemical Co., (Eng.), Easton, Pa.
Williams, C. K., & Co., (Bolted), (Imptrs.), Easton, Pa.
Atlas Mineral Products Co., Mertztown, Pa.
Star Clay Co. (powdered & lump washed), Mertztown, Pa.
Fergusson, Alex. C., Jr., 460 Chestnut, Philadelphia, Pa.
Foote Mineral Co., Inc., 113 No. 19th, Philadelphia, Pa.
Nevins Co., Samuel, 109 So. 2nd, (Dried, Grd. & Bolted), Philadelphia, Pa.
Philadelphia Clay Co., 1201 Chestnut, Philadelphia, Pa.
Wayner, Chas. A. Co., Inc., 814 Noble St., Philadelphia, Pa.
Lyon & Bro. S. C., Bennington, Vt.
Horn, Crockett & Co., (Miners & Refiners), Brandon, Vt.
Dill-Coppage, Inc., 235 Pine (Imptrs. & Exptrs.), San Francisco, Calif.
Savannah Kaolin Co., Savannah, Ga.
Bennett & Davis, Inc., 327 So. LaSalle, Chicago. Ill.
Mepham, Geo. S., & Co., East St. Louis, Mo.
Cooley Ball & Sagger Clay Co., Hazel, Ky.
Kentucky Const. & Improvement Co., Pryersburg, Ky.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McHose Clay Co., Perth Amboy, N. J.
McHose, L. H., Inc., P. O. Box 345, Perth Amboy, N. J.
Such Clay Co., Perth Amboy, N. J.
Perrine, Hy. C., & Son, South Amboy, N. J.
Golding Sons Co., Trenton, N. J.

CLAY

Papermakers

Savannah Kaolin Co., Savannah, Ga.
Owyhee Chemical Products Co.,3946 So. Union Avenue, Chicago, Ill.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
Laclede-Christy, Railway Exch. Bldg., St. Louis, Mo.
Crossman Co., South Amboy, N. J.
Wright, Marcus S., South River, N. J.
United Clay Mines Corp., Trenton, N. J.
Carbola Chemical Co., Inc., 299 Ely Avenue, Long Island City, N. Y.
Binney & Smith Co., 81 Fulton, New York City, N. Y.
Chrystal, Chas. B. Co., Inc., 99 John, New York City.
General Mineral Co., Inc., 104 Spring, (Imptrs. & Exptrs., Mfg. Agts.), New York City.
Higman, John W. Co., 29 B'way, (Eng. & Amer.), New York City.
International Pulp Co., 41 Park Row, New York City.
Johns & Company, Inc., 50 Church, New York City.
PERKINS-GOODWIN Co., 33 West 42nd St., New York City.
Talc Products Co., 120 B'way, New York City.
Vanderbilt, R. T. Co., Inc.. 50 East 42nd St., New York City.
Whittaker, Clark & Daniels, Inc., 245 Front St., (Exp. & Impt.), New York City.
Excelsior Ball Clay Co., 31 East 13th St., Cincinnati. Ohio.
National Sales Co., (Colloidal Clay), Cincinnati, O.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Williams, C. K. & Co., Easton, Pa.
Star Clay Co., Mertztown, Pa.
South Carolina Clay Co., West Chester, Pa
Horn, Crockett & Co., Brandon, Vt.

CLAYS

Francesconi, J. C., & Co., 25 Beaver, New York City.
General Mineral Co., Inc., 104 Spring, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.

COAL AND ASH HANDLING MACHINERY

LINK-BELT Co., Chicago, Ill.

COGS

Menasha Wood Split Pulley Co., Menasha, Wis.

COLORS

Papermakers

King, E. & F. Co., 376 Atlantic Ave., Boston, Mass.
Hampden Paint & Chemical Co., Springfield, Mass.
Lucas & Spencer Co., (Pulp), Camden, N. J.
Sun Chemical & Color Co., Harrison, N. J.
Central Dyestuff & Chemical Co., Plum Point Lane, Newark, N. J.
United Color & Pigment Co., Evergreen Ave., Newark, N. J.
Janeway & Carpender, New Brunswick, N. J.
Debrook Co., Inc., 1105 Metropolitan Ave., Brooklyn, N. Y.
Clinton Metallic Paint Co., Clinton, N. Y.
Harmon Color Works, Inc.. (Pulp), College Point, N. Y.
Imperial Color Wks., Inc., Tait Paper & Color Industries, Inc., Glenns Falls, N. Y.
Tait Paper & Color Industries, Inc., Glens Falls, N. Y.
Aniline Sales Corp., 480 W. B'way, New York City.
American Aniline Products, Inc., 80 5th Avenue, New York City.
Ansbacher, A. B. & Co., 527 5th Avenue, New York City.
BACHMEIER & Co., 438 W. 37th St., New York City.
Binney & Smith Co., 81 Fulton, New York City.
Carbic Color & Chem. Co., Inc., 451-453 Washington, New York City.
Certified Chemical Corp., 80 Maiden Lane, New York City.
Ciba Co., Inc., Cedar & Washington, New York City.
Crescent Color & Chemical Works, Inc., 59th St. & 11th Avenue, New York City.
Devoe & Raynolds Co., Inc., 101 Fulton, New York City.
Doggett, Stanley, Inc., 1 Cliff St., New York City.
Heller & Merz Co., 503 Hudson St., New York City.
KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.
Laidlaw, Kelley & Co., Inc., 14 Platt, New York City.
Lavanburg, Fred. L., 100 William, New York City.
McNulty, Joseph A., 114 Liberty, New York City.
Martin Co., L., Liggett Bldg., New York City.
Metz, H. A. & Co., Inc., 122 Hudson, New York City.
National Aniline & Chemical Co., 40 Rector St., New York City.
Osborn Co., C. J., 101 Beekman. New York City.
Smith & Co., J. Lee, 23 Jacob, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses, New York City.
Wetterwald & Pfister Co., (Brunswick Color & Chem. Co.), 276 Spring, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front, New York City.
Palatine Aniline & Chem. Co., Poughkeepsie, N. Y.
Siegle, G. Corp. of America, Rosebank, N. Y.
Standard Printing Ink Co., 1638-1648 Providence, Cincinnati, O.
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Hommel, O. Co., 211 4th Ave., Pittsburgh, Pa.
Williams & Co., C. K., Easton, Pa.
Wilhelm Co., A., Reading, Pa.

CLASSIFIED DIRECTORY—Continued

Keystone Color & Mica Co., (Wall Paper, Coated Paper & Scenic), York, Pa.

Pulp

Du Pont, E. I. de Nemours & Co., Inc., Wilmington, Del.
Hampden Paint & Chemical Co., Springfield, Mass.
Kohnstamm, H. & Co., 83-93 Park Pl., New York City.
National Aniline & Chemical Co., Inc., 40 Rector St., New York City.

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CONVEYORS AND ELEVATORS

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COUNTER & MARKER

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Maxson Automatic Machinery Co., Westerly, R. I.

COUPLINGS (Shaft)

LINK-BELT Co., Chicago, Ill.
Hudson-Sharp Machine Co., Green Bay, Wis.

DANDY ROLL MAKERS

Smith, C. H., Corp., Sylvan St., West Springfield, Mass.

DIGESTERS

Chicago Bridge & Iron Wks., 2036 Transportation Bldg.. (pulp), Chicago, Ill.
Watson, Frye Co., Ltd., (paper & pulp mill, soda & sulphate), Bath, Me.
PORTLAND Co., (copper, paper & pulp mill), Portland, Me.
McNamara Bros. Co., Westport, Baltimore, Md.
Dillon Steam Boiler Wks., D. M., (paper & pulp mill, rotary), Fitchburg, Mass.
EASTWOOD Wire Mfg. Co., (papermaking), Belleville, N. J.
Reeves Bros. Co., 338 Rush Street, (pulp & paper mill), Alliance, O.
Tudor Boiler Mfg. Co., 715 E. 3rd St., (pulp), Cincinnati, Ohio.
Riter-Conley Co., 318 Oliver Bldg., (papermaking), Pittsburgh, Pa.
McAleenan Bros. Co., 25th & Railroad Sts., (pulp paper mill), Pittsburgh, Pa.
West Point Boiler & Tank Works, 23rd & Smallman, (paper making), Pittsburgh, Pa.
Petroleum Iron Works Co., Drawer 539 (pulp), Sharon, Pa.
Manitowoc Shipbuilding Corp., (paper mill, sulphate, rotary & soda), Manitowoc, Wis.

DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

DRIVES

Smidth & Co., F. L., 50 Church St., (Beater-Belt-Lenix), New York City.

DRYERS

Paper & Pulp Makers

Mintin, Ogden, Greenwich, Conn.
Smith & Winchester Mfg. Co., So. Windham, Conn.
Gordon, Robert, Inc., 1355 W. Washington Blvd., Chicago, Ill.
Rice Barton & Fales Machine & Iron Co., Worcester, Mass.
St. Louis Ventilating & Sheet Metal Co., 1306 Ann Avenue, St. Louis, Mo.
Carrier Eng. Corp., 39 Cortlandt, New York City.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Bartlett & Snow Co., C. OO French & Columbus, Cleveland, Ohio.
French & Columbus, Cleveland, O.
Cummer, F. D. & Son Co., Hanna Bldg., Cleveland, Ohio.
Kilby Mfg. Co., 4623 Lakeside Ave., Cleveland, Ohio.
Proctor & Schwartz, Inc., 7th St. & Tabor Road, Philadelphia, Pa.
Gordon Dryer Corporation, 275 W. Exchange, Providence, R. I.

EQUIPMENT

Crandon Mfg. Co., (special electrical, for pulp & paper mills), Portland, Me.

EVAPORATORS

Soda Pulp

Buffalo Foundry & Machine Co., 43 Winchester Avenue, Buffalo, N. Y.
Devine, J. P., Co., 1380 Clinton, Buffalo, N. Y.
Zaremba Co., 508 Niagara Life Bldg., Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City.
International Process Co., 5 Beekman, New York City.
Odrway, Charles 25 Church, New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Kestner Evaporator Co., North Philadelphia, **Pa.**

FELTS

Dryer, Jackets

FITCHBURG Duck Mills, Fitchburg, Mass.
F. C. HUYCK & Sons, (Kenwood Mills), Albany, N. Y.
Albany Felt Co., Albany, N. Y.
Appleton Woolen Mills, Appleton, Wis.
ORR Felt & Blanket Co., Piqua, Ohio.
WATERBURY Felt Co., Skaneateles Falls, N. Y.
Lockport Felt Co., Lockport, N. Y.
SHULER & Benninghofen, Hamilton, Ohio.

FILLERS

Papermakers

U. S Gypsum Co., 205 W. Monroe, (Terra Alba & Select), Chicago, Ill.
Macneal's Varnish & Color Works, 1600 Block Warner, Baltimore, Md.
Western Paper Makers Chemical Co., (Pearl), Kalamazoo, Mich.
American Chemical & Mfg. Corp., Kenilworth, N. J.
Carbola Chemical Co., Inc., 229 Ely Avenue, (Fillers for every purpose), Long Island City, N. Y.
INTERNATIONAL Pulp Co., 41 Park Row, New York City.
Talc Products Co., 120 B'way, New York City.
Solvay Process Co., Syracuse, N. Y.
Lookout Paint Mfg. Co., Chattanooga, Tenn.

FILTERS

Pulp and Paper

Oliver Continuous Filter Co., 503 Market, San Francisco, Calif.
Redlich Mfg. Co., 637 W. Oak, Chicago, Ill.
Ordway, Charles, 25 Church, New York City.
Permutit Co., The, 4th Ave. & 30th, New York City.
Kiefer, Kary Machine Co., 919 Martin, Cincinnati, Ohio.
Loew Mfg. Co., 9100 Madison Ave., Cleveland, Ohio.

GRINDERS

Wood Pulp

Pusey & Jones Co., Wilmington, Del.
Stroud, E. H. & Co, 928-934 Fullerton Ave,. Chicago, Ill.
Holyoke Machine Co., Holyoke, Mass.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Carthage Machine Co., Carthage, N. Y.
Dilts Machine Co., Inc., Fulton, N. Y.
Glens Falls Machine Wks., Glens Falls, N. Y.
Sandy Hill Iron & Brass Wks., Hudson Falls, N. Y.
Brown Co., A. & F., 79 Barclay, New York City.
Bagley & Sewall Co., Watertown, N. Y.
Jeffrey Mfg. Co., 956 No. 4th, Columbus, Ohio.
Dayton Globe Iron Works Co., Dayton, Ohio.
Scott, Olin, Est. of, Bennington, Vt.

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Coes & Co., Loring (inc.), Worcester, Mass.
Branch Saw Co., 3000 N. B'way, St. Louis, Mo.
Dilts Machine Co., Inc., Fulton, N. Y.
Lancaster Machine & Knife Wks., Lancaster, N. Y.
Cocker Mfg. Co., Lockport, N. Y.
Haring, Ellsworth, 116 Liberty, New York City.
Cleveland Knife & Forge Co., Cleveland, Ohio.
Worden Tool Co., (1854 Scranton Rd.), Cleveland, Ohio.
Simonds & Sons Co., A. A., Dayton, Ohio.

KRAFT PAPER

BROWN Company, Portland, **Me.**

LATHES
Truing, Pulpstone

Fulton Mach. & Vise Co., Lowville, N. Y.

LIQUID CHLORINE

MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

LAY-BOY
Erie Automatic

Eric Lay-Boy Co., Westerly, R. I.

LAY-BOY
Overlapping Delivery Erie

Maxson Automatic Machinery Co., Westerly, R. I.

MACHINERY
Barking

Fibre Making Processes, Inc., 6 N. Michigan Ave., Chicago, Ill.
Union Iron Works (Improved), Bangor, Me.
Portland Co., Portland, Me.
Waterville Iron Wks., (for paper mills), Waterville, Me.
Holyoke Mach. Co., Holyoke, Mass.
Carthage Machine Co., Carthage, N. Y.
Sandy Hill Iron & Brass Wks., (pulp mill), Hudson Falls, N. Y.
TOMPKINS-HAWLEY-FULLER Co., (Paper Creping), Valatie, N. Y.
Scott, Olin, Est. of, Bennington, Vt.
Valley Iron Works Co., (wood), Appleton, Wis.
Green Bay Barker Co., Green Bay, Wis.

MARKER & COUNTER
Mamco

Maxson Automatic Machinery Co., Westerly, R. I.

Paper Combining

Jagenberg Machine Co., Inc., 133 W. 24th, New York City.

Paper Goods

Aicher Machine Works, 1634 Stockton (Slitting & Printing), San Francisco, Calif.
Specialty Automatic Machine Co., Chelsea, Mass.
Rice, Barton & Fales Machine & Iron Co., (Pasting, waxing, trimming, etc.), Worcester, Mass.
Paper Working Machine Co., Ave. U & 56th, (Corrugated), Brooklyn, N. Y.
Vierengel, M., Machine Co., Inc.. 370 Troutman St., (special), Brooklyn, N. Y.
KNOWLTON Co., M. D., 26 Industrial, (corrugated), Rochester, N. Y.

PAPER KNIFE GRINDERS

Bridgeport Safety Emery Wheel Co., 106 Knowlton Street, Bridgeport, Conn.

Paper Laboratory

McKim Foundry & Machine Co., Lockport, N. Y.

Paper Cup

Ludington Machine Co., Waterbury, Conn.

Paper Cutting

Smith & Winchester Mfg. Co., So. Windham, Conn.
Child Acme Cutter & Press Co., 250 Devonshire, Boston, Mass.
McLauthlin, Geo. T. Co., 120 Fulton, (power & hand), Boston, Mass.
Hamblett Mach. Co., Lawrence, Mass.
Dillon Mach. Co., Lawrence, Mass.
Challenge Machinery Co., The, (Hand & Power), Grand Haven, Mich.
Swift, Geo. W., Jr., Inc., Bordentown, N. J.
Langston, Samuel M., Co., Camden, N. J.
American Type Founders, 4-6 Communipaw Ave., (lever & power), Jersey City, N. J.
CAMERON Machine Co., 57-61 Poplar, Brooklyn, N. Y.
Morgans & Wilcox Mfg. Co., (printers), Middletown, N. Y.
Fuller, E. C. Co., 28 Reade St., New York City.
Hoffman Type & Engraving Co., 112 East 13th St., (mnfrs., reps. & imptrs.), New York City.
KNOWLTON, M. D. Co., 26 Industrial, Rochester, N. Y.
Seybold Machine Co., Dayton, Ohio.
Sheridan, T. W. & C. B., 434 B'way, New York City.
Grammes & Sons, L. F., 1922 T. Union St., Allentown, Pa.
Beck, Chas., Machine Co., 605 Chestnut, (Sheet, Card, Film), Philadelphia, Pa.
Beloit Iron Works, (Board & Paper), Beloit, Wis.

Paper and Pulp Mill

Farrel Fdry. & Mach. Co., Ansonia, Conn.
PICKLES—W. F., Buckland, Conn.
Pusey & Jonse Co., (paper stock cutting), Wilmnigton, Del.
Dellenberger, E. C. & Son, 1945 Fulton Street, Chicago, Ill.
Haberkamp, Wm. Machine Works, 442 Wells, Chicago, Ill.
LINK-BELT, Co., Chcago, Ill.
Swenson Evaporator Co., 53 W Jackson Blvd., Chicago, Ill.
Williams-Gray Co., 30 N. LaSalle, Chicago, Ill.
Union Iron Works, Bangor, Me.
Record Foundry & Machine Co., Livermoe Falls, Me.
Bolton, John W., & Sons, Inc., Lawrence. Mass.
Emerson Machine Co., Lawrence, Mass.
Horne, J. H. & Sons, Co., Lawrence, Mass.
MILLS Machine Co., Lawrence, Mass.
Clark-Aiken Co., The, Lee, Mass.
Jones, E. D. & Sons Co., Pittsfield, Mass.
Bird Machine Co., So. Walpole, Mass.
Montague Machine Co., (power transmission), turners Falls, Mass.
Rice, Barton & Fales Machine & Iron Co., (calendering, wet, dry, saturating, rag cutting, waterproofing, stock thickening, trimming, waxing, pulp, tissue paper, etc.), Worcester, Mass.
Penney, J. W. & Sons, Co., Mechanics Falls, Me.
Waterville Iron Wks., Waterville, Me.
Davis, Frank H., Co., 175 Richdale Ave., Boston, Mass.
Meisel Press Mfg. Co., 949 Dorchester Ave. 25, Boston, Mass.
Union Machine Co., Fitchburg, Mass.
Norwood Engineering Co., (paper finishing, calendering, rag thrashing, platers), Florence, Mass.
Golding Mfg. Co., Franklin, Mass.
Holyoke Mach. Co., Holyoke, Mass.
Jolly, Inc., J. & W., Holyoke, Mass.
Perkins, B. F. & Sons, Inc., (rag cutting), Holyoke, Mass.
Central Mfg. Co., Kalamazoo, Mich.
Standard Machinery Co., Owosso, Mich.
Mitts & Merrill, 67 McCroskry, Sagi-
Paper Engineering Co., St. Joseph. Mich.
naw, Mich.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., (chppers), St. Louis, Mo.
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N. H.
Thompson Mfg. Co., Lancaster,

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SHERMAN Paper Co., Watertown, N. Y.
Standard Paper Co., Kalamazoo, Mich.
ST. REGIS Paper Co., New York. Mich.
West Virginia Pulp & Paper Co., New York City.

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The Bahr Bros. Mfg. Co., Marion, Indiana.

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American Woodpulp Corporation, New York City.
CASTLE & OVERTON, New York City.
Keller Co., Inc., E. J., New York City.

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LINK-BELT Co., Chicago, Ill.

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Menasha Wood Split Pulley Co., Menasha, Wis.
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Appleton Machine Co., Appleton, Wis.

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DRYING REGULATORS

PICKLES, W. F., Buckland, Conn.

PULP & FIBRE

Crown-Willamette Paper Co., 248 Battery (sulphite fibre), San Francisco, Calif.
New Haven Pulp & Board Co., (mechanically ground), New Haven, Conn.
du Pont, E. I. de Nemours & Co., (explosives dept.), Wilmington, Del.
Hercules Power Co., Wilmington, Del.
Grass Fibre Pulp Paper Corp., Leesburg, Fla.
Pynetree Paper Co., (Soda Pulp), Gordon, Ga.
Atlantic Paper & Pulp Corp., (wet), Savannah, Ga.
Cushnoc Paper Co., (Wood, Grd. & Sulphite fibre), Augusta, Maine.
Day Lumber Co., (Spruce & Fir Pulpwood), Bangor, Maine.
Orono Pulp & Paper Co., (unbleached sulphite fibre), Bangor, Maine.
Eastern Mfg. Co., (sulphite fibre), Bangor, Maine.
Eastern Pulp Wood Co., Calais, Me.
Cherryfield Lumber Co., (Wood), Cherryfield, Me.
Howland Pulp Corp., The, (Sulphite Fibre), Howland, Maine.
Pejepscot Paper Co., (Br.), (Sulphite Fibre), Lisbon Falls, Me.
Nekonegan Paper Co., (Ground Wood), Oldtown, Me.
BROWN Company, (Sulphate Fibre), Portland, Maine.
Riverside Pulp Co., (groundwood), Skowhegan, Maine.
Skowhegan Pulp Co., (groundwood), Skowhegan, Maine.
Forest Paper Co., (soda fibre), Yarmouthville, Me.
Advance Bag & Paper Co., Inc., 301 Congress St., Boston, Mass.
Hollingsworth & Whitney Co., 185 Devonshire (sulphite fibre & groundwood), Boston, Mass.
Mount Tom Sulphite Pulp Co., 50 State (bleached sulphite pulp), Boston, Mass.
Penobscot Chemical Fibre Co., 49 Federal (wood pulp), Boston, Mass.
St. Croix Paper Co., 244 Wash'n, (sulphite fibre & ground wood pulp), Boston, Mass.
Train-Smith Co., 294 Washington (wood), Boston, Mass.
Champion-International Co., (for own use), Lawrence, Mass.
Ramage Paper Co., James, (wood), Monroe Bridge, Mass.
Fletcher Paper Co., (groundwood & sulphite fibre), Alpena, Mich.
Cheboygan Paper Co., (groundwood), Cheboygan, Mich.
Detroit Sulphite Pulp & Paper Co., 9131 W. Jefferson Ave., (sulphite fibre), Detroit, Mich.
Johnston, W. J., (wood), De Tour, Mich.
Escanaba Paper Co., (Duplicate), Escanaba, Mich.
Filer Fibre Co., (Kraft Sulphate Pulp), Filer City, Mich.
Itaska Paper Co., (Ground Wood Pulp), Grand Rapids, Mich.
Central Paper Co., (sulphite fibre also paper), Muskegon, Mich.
French Paper Co., (ground wood pulp), Niles, Mich.
Port Huron Sulphite & Paper Co., (Mitscherlich Process), Port Huron, Mich.
Northern Cedar & Lumber Co., (wood), Blackduck, Minn.
Northwest Paper Co., (ground wood, sulphite pulp), Cloquet, Minn.
Hennepin Paper Co., (ground wood), 401 E. Main, Minneapolis, Minn.
Minnesota & Ontario Paper Co., 1100 Builders' Exch., (ground wood Pulp & Sulphite Fibre). Minneapolis, Minn.
Mason-Perkins Paper Co., (wood), Bristol, N. H.
Groveton Paper Co., Inc., (sulphite), Groveton, N. H.
Veazie, Geo. A., Littleton, N. H.
Livermore Falls Pulp Co., (air dried ground wood pulp), Plymouth, N. H.
Crabtree & Sons, Edwin, (Ground Wood Pulp), Wendell, N. H.
Rogers & Co., J. & J., (ground wood & sulphite), Ausable Fork, N. Y.
Lewis Co., The J. P., (ground wood), Beaver Falls, N. Y.
Lewis, Slocum & Lefevre, (ground wood), Beaver Falls, N. Y.
Bayless Pulp & Paper Co., (Paper), Binghamton, N. Y.
National Sawdust Co., 99 No. 1st St., (hardwood, softwood), Brooklyn, N. Y.

Marathon Paper Mills Company

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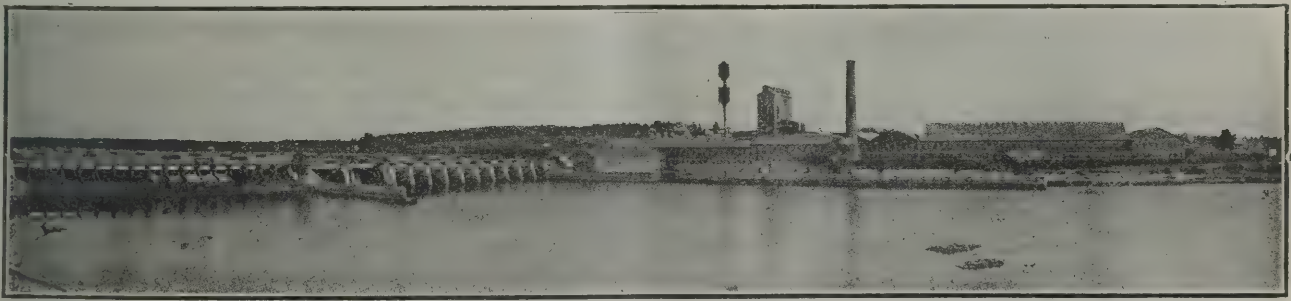

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2 Super Calenders	60″

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Unbleached Sulphite Pulp	200,000 lbs.
Bleached Sulphite Pulp	150,000 lbs.
Ground Wood Pulp	60,000 lbs.
Paper	200,000 lbs.

Mills and General Office:
Rothschild, Wisconsin

Sales Office:
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CLASSIFIED DIRECTORY—Continued

Langston Co., Samuel M., (paper can, paper box, corrugating, tube making), Camden, N. J.
Waldron, Jno. Co., (Napkins, Sand Wall Paper Printing, Wall Paper embossing, napkins), New Brunswick, N. J.
Taylor, Stiles & Co., (paper stock, rag cutters), Riegelsville, N. J.
Townsend Foundry & Mach. Shop Co., Albany, N. Y.
Sowers Mfg. Co., (coaters), Black Rock, N. Y.
Bliss, E. W., Co., (Adams & Plymouth Sts.), Brooklyn, N. Y.
Farnham Mfg. Co., 39 Indiana, (paper coating), Buffalo, N. Y.
Carthage Machine Co., Carthage, N. Y.
Ryther & Pringle Co., (shredders for ground wood, chemical fibre laps boards, sheets & rolls), Carthage, N. Y.
Dilts Machine Co., Inc., (cylinder paper making, wet, wood pulp), Fulton, N. Y.
Glens Falls Machine Works, (wet machines, washers, savealls, thickeners, deckers, etc.), Glens Falls, N. Y.
TRIMBEY Machine Works, (automatic consistency Regulator, Metering Systems), Glens Falls, N. Y.
Noble & Wood Machine Co., (rag cutting & threshing), Hoosick Falls, N. Y.
Sandy Hill Iron & Brass Works, (fourdrinier), Hudson Falls, N. Y.
Trevor Mfg. Co., 168 Market (wood pulp splitting, wood pulp, wet), Lockport, N. Y.
Beach-Russ Co., 54 Church St., (positive pressure blowers & vacuum pumps), New York City.
Smith & Co., F. L., 50 Church St., (Power Transmission), New York City.
Jagenberg Machne Co., Inc., 133 W. 24th Street, (hot air dryers, gas heated, for coated paper, either in sheets or rolls), New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Knowlton Co., M. D., 26 Industrial (rolling & saturating corrugated & creasers), Rochester, N. Y.
Mayer Coating Machines, Inc., (coating for carbon paper, waxed & oil paper, etc.), Rochester, N. Y.
Baker Mfg. Corp., Saratoga Springs, N. Y.
Ticonderoga Machine Wks., (wire carrying rolls stock, thickening winders, felt spreaders, calender doctors valves, etc.), Ticonderoga, N. Y.
Bagley & Sewall Co., (cylinder tubes, for all classes of Paper), Watertown, N. Y.
Stebbins Engineering & Mfg. Co., Watertown, N. Y.
Baker, Joseph, Sons, & Perkins Co., Inc., (pulpers, dissolvers), White Plains, N. Y.
Biggs Boiler Works Co., Kent & B. & O. R. R., Akron, Ohio.
Carroll Foundry & Machine Tool Co., National City Bldg., Cleveland, Ohio.
Jeffrey Mfg. Co.. 956 No. 4th, Columbus, Ohio.
Dayton Beater & Hoist Co., 26 N. Canal (beating & washing engines), Dayton, Ohio.
Dayton Globe Iron Works Co., Dayton, Ohio.
Shartle & Bevis Mach. Co., Dayton, Ohio.
BLACK-CLAWSON Co., (cylinder, fourdrinier plating paper, mill & rag cutting, board), Hamilton, O.
Enterprise Machine Co., The, Middletown, Ohio.
Perkins, B. F. & Son, (size pumps, rag cutters), Middletown, Ohio.
Shartle Bros. Machine Co., Middletown, Ohio.
Sandusky Foundry & Machine Co., Sandusky, Ohio.
Phoenix Iron Works, 360 Hawthorne Ave., Portland, Ore.
Wetherill, Robt., & Co., Chester, Pa.
Erie Lay-Boy Co., Ltd., Erie, Pa.
Altemus, Jacob K., 2824 N. 4th, (tube winding), Philadelphia, Pa.
Moore & White Co., 15th & Lehigh Ave., (fourdrinier & cylinder paper, roofing paper, saturating,) Philadelphia, Pa.
Tinker, F. & Sons Co., 57th & Harrison, Pittsburgh, Pa.
Textile Finishing Machy. Co., 83 Exchange Pl., (finishing machy. for writing, ledger, coated & glazed papers), Providence, R. I.
Stellman, L. H. & Son, Battleboro, Vt.
Hooker Mfg. Corp., St. Johnsbury, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works (cylinder & fourdrinier), Appleton, Wis.
Beloit Iron Works, (tissue news, bookboard), Beloit, Wis.
Lawton, C. A. Co., The, De Pere, Wis.
Moloch Co., (paper, wall paper & sulphite), Kaukauna, Wis.
Manitowoc Ship Building Corp., Manitowoc, Wis.
MURRAY Mfg. Co., D. J., Wausau, Wis.

Slitters and Rewinders

Hamblet Machine Co., Lawrence, Mass.
Horne, J. H. & Sons, Co., Lawrence, Mass.
Clark-Aiken Co., Lee, Mass.
Fales, L. F., Walpole, Mass.
Hobbs, Mfg. Co., Worcester, Mass.
Rice, Barton & Fales Mach. & Iron Co., Worcester, Mass.
McDonald, Chas. J., (Rolls), Worcester, Mass.
Koegel's, Chas., Sons Inc., Holyoke, Mass.
Perkins, B. F. & Sons, Inc., Holyoke, Mass.
Kidder Press Co., Dover, N. H.
Langston Co., Samuel M., Camden, N. J.
CAMERON Machine Co., 57-61 Poplar St., Brooklyn, N. Y.
Central Machine Co., Niagra Falls, N. Y.
Moore & White Co., 15th & Lehig
Ave., Philadelphia, Pa.
Hudson-Sharp Mach. Co., (soft toile
roll rewinders), Green Bay, Wis
Hewitt, J. W. Mach. Co., (Rolls)
Neenah, Wis.

Waxing

Rice, Barton & Fales Machine
Iron Co., Worcester, Mass.
Potdevin Machine Co., Inc., 122
38th, Brooklyn, N. Y.

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Mich.**

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Petroleum Products, (Lubricating
Fuel-Cylinder), New York City
Vacuum Oil Co., 61 Broadway, Ne
York City.
Texas Company, 17 Battery Place
New York City.

PAPER DEALERS

**MENDELSON Bros. Co., Chicago
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**PULP AND PAPER TRADIN
Co., New York City.**

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LINK-BELT Co., Chicago, Ill.

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Champion Paper Co., (ground wood), Carthage, N. Y.
Island Paper Co., (ground wood dry), Carthage, N. Y.
Chateaugay Pulp Co., (ground wood), Chateaugay, N. Y.
High Falls Pulp Co., (ground wood, dr), Chateaugay, N. Y.
Dexter Sulphite Pulp & Paper Co., (Mechanical ground wood & Mitscherlich sulphite), Dexter, N. Y.
Fort Miller Pulp & Paper Co., (ground wood), Fort Miller, N. Y.
Arrowhead Milling Co., (sulphite Pulp), Fulton, N. Y.
Oswego Falls Pulp & Paper Co., (wood), Fulton, N. Y.
Finch, Pruyn & Co., Inc., (gorund wood pulp), Glens Falls, N. Y.
Blandy Paper Co., (ground wood pulp), Greenwich, N. Y.
Mohican Pulp & Paper Co., (wood pulp), Greenwich, N. Y.
Hinckley Fibre Co., (sulphite fibre), Hinckley, N. Y.
Tindale, Wm. H., (wood), Keeseville, N. Y.
United Indurated Fibre Co. of N. Y., (ground wood, dry), Lockport, N. Y.
Gould Paper Co., (ground wood), Lyon Falls, N. Y.
Malone Paper Mill, (sulphite fibre: gound wood), Malone, N. Y.
Hoornbeek's, John C., Sons, (ground wood, dry), Napanock, N. Y.
American Woodpulp Corp., 347 Madison Ave., (wood, chemical & mechanical, Kraft), New York City.
ANDERSEN—J. & Co., 21 East 40th St., (Imptrs. of chemical Pulps, Kraft), New York City.
Atterbury Bros., 145 Nassau, (foreign & domestic wood), New York City.
Beebe & Co., Ira L., 132 Nassau, (wood pulp), New York City.
Butterworth, E. & Co., 1123 B'way, (wood & bleached sulphite pulp), New York City.
CASTLE & OVERTON, 200 Fifth Avenue, (wood sulphite), New York City.
CRAIG-BECKER Co., Inc., 52 Vanderbilt Ave., (wood), (Mill Agts., Imp. & Exp.), New York City.
De Bary, Albert, Jr., Inc., 6 Church, (Exptrs.), New York City.
Great Northern Paper Co., 49 Wall, (ground wood pulp), New York City.
Helwig, Rudolph, 451 Wash'n., (sulphite pulp), New York City.
International Paper Co., (ground wood pulp & sulphite), New York City,.
International Pulp Co., 41 Park Row, (asbestine), New York City.
Interstate Pulp & Paper Co., Inc., Grand Central Terminal, (wood), New York City.
Meigs Pulp Wood Co., Inc., 10 East 43rd, (pulp wood), New York City.
Nashwaack Pulp & Paper Co., Ltd., (Canadian bleached sulphite), New York City.
New York Overseas Co., Inc., 44 Beaver, (imp), (wood), New York City.
New York & Penna. Co., 200 Fifth Ave., New York City.
Oxford Paper Co., 200 Fifth Ave., New York City.
Paine, A. G., Jr., 200 Fifth Ave., New York City.
PERKINS-GOODWIN Co., 33 W. 42nd St., New York City.
Price & Pierce, 30 East 42nd St., New York City.
Union Bag & Paper Corp., Woolworth Bldg., (ground wood, sulphite & kraft pulps), New York City.
SCANDINAVIAN Pulp Agency, (Inc.), 342 Madison Ave., (wood pulp), New York City.
Cliff Paper Co., (fibre & ground wood, dry), Niagra Falls, N. Y.
Defiance Paper Co., (ground wood), Niagara Falls, N. Y.
Niagara River Mfg. Co., (ground wood pulp), Niagra Falls, N. Y.
Pettebone-Cataract Paper Co., (ground wood), Niagara Falls, N. Y.
Defiance Paper Co., (ground wood), Norwood, N. Y.
Martin Pulp & Paper Co., (wood), Ogdensburg, N. Y.
Lake Champlain Pulp & Paper Corp., (Dry ground pulp), Plattsburg, N. Y.
Saranac Co., (ground wood pulp), Plattsburg, N. Y.
Underwood Paper Mills, Inc., (ground wood), Plattsburg, N. Y.
Hannawa Falls Water Power Co., (ground wood, pulp), Potsdam, N. Y.
Raquette River Paper Co., (ground wood sulphite), Potsdam, N. Y.
Johnston & Son, (dry ground wood), Port Leyden, N. Y.
St. Regis Falls Wood Corp., (ground wood pulp), St. Regis Falls, N. Y.
American Wood Board Co., (ground wood pulp), Schuylerville, N. Y.
Blandy Paper Co., (ground wood), Schuylerville, N. Y.
Iroquois Pulp & Paper Co., (ground wood pulp), Thomson, N. Y.
Ticonderoga Pulp & Paper Co., (Soda Fibre, Wood), Ticonderoga, N. Y.
Santa Clara Lumber Co., (pulp), Tupper Lake, N. Y.
Schroon River Pulp & Paper Co., (ground wood, dry), Warrensburg, N. Y.
Diana Paper Co., (ground wood pulp), Watertown, N. Y.
St. Regis Paper Co., (ground, wood, dry sulphite fibre), Watertown, N. Y.
SHERMAN Paper Co., (ground wood pulp), Watertown, N. Y.
Champion Fibre Co., (paper pulp), Canton, N. C.
Halifax Paper Corpn., (sulphite fibre & ground wood), Roanoke Rapids, N. C.
Mead Pulp & Paper Co., (soda fibre), Dayton, Ohio.
SRERE Pulp & Paper Co., Franklin, Ohio.
Williamette Pulp & Paper Co., (sulphite fibre, also paper), Oregon City, Ore.
Oregon Pulp & Paper Co., (bleached & unbleached sulphite pulp), Salem, Ore.
Bayless Mfg. Corp'n (ground wood, sulphite fibre, also paper), Austin, Pa.
Durham Paper & Pulp Co., Durham, Pa.
Williams & Co., C. K., (mineral), Easton, Pa.
HAMMERMILL Paper Co., (unbleached sulphite), Erie, Pa.
Analomink Paper Co., (ground wood pulp), North Water Gap, Pa
Cherry River Paper Co., (sulphite pulp), 2129 Land Title Bldg., Philadelphia, Pa.
Dill & Collins Co., 140 N. 6th, (soda fibre, paper), Philadelphia, Pa.
Jessup & Moore Paper Co., Com'l Tr. Bldg. (soda pulp), Philadelphia, Pa.
Parson Pulp & Lumber Co., (spruce bleached & unbleached sulphite pulp), Finance Bldg., Philadelphia, Pa.
Bare, D. M., Paper Co., (soda fibre, also paper), Roaring Spring, Pa.
Glatfelter, P. H. Co., (soda fibre, also paper), Spring House, Pa.
Carolina Fibre Co., (ground wood, dry, sulphite also paper), Hartsville, S. C.
Tenn. Fibre Co., (cotton hull, fibre, dry), Southern Ry & Linden, Memphis, Tenn.
Yellow Pine Paper Mill Co., (sulphite fibre), Orange, Tex.
Sugarland Pulp & Paper Co., Sugarland, Tex.
Ryegate Paper Co., (Pulp), East Ryegate, Vt.
Parks Paper Co., (ground wood), Fitzdale, Vt.
Groton Mfg. Co., (wood pulp), Groton, Vt.

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Columbian Paper Co., (soda fibre), Buena Vista, Va.
Hummel-Ross Fibre Corp., (sulphate pulp), Hopewell, Va.
Stamsocott Co., The, Inc., (cotton linter pulp), Hopewell, Va.
Virginia Carolina Tie & Wood Co., (wood), Norfolk, Va.
Chesapeake Corp., (papermakers' pulp), Westpoint, Va.
Washington Pulp & Paper Co., (ground wood), Port Angeles, Wash.
Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
Combined Locks Paper Co., (sulphite fibre), Appleton, Wis.
Marshall Paper Co., (wood), Appleton, Wis.
Riverside Fibre Co., (bleached — unbleached sulphite fibre also paper), Appleton, Wis.
Ashland Paper Co., (spruce ground wood), Ashland, Wis.
Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.
Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.
Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.
Kaukauna Ground Pulp Co., Kaukauna, Wis.
Outagamie Paper Co., (ground wood), Kaukauna, Wis.
Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
Medford Lumber Co., (wood), Medford, Wis.
Mellen Lumber Co., Mellen, Wis.
Island Paper Co., (sulphite fibre), Menasha, Wis.
Ewing Everest Pulp Co., (ground wood), Merrill, Wis.
Grandfather Falls Co., (ground wood pulp), Merrill, Wis.
Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Elambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.
Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS

Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES

Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia. Pa.

RAGS

American Woodpulp Corporation, New York.
Keller Co., Inc., E. J., New York.
CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill.

ROPE DRIVE

LINK-BELT Co., Chicago, Ill.

SCREENS

Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del.
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill.
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman, H. L. (centrifugal), Dayton, Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale, Pa.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill.

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS

Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS

Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.

Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE

Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific, Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.
Paper Makers Chem. Co., (combination), Easton, Pa.
Boley, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.
Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.
Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel, T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
MURRAY Mfg. Co., D. J., Wausau, Wis.
Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.
Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Co., (Cylinder; Hot Air), Cohoes, Cohoes Iron Foundry & Machine N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.
Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA

Ash

DIAMOND Alkali Co., Pittsburgh,
MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

SODA

Pulp

Mead Fibre Co., The, (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SPLITTERS

Wood

Grace, C. M. & Co., Huntsville, Ala.
Ripley, Lewis R., Harvard, Mass.
Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.
Ryther & Pringle Co., Carthage, N. Y.
Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Multnomah Iron Works, Portland, Ore.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works, Co., Appleton, Wis.
Smalley Mfg. Co., Manitowoc, Wis.

SPROCKET WHEELS

LINK-BELT Co., Chicago, Ill.

STOCK REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

STONES

Wood Pulp

Pusey & Jones Co., (Kollergang), Wilmington, Del.
Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.
Lombard & Co., 238 A Street, Boston, Mass.
JONES Bros. Co., Boston, Mass.
Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.
Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.
Empire Pulp Stone Co., Empire, Ohio.
C. & M. Quarries Co., Marietta, Ohio.
Smallwood Stone Co., Steubenville, Ohio.
American Stone Co., Wheeling, W. Va.
JONES Bros. Co., Barre, Vt.

SUCTION BOX COVERS

Menasha Wood Split Pulley Co., Menasha, Wis.

SULPHATE MILL EQUIPMENT

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.

SULPHITE FITTINGS

EASTWOOD Wire Mfg. Co., Belleville, N. J.

SULPHUR

UNION Sulphur Co., New York.

SULPHUR BURNERS

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.
TRIMBEY Machine Works, Glens Falls, N. Y.

CHAIN DRIVE SILENT

LINK-BELT Co., Chicago, Ill.

TANKS

Settling & Pulp Thickening

Chicago Bridge & Iron Works, 2036 Transportation Bldg., Chicago, Ill.
Eagle Tank Co., 2436 No. Crawford Ave., Chicago, Ill.
Johnson & Carlson, 848 Eastman, (Wood), Chicago, Ill.
New York Central Iron Works Co., Inc., Hagerstown, Md.
New England Tank & Tower Co., Boston Postal District, Everett, Mass.
Acme Tank Co., 41 Cortlandt St., (Wood), New York City, N. Y.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Hendrick Mfg. Co., 75 Dundaff St., Carbondale, Pa.
Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.
Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawer 539, Sharon, Pa.
Newport Foundry & Machine Corp., (Siphon), Newport, R. I.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.
Textile Finishing Mach. Co., Providence, R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill.

DE-INKING PROCESS

CASTLE & OVERTON, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

VALVES

Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.
WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

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THE CLEARING HOUSE

OF THE PAPER INDUSTRY

Situations Wanted, Help Wanted, Machinery for Sale, Machinery Wanted, Business Opportunities, Materials Wanted and For Sale, Business Wanted or For Sale.

Advertisements in this department cost $1.00 for 25 words or less, payable in advance. Additional words, two cents each. This price covers the cost of remailing answers directed to boxes, care of this office. Matter for insertion should reach the office of PAPER not later than the Saturday preceding date of issue.

All Advertisements under the Situations Wanted or Help Wanted Classifications are published FREE OF CHARGE, except for cost remailing letters addressed here.

POSITIONS WANTED

CHEMICAL ENGINEER, expert on digesting process and acid making for sulphite manufacturing desires position as chemist, assistant to superintendent or in research and development work. Experience from Sweden and United States. References. Address Box 1291, care of PAPER.

Single young college man, American with several years experience with Canadian newsprint manufacturers now ready for position of wider opportunity. This with approval and assistance of present employers. Experienced in paper mill, in engineering dept., sales office and especially in handling statistics. Capable of organizing and maintaining statistical department, chart control, reports, etc., or making himself useful in sales or manufacturing departments. Excellent references. Address Box 1292, care of PAPER.

PULP AND PAPER MILL ENGINEER, graduate mechanical engineer, married, 15 years experience in paper and pulp mill industry. Designing, testing, developing, erecting paper and pulp mill machinery. Experienced in mill maintenance, operation, investigation and reports. Good knowledge of mechanical process. Executive experience. Member Technical Association of the Pulp and Paper Industry. Open for engagement with progressive concern. References. Address Box 1290, care of PAPER.

MECHANICAL ENGINEER, 14 years broad experience with large industrial firms desires responsible position as executive, supervising engineer, plant or mechanical engineer. Construction, office, plant efficiency and maintenance, mechanical processes, power plants, investigations, reports, etc. Will travel part time if desired. Member A.S.M.E., age 32, highest references. Address Box 1285, care of PAPER.

SALES AGENT with ten years' experience in paper mills and several years' selling experience, having steady outlook for considerable straw, chip and test jute, container board tonnage, desires to represent mills on commission basis in metropolitan district; highest references. Address Box 1286, care of PAPER.

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FOR SALE—Unlimited quantities of finest pulpwood. F.o.b. mill in New York State, $23.75 per cord. Address Box 236, care of PAPER, 1478 Broadway, New York City.

POSITIONS VACANT

SALESMANAGER WANTED—One thoroughly acquainted with the trade, and having mill experience, to take full charge of the selling of imported papers. Give full information, experience and terms in your reply. Address Box 1288, care of PAPER.

POSITIONS WANTED

FELT PAPERMAKER wants a position; knows the business from raw material to finished product; capable of supervising the erection and starting of a new mill; will accept any position to get started. Address Box 1283, care of PAPER.

PAPER SALESMAN—University graduate with chemical experience in the manufacture of pulp and paper desires to connect with a firm where hard work and results will be rewarded. All correspondence strictly confidential. Address Box 1287, care of PAPER.

MISCELLANEOUS

WANTED—A paper company to locate a large pulp and papermaking plant in North Carolina, with a million cords of pulp wood deliverable at the plant at $3.75 a cord, a saving of $20,000,000. Lands for plants, fronting **deep water for deep sea** loading. Millions more cords of wood available very cheap. A clear stream of fresh water free for washing pulp. Address Box 245, care of PAPER, 1478 Broadway, New York City.

FOR SALE

Beaters—One N & W 48x48 rolls, 21"-6" Two iron tub rolls 52"x40".

Bed Plates—Large lot, all sizes. New.

Calenders—One 7 roll 72"; one 9 roll 72" one 5 roll 78"; one 7 roll open side 84" One 7 roll 124".

Calender Rolls—Large assortment, all sizes one 14x86"; one 18x84"; one 18x100" and many others.

Coaters—One 45" Waldron, double coater and others.

Cutters—One 38" Guillotine.

Cylinder Moulds—One 36"72"; one 30"x52" one 12"x22".

Drives—One No. 1 Reeves Class E; two No 3 Reeves Class E, 4 to 1; one No. 3 Class E; one No. 6 Large Reeves; one No. 10 Reeves, F-3 to 1 with extra disc.

Dryers—48x116.

Exhausters—One Sturtevant.

Fans—3 Hunberry; 2 Perkins.

Jordans—One N & W Monarch, with new shell two Horne; two Emerson, large size, one base; one N & W Pony, with extra plug.

Pulleys—One 98"x34" face, double arm, modern, Iron pulleys; Cone pulleys for Marshall Drives.

Pumps—One dry suction Knowles 12x22x18; one 1000 gal. Blake Tank pump; two Lawrence Mch. Co.'s Class A 8" high duty; two 6" Emerson make; one 4" Centrifugal; one Type 4 Gould 5" triplex, self contained. Two Lawrence Machine Co.'s Class A, No. 4, double suction pump for high elevation or for low speed. Thoroughly rebuilt and ready for shipment.

Press Rolls—One pair new, one RC 18x80"; one Gun metal 18x81"; one 16x75"; one RC 15½x73½".

Rag Cutters—Two No. 2 Daniels; one Perkins.

Screens—4-8 pl. New Success.

Slitters—One 86" P & J.

Winders—One 86" P & J; one 100" P & J; one 112" M & W.

Wet Machines—One N & W with cut offs, mould 30x52"; two spare moulds.

One set Dillion Doctors for 80" calender rolls.

MILLS MACHINE COMPANY
Lawrence, Mass., U. S. A.

THE CLEARING HOUSE—Continued

MISCELLANEOUS

Representation is solicited of responsible mill which seeks to sell paper or pulp in this country. Considerable experience and success enjoyed in the industry. Age 34; university training and well connected. Will share expense of a trip to home office of mill interested in interview. Address Box 1289, care of PAPER.

Experienced publicity and advertising man who can make paper carry any desired message of interest to the promoter, for any legitimate business or its expansion for greater profit, is open for engagement. Address H. C. Beatty, Box 58, Wilkinsburg, Penn.

GOVERNMENT BIDS

Treasury Department,, Bureau of Engraving and Printing, Washington, D. C., March 1, 1924. Sealed proposals are invited to furnish Dextrine, Oils, Textiles, Dry Colors, Paper Boxes, Paper and Check Paper, during the fiscal year beginning July 1, 1924. The right is reserved to reject any or all bids or parts of bids. Samples of Dextrine, Oils, Textiles and Dry Colors must be received at the Bureau of Engraving and Printing not later than 2 P.M., Wednesday April 9, 1924. Samples of Paper Box Blanks, Paper and Check Paper, must be received not later than 2 P.M. Monday, April 7, 1924. Blank forms with specifications for proposals, giving dates on which the bids for the several schedules will be opened, and further information will be furnished on application to Paul E. Twyman, Assistant Director.

TREASURY DEPARTMENT, Office of the Secretary, Washington, D. C., March 15, 1924. Sealed proposals will be received at this office until 11 o'clock a. m., Wednesday, April 16, 1924, from manufacturers of bond, bank-note and other fine papers for furnishing bank-note paper of the highest quality containing the distinctive feature now in use by the Department, for the printing or United States currency and public debt securities, national and Federal reserve bank-notes, Federal reserve notes, etc., for the fiscal year beginning July 1, 1924. Blank forms for submitting proposals, with specifications and further information will be furnished manufacturers who intend to bid upon application to this office, where samples of the paper required may be examined. A. W. MELLON, Secretary of the Treasury.

PULP AND PAPER MILL ENGINEER—Technical graduate, married, aged 35; fourteen years' experience in applied structural and mechanical engineering of pulp and paper mills. Capable of assuming the technical responsibility of your plant from the drawing board to the erected job. Thoroughly familiar with all process. Correspondence solicited. Address Box 1261, care of PAPER.

WILL SHIP WOOD AND PULP FROM NORTH

To Transport Big Volume of Groundwood and Pulpwood To Consolidated Mills

THE consolidated Water Power and Paper Company, of Wisconsin Rapids, Wisconsin, is making preparations to raft about 40,000 cords of Canadian pulpwood across Lake Superior next summer. The wood will be transferred to railroad cars at Ashland, Wisconsin, and from there be shipped to the Wisconsin Rapids, Biron and other Wisconsin mills of the Company. Geo. C. Schneider, manager of the company's timber interests, was in Ashland last week preparing for the summer's business. In addition to the pulpwood it is expected that about 3,000 tons of groundwood from the Port Arthur, Canada mill will be shipped in scows or freighters. The during the summer.

The company is building a new dock at Port Arthur, from which its groundwood will be shipped in scows on freighters. The pulpwood is brought to Port Arthur from the forests and is ground. Heretofore this product has gone by rail from Port Arthur to Duluth, via Fort Francis and from thence to the paper mills in the central part of Wisconsin. To avoid this long haul, the Consolidated Water Power and Paper Company will fit out the old Commercial dock at Ashland and use it for storage purposes, for the groundwood brought across the lake by scows.

The winter's output of groundwood at Port Arthur will be shipped by rail as usual if needed, but if not absolutely needed at that time, it will be taken across the lake in scows during the summer months. The company will probably bring a half million dollars worth of pulpwood across the lake this season, not including the ground pulpwood which will be scowed across the lake.

The tugs Butterfield and Erna, of Green Bay, will tow a half a dozen or more rafts across the lake, but the groundwood will be handled by other vessels.

* * *

Production Good Again

Heavy shipments are being made by the recently organized Reliance Paper Company, according to Harry E. Munson, formerly production manager of the Victory Bag and Paper Company, now president of the Reliance Company. The Reliance Company deals in paper specialties doing job work for dealers over a wide area. An active sales force has been organized and put on the road since January. While at present only job work is being done it is possible that the company may begin manufacture in the future, according to Mr. Muson.

* * *

Supers To Meet

There will be a meeting in Marinette on May 2 and 3 of the paper mill superintendents of the northwestern district. This district consists of the mills in the upper peninsula of Michigan, the Fox River valley, the Wisconsin River valley and the Menominee and Peshtigo Rivers. This convention is expected to bring together about 200 executives. Thirty or forty mills will be represented. The association is a section of the American Paper and Pulp Association and trade matters will be discussed at the meeting.

To Build Addition

Contract for a $100,000 addition to the Sutherland Paper Company of Kalamazoo, Mich., was let at a special meeting of the board of directors during the week. The new building will be erected at once by the Oscar F. Miller Company. It will be one story high, except for a small portion which will be two stories high, and will have 58,000 square feet of floor space. The offices of the company will be located on the restricted floor of the second story. The structure will be built of reinforced steel and concrete.

With the completion of the new structure, the present pressroom will be extended to be one of the largest in the Middle West. It was only last summer that the Sutherland Paper Company completed the task of reclaiming and filling a large area of low land lying just to the east and south of the main buildings . The plot was seeded to beautify the mill surroundings, but the expansion of the firm's business compelled the company to use the site for the proposed new building.

* * *

To Build Addition

As a result of a satisfactory agreement reached with the city of Marinette, the Marinette and Menominee Paper Company will soon erect a large addition to its present plant, costing in the vicinity of $200,000. The city council authorized purchase of land required for a better approach to the Erdlitz bridge, agreeing to pay $1,000 and the paper mill company made an offer of $1,000 to the city for that part of the present street to be vacated. Part of this land will be needed for the addition to the mill. The company is given the right to go ahead using as much of the land as needed as soon as it desires.

* * *

C. S. Cooke Dies

C. S. Cooke, of the Dells Paper Company, of Eau Claire, Wis., who died last week in the Mayo Brothers' hospital at Rochester, Minn., was buried on Wednesday at Eau Claire. Mr. Cooke was 67 years old and came of a pioneer family interested in the paper manufacturing business. His twin brother is H. S. Cooke of Kaukauna. Besides the widow and two sons there is another brother, W. D. Cooke, of Green Bay and two sisters, Mrs. Jessie Oaks and Miss Jennie Cooke, both of Oaks Corners, N. Y.

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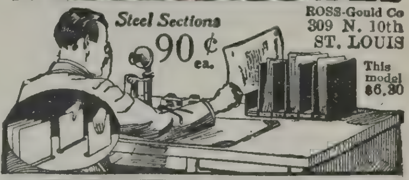

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olume XXXIII, No. 24

PAPER

April 3, 1924

The Magazine of the Paper Industry

RUSSELL C. HUGHES, Publisher

HOMAS J. KEENAN, F.C.S., Editor

ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

Next week is the big week. It is the gala week of the year, the annual Mardi Gras of the paper industry. It is the one time of the year when the paper manufacturer and his aids leave home to talk business and enjoy the experience. It is the time when troubles are forgotten, when joy is unconfined, when business is injected into the system in equal parts with happiness.

It will be the gay convention week. It will be reminiscence week. It will be education week. And above all it will be good-fellowship week. The annual convention is—and it should be—the clearing house of ideas. It is the time when everyone should pass on the good things learned in the last year, when the lessons, bitter or sweet, should become common property for the benefit of the whole.

Convention time is inventory time considering the industry as a whole. Upon the results of the last year as reported at the convention the plans for the coming year should be laid, the budgets made up and the course plotted so that the mistakes of the last year are eliminated.

* * *

Thomas J. Keenan can now be found at the office of Paper every day in the week, giving the best that he has in him to the paper industry. He wants to know personally every man in the industry and in coming to New York, drop in and talk things over. If papermaking troubles are causing gray hairs to grow in your head, see Mr. Keenan. He may be able to help—and he certainly will cheer you up.

* * *

Paper cordially invites you to its headquarters at the Paper Industries Exposition at the Grand Central Palace. Booth 83 will always have a pleasant word waiting for everyone. A neat exhibit has been prepared and you will be welcome the entire week.

If there were many more Frank Munseys amalgamating about the country, the newsprint industry could curl up and die. Every time one shuts his eyes and opens them again another newspaper has been killed off. The time may come when newspapers in New York will be as rare as eggs of the dodo—if the dodo has eggs.

* * *

Go East, young man—is the call to the manufacturers of the stuff called pulp and paper just now.

* * *

There are so many things to be considered in a serious way at the convention that some forethought should be given to them. The Wise plan to battle with the huge wave of imports is one of these things, which should be dwelt upon at leisure and not in the excitement of convention.

* * *

Some of the most important matters are being taken up on the editorial pages of this issue. Far-reaching changes are in prospect. This year's convention week has more significance than in many years past. As such it should be closely watched.

* * *

The last call to get your advertisement in the big Convention Number of Paper is now out. Don't let that big, joyous number go to press without your advertisement. Every page is going to have valuable facts and interesting reading for the industry. It will be printed on fine coated stock, will be profusely illustrated and will be a number you will be proud to have around for the entire year. See that your copy is sent in at once.

RUSSELL C. HUGHES,
Publisher.

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Chicago Representative, Jerome W. Power, 537 South Dearborn Street.

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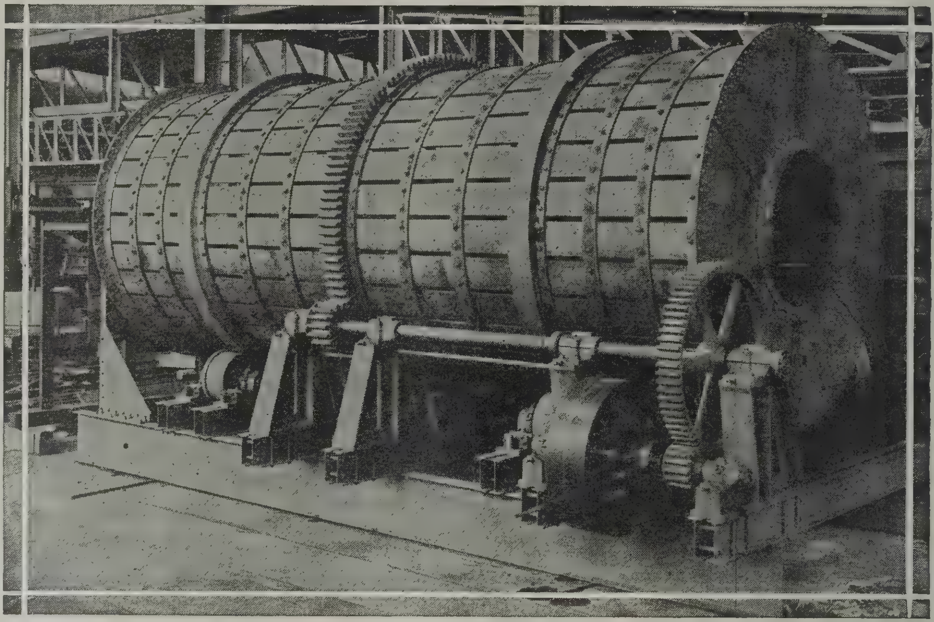

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PAPER

The Magazine of the Paper Industry

Kellogg on National Forestry Program

Secretary of News Print Service Bureau Puts a Few Facts Before the Committee on Agriculture at a Hearing on Bill to Make the Program Effective

THE proposed National Forestry Program, provided in House of Representatives Bill 4830, was discussed at a hearing on the bill before the Committee on Agriculture at Washington, Wednesday, March 26. R. S. Kellogg, secretary of the News Print Service Bureau, who is also chairman of the National Forestry Program Committee, made a strong effort to secure action on the bill. In a statement to the Committee on Agriculture he spoke in part as follows:

Legislation Sought—Will Conserve Forest Resources

Nothing new or revolutionary is proposed in the pending legislation. It is the logical outcome and culmination of fifty years of consecutive effort to conserve our forest resources.

There is now substantial agreement upon facts and principles and it is clearly demonstrated by overwhelming weight of evidence that any adequate plan for the maintenance of our timber supply must inlude.

Effective fire prevention on both pubic and private forest land.

Scientific utilization of forest products.

Forest planting upon large areas of denuded land.

A substantial proportion of well distributed forest land in public ownership upon which there may be grown the older lasses and larger sizes of timber which we cannot expect in sufficient quantity rom private initiative.

Must Grow More Timber

It is futile to think of depending upon oreign sources for any considerable fuure supply of wood products. We must grow more timber at home or alter the ntire plan of American life and industry.

It is helpful to state a few truths as to he methods of forestry:

Forestry is not a law compelling the planting of a new tree for every one cut.

Foresty is not a law limiting the cut to ertain sizes and kinds of trees.

Forestry is not arbitrary control by any public body over the operations of private nterprise.

Forestry is not fire prevention—though his is everywhere necessary.

Forestry is the application of definite scienific principles to the growing and using of mber crops.

Forestry is and will be practised by the private owner when he can see that it ays him to do so.

Forestry is and must be practised by Government upon public property in order o insure some supply of forest products or the people. Because of the long time nvestment and comparatively small return hereon, together with hazards of fire, insect, fungus and storm, a considerable area of publicly owned forests will always be needed although public ownership of the entire forest area of any country is neither necessary nor desirable.

The proportion of total forest area in public ownership of some form in the leading European countries in the practice of forestry is 35 per cent in France, 53 per cent in Germany and 24 per cent in Sweden. Private capital engages in the growing of timber and cooperates with the public authorities in so doing in those countries, because capital gets a fair return therefor. Private capital will do so elsewhere with a market for forest products and the same assurance of safety of return.

Federal Leadership Needed

Any practical solution of the problem of continuous forest production must be based upon the principle of Federal leadership and cooperation with the States and timberland owners.

1. A survey of forest resources and land classification to determine what timber we have, how much we need, and how much can be grown.
2. The determination for each forest region of the essential requirements for the maintenance of forest productivity.
3. Sufficient National appropriations to be expended in cooperation with State and other agencies to make such requirements effective.
4. Provision for extensive research into problems of timber growth and utilization.
5. Forest planting upon a large scale, by both Federal and State agencies.
6. The devising of better methods of forest taxation and their adoption by the States.
7. The continual building up of publicly administered forests through purchase, exchange, transfer from the public domain and the several forms of public reservation until 40 per cent of the ultimate forest area of the United States is permanently devoted to timber growing or watershed protection under public control.

At present 20 per cent of the forest area of the United States is publicly owned, but the situation is badly unbalanced. From the Rocky Mountains West, 70 per cent is in public ownership and from the Rockies East but 3 per cent.

The Program

The immediate National program should include:

1. An appropriation of not less than $1,000,000 yearly for cooperation with the States in fire prevention, the National Government to spend no more for this purpose in any State than the State itself spends therefor, including the expenditures of forest owners required by State law.
2. A definite authorization of yearly expenditure for the purchase of forest land upon the watersheds of navigable streams according to the recommendations of the National Forest Reservation Commission.
3. An appropriation of $1,000,000 yearly for forest research and investigation, including studies in forest taxation and forest insurance.
4. An initial appropriation of $100,000 yearly for forest planting in cooperation with the States and otherwise with provision for increases up to a total of $1,000,000 yearly within ten years as planting facilities and forest protective measures are improved.
5. Authorization for determination by the Secretary of Agriculture of what lands, owned by the United States and not now embraced in National Forests or National Parks, are valuable chifly for the production of timber or the protection of watersheds and provision for their ultimate inclusion within the National Forests or such other protection and administration as will promote their best use in the public interest.

These items represent the minimum of measures that are immediately practicable, have the widest application and are not of controversial character.

None of these items can be rightly charged to the National expense account. They are investments in the future and permanent welfare of the country—an insurance of our greatest and most necessary natural resources. Their permanent inclusion in the National budget will be an act of constructive statesmanship which will be heartily supported by the people regardless of party affiliation.

* * *

PAPER AND PULP MEN BEHIND BILL

Association in Hearty Accord With McNary-Clarke Bill

THAT the paper industry, as represented by the American Paper and Pulp Association is in hearty accord with the principles of the McNary-Clarke forestry bills was the statement made by Warren B. Bullock, on behalf of that Association, before the House Committee on Agriculture. He presented this statement, signed by Henry W. Stokes, and Dr. Hugh P. Baker, president and secretary of the Association.

"The Paper industry is a wood-using industry. Its premanency in this country depends upon a continuous and adequate supply of pulpwood. Of this approximately 7,200,000 tons of paper produced in the United

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Acidity and Papermaking

A Practical, Technical Discussion

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OF recent years, as a result of chemical research, men are learning more and more about the part played by the presence or absence of a slight amount of acidity in controlling chemical reactions. By applying this knowledge of acidity requirements to industrial processes, men are finding that by giving more attention to controlling acidity variations they are eliminating much of the variation and difficulty encountered in making the finished articles.

Acidity Control Is Important

In the process of papermaking, due to the complexity of the reactions involved and the extreme sensitivity to disturbance of the materials used, the matter of acidity control plays a very important role at a number of stages. The corrosion of iron pipes, causing rust particles and brown stains to be carried into the pulp and on to the paper is a well known acidity difficulty, but the relation of acidity and such problems as the purification of water, the accumulation and elimination of grease and beater gum, the pitch lumps in some basic colors, the fading of colored pulp, the loss of rosin sizing, the excess wear of machine wires and the age deterioration of finished papers is not so well known. Many a practical difficulty of a serious nature could be solved by a scientific analysis of the acidity requirement at some particular stage of the process and, where necessary, the use of indicators in controlling acidity. For this reason, the following review and discussion of the acidity conditions which, so far as our present knowledge is concerned, are found at the various stages of the papermaking process, is given in the hope that it may be of interest to some practical papermakers.

Definition of Terms

Perhaps the first requisite for such a review would be a clear definition of the terms used in discussing acidity and of the practical methods for detecting acidity. By the term FREE ACIDITY is meant that amount of acidity which is available for reaction in a solution at any one instant and in scientific literature the variations of free acidity over the narrow range which can be detected by the ordinary indicator solutions is referred to in terms of the pH of that substance. This pH is more properly a measure of alkalinity since it is expressed in numbers which increase as the acidity decreases; thus, the slightest measurable acidity is called a pH of about 12 and the largest amount measurable is about 3. By the term TOTAL ACIDITY is meant that amount of acidity which can be obtained from a compound for reaction and it includes the free acidity and the combined acidity. For instance, the free acidity of a solution of alum is very slight, but if that alum is in contact with a compound which slowly uses up that acidity, the alum is capable of progressively generating more acid from the neutral molecules until all of the combined as well as free acidity has been destroyed. This distinction of free, combined and total quantity applies to alkalinity as well as acidity. For instance, a caustic soda solution has a very high free alkalinity and a very low combined alkalinity. A lime solution may have a total alkalinity equal to that of the caustic soda solution but its free alkalinity is slight and it cannot be used instead of caustic where a drastic alkalinity is required. Lime has, however, a marked advantage over the caustic solution where a slight alkalinity to be maintained for some time is required. In any liquid of very high free alkalinity or acidity the distinction between free and combined vanishes, since under those conditions the greater portion of the alkalinity or acidity is free. Perhaps it would make it clearer to say that total acidity or alkalinity differs from the free quantity much as the voltage of an electric current differs from the amperage.

Determining Acidity or Alkalinity

Total acidity determinations can be made for any amount present, but free acidities are only determined over a narrow range on each side of the neutral point. The method commonly used for determining this free acidity or pH is to find that indicator which, when a drop is added to a small portion of the liquid to be tested, colors the solution a color which is part way between the acid and alkaline colors for that indicator. Thus, an indicator which changes from yellow in an acid solution to blue in an alkaline solution would show at neutrality some shade of green; one which changes from red to yellow would show some shade of orange, etc. The exact pH indicated by the shade of color in the neutral zone of each of the common indicators can be found from tables of values. For very exact work the pH determinations are made by a determination of the amount of electric current which the solution will conduct under definite conditions but the manipulation is too complex for mill control work. In speaking of free acidity or alkalinity, the terms can be made quite definite by merely giving the pH number, but in speaking of total alkalinity or acidity, the term indicating the amount of acid or alkali added for neutralization is not definite unless the indicator used is also mentioned as some substances in solution will generate acid or alkali so slowly that to one indicator considerable is present, to another none at all.

Classification of Indicators

For convenience, those indicators which may be serviceable in papermaking may be classified in their order of sensitivity as follows, the first mentioned being the least sensitive to acids and the most sensitive to alkalies:

Indicator	pH Indicated by the Neutral Field	Color Change. Acid to Alkali
Methyl Orange	3.1 to 4.4	Red to Orange
Congo Red	3.0 to 5.0	Blue to Red
Methyl Red	4.4 to 6.0	Red to Yellow
Litmus	4.5 to 8.3	Red to Blue
Brom Thymol Blue	6.0 to 7.6	Yellow to Blue
Cresol Red	7.0 to 8.8	Yellow to Purple
Phenolphthalein	8.3 to 10.0	Colorless to Red

A glance at this table will show that it is possible to have a substance like alum which can be both acid and alkaline at the same time and in dilute solution it is acid to phenolphthalein and alkaline to methyl orange. In speaking of acidity or alkalinity, unless care is taken to mention the indicator or the pH, it should be understood to have reference to the free acidity indicator Brom-thymol-blue, since that indicator is neutral to pure distilled water which has a pH of about 7.2.

Water Requirements

In papermaking there is used such a relatively large amount of water that a knowledge of the acidity and alkalinity requirements of water is of paramount importance to papermakers. A very alkaline water will deposit lime salts on the fibers, thus interfering with rosin sizing, will coagulate the rosin milk and thus further reduce the sizing ffect, will gather traces of pitch, grease and dirt into asses which will stick to beater and machinery, and will ause endless trouble. A very acid water, on the other and, will harden the fibers, making it more difficult to eat them to slowness and in numerous ways will injure e process. If the water before using is to be decolorized y alum treatment, then the acidity requirement is of utost importance for there is only a very narrow range of cidity through which alum can be made to form flocks. f the total alkalinity to such an indicator as Methyl range lies between 4 and 10 or the pH between 6 and 8, en the alumina of the alum will form large flocks which ill slowly settle to the bottom of the settling tank carry- g with them all of the coloring matter of the water. Vider deviations in the total alkalinity or acidity may or ay not mean unfavorable conditions dependent upon the ature of the impurities in the water. It is quite pos- ble to obtain satisfactory results from alum treatment hen the water after treatment has a total alkalinity of 20 25 provided such alkalinity is due to the presence of e slightly soluble bicarbonates.

Brom-Thymol-Blue Test

A very satisfactory technical control of the process is to st the treated water continuously with the indicator Brom- ymol-blue. If the water turns this indicator some shade f green, indicating that the pH is somewhere between the vo limits for that indicator, then the acidity condition is ght for the utilization of the alum in forming large flocks. f the raw water is excessively alkaline, then alum must be dded until the pH lies between 6 and 8; otherwise, the lum will form soluble aluminates and sulphates with the lkaline elements in the water and will not form the alumina ocks which are needed to take care of the colored im- urities in the water. In such a case there is every chance at the alumina which goes through the filter in the form f aluminates will be precipitated on the fibers at some ter stage of the process and, in extreme cases, it may isturb the rosin sizing before it is properly disseminated roughout the pulp. If the original water is acid, the alum annot be made to flock or remove any dirt, no matter how uch is used, unless an alkaline medium like lime, soda ash r caustic soda is also added. The acidity of the alum eutralizes the alkalinity of the added alkali and brings the ree acidity of the water to a pH at which the alumina can orm flocks. Both lime and soda ash are largely used in ractice and the choice between the two is partly a matter f the nature of the impurities in the water and partly a atter of the personal opinion of the man in charge of the lant. In either case the amount of alkali must be so reg- lated that the combined effects of alkali and alum will ring the acidity within the limits required for flocculation nd also contain alum enough to give sufficient flocks to arry down all color. Excess alkali will do no harm rovided extra alum is also used to protect against the ex- ess alkalinity and this is sometimes necessary in case the mount of colored impurities to be removed varies widely ut for a uniformly colored raw water, excess alumina ocks involve an expensive waste. Excess alum beyond at needed to neutralize the alkali is carried through the lters in the filtered water and its disadvantage is slight. he purification of a water which varies from day to day its acidity calls for considerable attention but it is quite ossible for a workman to be taught to make daily acidity ests and to so regulate the feed of alum and alkali as to eet the actual requirements of the water, thus maintaining constant supply of colorless water for use. In more than ne mill daily water tests have shown a color maintained onth after month which does not vary from that of pure istilled water.

Bacteria That Are Harmful

Besides coloring matter, some natural waters have bac- eria infections which, especially in the warm weather, ause considerable trouble. For instance, if a colony of renothrix bacteria or other iron bearing bacteria which thrive only in acid media and which do not become entangled in the alumina flocks would be carried through the filters and would finally meet an acid medium, they could, in the course of a comparatively few hours multiply at such an enormous rate as to cause the accumulation of a mucilage, at first white, later turning to a dirty brown, which adheres so tenaciously to pulp as to be a cause of considerable trouble in various ways. Other types of bacteria will instigate oxidation reactions in the pulp starting the formation of the troublesome oxycellulose which will bring about color fading, lack of rosin retention, brittleness with age, etc. The best protection against bacteria infection lies in feeding to the water a product such as copper sulphate or chloride of lime which will poison the life of the bacteria and prevent its growth at any stage of the papermaking process. But here also excess is to be avoided since, especially with chloride of lime, it would be more harmful than the bacteria itself. Excess of copper sulphate colors the water blue and excess of chloride of lime can be detected by the starch-iodide indicator which will detect one part in a million parts of water.

The Washing of Rags

Rags which have been cooked in lime are very much more easily washed if the water is slightly acid than if it is alkaline. The surfaces of the fibers are somewhat softened by the alkaline cook and the lime and iron compounds, as well as certain other objectionable substances are largely embedded in the fibers and are difficult to wash out. The addition of a little acid to the wash or the use of a water which is slightly acid will harden the surfaces of the rags and at the same time dissolve out those objectionable adhering substances. If quite dirty rags have been drastically cooked and then considerable acid is used, there is a possibility of setting the dirt by a too complete hardening of the surfaces over the adhering colored impurities. Washing with a water which is slightly acid has been found to be advantageous but here care must be taken to insure that such acid water does not deposit on the fibers rust scales from iron pipes or valves.

Acid Bleach for Rags

A bleach solution may be alkaline or acid dependent upon the relative amounts of chlorine and lime or soda. In recent years there has been considerable interest in an acid bleach for rags. Such a bleach is made by introducing liquid chlorine into an alkaline pulp liquor beyond the requirement for neutralization, or into an insufficient amount of milk of lime. In either case the excess of chlorine reacting with the water gives a considerable acidity which hastens the bleaching action and also tends to hasten the softening of the rags. For woodpulp it is not advantageous to use liquid chlorine beyond the amount needed to neutralize the alkali as woodpulp is quite sensitive to the action of excess acid.

Action of Acid and Alkaline Bleaches

The more alkaline a bleach solution is, the less easily will it part with its active chlorine and the slower and less effective is the bleaching action. The more acid the bleach solution is, the more rapid and effective is the bleaching, but the more the danger to fiber structure. This is the reason for the common custom of storing a bleach solution in an alkaline form to keep it from wasting in the air, then adding a small amount of acid when using it to give it greater activity. The use of alum for acid in "brightening" bleach has the advantage of protection against the accidental contact of fiber and strong acid but has the disadvantage of setting on the fibers alumina flocks which interfere with the washing out of the lime. Acetic acid, which is not a very strong acid, would be a far better brigthener than alum.

A By-Product of Bleaching

While the act of bleaching is due to the presence in solution of free chlorine or of hypochlorous acid, there is formed as a by-product of the reaction the strong hydrochloric acid, commonly known as muriatic acid, and it is this acid which is responsible for the acidity and continued softening of rags in drainers after the last trace of bleach, as shown by the starch-iodide test, has evaporated. If either rag or wood fibers have been overbleached or have been subjected to an excess of such strong acid as hydrochloric acid, the cellulose of the fibers is partly changed to hydrocellulose and oxycellulose. Oxycellulose is a weakly acid product and its formation when once started continues in the finished paper causing an ever increasing discoloration and brittleness with age.

Testing for Oxycellulose

The bleaching process should be controlled by testing the bleached fibers before introducing them into the beater for the presence of oxycellulose, using a Fehling reduction solution, and the amount of bleach used and the conditions of bleaching should be so regulated as to give the minimum amount of Fehling reduction consistent with the desired whiteness of fibers. Many papermakers would be surprised to learn how closely this Fehling reduction in the raw materials regulates the physical properties of the finished papers. With rag stock intended for high grade papers for permanent keeping, only the slightest trace of Fehling reduction or preferably none at all should be permitted. In wood stock or in other furnishes intended for papers for immediate use or for immediate coating, a much wider tolerance of oxycellulose formation is permitted. For some papers a little oxycellulose is desirable since it seems to aid in the obtaining of the desired amount of mucilage formation in the furnish, while in bonds and ledgers oxycellulose causes endless difficulty in rosin sizing and in the keeping qualities of the papers.

Use of Antichlors

In many mills a certain amount of Antichlor is used to hasten the destruction of the last trace of bleach which again involves acidity changes. When sodium thiosulphate or sodium bisulphite, also called sodium acid sulphite, is used, the Antichlor reacts with the bleach residues in such a way that acidity formation is hastened and the free acidity of the pulp is markedly increased. Unless the pulp is very well washed before running on the machine, this acid can cause rapid destruction of machine wires. The writer has seen machine wires entirely eaten through in one week entirely due to the acidity of the furnish from the use of Antichlor. Normal sodium sulphite has the advantage over the two previously mentioned antichlors in that in its reaction with bleach it does not form acid residues although considerably more weight of the normal sulphite is required to destroy the same amount of bleach than is required for the thiosulphate. The by-product here is practically neutral and, in such small amounts, it is without effect on the pulp. Sodium sulphite is soluble in water and is easily washed out if not used by the bleach, but calcium sulphite, which is also free from acid formation, forms with water a white milk and the insoluble lime residues are probably held fast by the fibers although they are said to have no appreciable harmful effect on the process. In general, washing and draining are far more satisfactory methods of removing bleach than the use of Antichlor of any kind.

Control of Pitch Trouble

When unbleached sulphite pulp is used, the frequent occurring pitch troubles could be largely controlled by the use of a slight acidity in the beater water though not too much for the obtaining of the desired wetness of furnish. In rag mills there is often a similar difficulty from the accumulation of waxes and greases from the rag stock together with lime soaps of these greases formed in the boiler cooking. These masses are largely eliminated by the use of the soluble soda compounds instead of the insoluble lime ones in the boiler cook and more acidity in the washing. These small masses of pitch or grease are electrically attracted by the lime salts of alkaline waters and form sticky masses which, during constant agitation slowly gather into larger and larger masses which then settle on the pulp and on the sides of beater and apron. If acid is added directly, it must be with care else injury will be done to the stock and the pH of the solution should be controlled with indicators. Alum may be used more safely provided that it does not require so much that an objectionable amount of alumina is accumulated which may oppose the dissipation of the sticky masses. It is usually safer and satisfactory to eliminate beater greases by the addition of a glue solution which acts on the greases much as soap does on dirt by surrounding the tiny particles with films which keep them from gathering into masses or adhering to pulp or beater.

Best to Have Beater Liquor Slightly Acid

A perfectly clean furnish may be beaten in a liquor which is slightly alkaline as alkalinity hastens the slowing of a furnish, but the ordinary industrial furnish of pulp is much more safely beaten in a liquor which is very slightly acid, having a pH below 3. This would mean a liquor just alkaline to Methyl orange and acid to Brom-thymol-blue. This acidity does not interfere with the slowing of the stock but it does gradually dissolve lime soaps and prevent the gathering of sticky masses. When a pulp has been beaten to the desired consistency, the addition of the rosin size will make it quite alkaline and at this time any iron salts which have got into the furnish are precipitated as brown flocks on the fibers. The subsequent addition of alum to the furnish will again make the liquor acid but the alumina settles on the fibers and largely prevents the solution of the deposited iron stain. Since rosin and the cellulose of fibers are both electrically negatively charged, the positively charged alumina is essential as a binding agent to hold the rosin firmly attached to the fibers and prevent its being washed off in the back water. The function of the acidity of the alum is merely to neutralize the alkali of the size soap and release the free rosin for adherence to the fibers. An insufficiency of acidity leaves some rosin soap in the furnish which acts as does soap elsewhere in surrounding the particles and preventing their adherence to the fibers. These particles of free rosin which are held on to the fibers by the alumina are partly melted on the machine dryers and spread out to form a continuous waterproof film.

Use of Sodium Silicate

Sodium silicate is often recommended for its sizing effect but the difficulty in its use lies in the fact that for good results it should be added some time before the alum, thus necessitating beating the stock in an alkaline medium and taking a chance at accumulating pitch, grease, etc. If it is necessary to add some substance to aid in the beater sizing, a good grade of glue, free from sulphur dioxide or strong acid is far safer and more efficient.

Prepared Starch Products

When using prepared starch products such as Feculose, Hercules Gum, etc., care should be taken to see that no shipment contains acid residues from the chemical treatment of the starch, as a markedly acid coating, applied wet, will have a splendid opportunity to develop oxycellulose at the expense of the strength and color of the paper. Glues are less likely to have strong acidity although many glues are bleached with sulphur dioxide and the residues when not properly washed out form sulphurous acid which, besides having acid properties, is a strong oxidizing agent forming oxycellulose in the paper.

The addition of alum to a glue intended for tub sizing increases the acidity of the glue by an amount dependent upon the amount of lime or other alkali residues in the glue. There is little danger of excess acidity from this source since the density and jell strength of the glue is so rapidly destroyed by excess acid that it would be at once detected. Some glues will come up in strength with the addition of alum more than others and this is very largely due to the variation in the alkali salt content of the glue.

This outline of acidity requirements covers only the better known and more commonly occurring conditions but it may serve to emphasize the extent to which the work of technical control in the papermaking process may be a matter of controlling acidities at every point of the process.

How Napoleon Depended on Scientists

ascinating Story of Science and Scientists Under Napoleon I—Problems in Industrial Chemistry That Got His Attention—His Fondness for Science

AUVELET DE BOURRIENNE, who was Bonaparte's private secretary from 1797 to 1802, referring to the fact hat the class of sciences had been given recedence over that of literature in the *nstitut National,* says in his Memoirs: Considering the state of literature and cience at that period, the First Consul id not make a wrong estimate of their mportance. . . . Although the literature of France could boast many men of great talent, ... yet hey could not be compared with Lagrange, Laplace, Monge, Fourcroy, Berthollet and Cuvier, whose work has o prodigiously extended the bounds of uman knowledge." France, during he Napoleonic period, was indeed extremely rich in men whose names are writ in the history of science; Vauquelin, Proust, Guyton de Morveau, Gay-Lussac, Coulomb, Hauy, Biot, Arago, Lamarck, de Candolle may be dded to Bourrienne's list. The state f literary depression, which prevailed hroughout the Consulate and Empire, was partly due to the attitude of Naoleon himself. His practical mind was naturally attracted by science; but terature had not much appeal to him, nd in his later years he disliked and istrusted literary men. They were heorists, phrasemongers. "These peole," he said, "are good for nothing uner any government. I give them rewards because it is my duty as Chief f State; they occupy and amuse idle minds. But I will make Lagrange a enator; there is a brain."

A narrative of absorbing interest concerning the relations of Napoleon Bonaparte with the chemists and mathematicians of his time is contained in a contribution by A. R. Pearson, M. Sc., LL. B., to the March issue of Chemistry and Industry, the official organ of the Federal Council of Pure and Applied Chemistry and of the Institution of Chemical Engineers. Under Napoleon's leadership, industrial chemistry made great progress, partly under the stress of necessity, as after the defeat of the French navy at Trafalgar, the problem of making France independent of overseas products became an acute one. While there are no references to pulp and paper as commodities, the technical men among our readers will appreciate the dependence which Napoleon placed on the chemists and other scientists with whom he loved to associate.

Revival of Chemical Science

The period of the French Revolution was a time of revolution also in physical cience. Speculation and the construction of "systems" were giving place to quantitative experiment with balance, burette and colorimeter. The overhrow of the phlogiston hypothesis by he work of Lavoisier, Laplace's invesigations in celestial mechanics, and the liscovery of galvanism, had not only timulated the enthusiasm of the initiaed, but had aroused a more general inerest in science. This revivification or renascence was nowhere more evident than in France. The tragic fate of Lavoisier and Bailly during the Terror was quite unconnected with their status as scientific men. It was part of the result of a transient outburst of political fanaticism, and must not be construed as representing a general hostilty towards science. The famous dicum of a member of the revolutionary ribunal, that the Republic had no need of savants, was meant rather to silence a petitioner than to lay down a principle of Republican government. The Jacobins made much use of the services of scientific men in the national defence; and some of the latter, who would have been condemned on political grounds, were saved on account of their possible utility to the State. It was on this plea that Guyton de Morveau saved the great mathematician Lagrange from being exiled on account of his foreign birth.

First Polytechnic School

In the social reaction after the fall of Robespierre, it was fashionable to take an enlightened interest in science and literature. Thus Bonaparte writes from Paris to his brother Joseph in July, 1795: "Luxury, pleasure and the arts are reviving here in a wonderful manner . . . Libraries are formed, and we have lectures on history, chemistry, botany, astronomy. . . ." In the same year, the Convention founded the *Ecole Polytechnique* as a school of pure and applied science, to rank besides the colleges hitherto exclusively devoted to law, literature and medicine. (The last of these three subjects was rather an art than a science in those days.)

The old *Academie francaise* and the *Academie des Sciences* having gone the way of other royal institutions in 1793, the Convention created in 1795 a National Institute, composed of men distinguished in various branches of learning. The Institute was originally divided into three classes, devoted respectively to science mathematical and physical, to science moral and political, and to literature and the fine arts. It was reorganized in 1803 under the First Consul's direction in four classes, namely:—

(1) Physical and mathematical science.
(2) French language and literature.
(3) Ancient literature.
(4) Fine arts.

It was characteristic of Bonaparte to suppress the class of moral and political science. He would not encourage discussion, criticism and possible ridicule of his government by the *ideologues* whom he so despised.

Bonaparte a Member of the Institute

Bonaparte had, himself, been elected a member of the Institute in the classes of science and arts at the end of 1797, and he acknowledged his election in the following letter, which displays a clear perception of the value of research and the contribution which science can make to national prosperity:—

"CITIZEN PRESIDENT,—I am honored by the suffrage of the distinguished men who compose the Institute. I feel that before being their equal I shall long be their pupil. If I can convey in any more expressive manner my esteem for you, I shall be glad to do so.

"True conquests, the only ones which leave no regrets, are those which are gained over ignorance. The most honourable, as well as the most useful, occupation for nations, is to assist in extending human knowledge. The true strength of the French Republic should henceforth consist of not allowing a single new idea to exist without adopting it as part of its own property.

BONAPARTE."

Scientists with the Army

Acting on these opinions, he included in the Egyptian expedition of 1798 a band of scientific men—chemists, physicists, biologists—who were to assist in developing the resources of the country. The idea of adding a corps of savants to a military expedition was a novel one, and the party was an object of some suspicion to the rank and file during the hot and thirsty march up the Nile to Cairo. The men, having noticed that all vestiges of antiquity were carefully examined, vented their discontent in invectives against the savants; who, they said, had started the idea of the expedition in order to carry out antiquarian researches. And when, on any alarm, they were ordered to open the square and give the learned party, mounted on asses, with their instruments and baggage, safe footing within, they used to receive it with military jests: "Room for the asses. Stand back, here come the savants and the *demi-savants!*"

One of the General's first acts after subduing the country was to form an Institute of Science and Arts at Cairo, modelled on that of Paris. It consisted of the savants, staff officers and other interested in learning. The mathematician Monge was president, Bonaparte was vice-president, and the secretary was Fourier, afterwards famous for his work on the mathematical theory of heat-conduction. The papers read before the Institute show a great diversity of topics. Thus we find contributions by Berthollet on the occurrence of sal-ammoniac and on the production of indigo in Egypt; Fourier describes "a general method of extracting the roots of equations"; and one of the staff officers gives an account of a bust of Isis found near the Nile.

Scarcity of Fuel in Egypt

Bonaparte's intention was to plant a permanent colony in Egypt, and with this end in view he proposed a number of important practical matters for consideration by the Institute. Scarcity of fuel is a perennial problem in that country, and it is not surprising to find, among the first of these questions: What means are there of economizing fuel in the army ovens? Water supply naturally claimed attention; the relative advantages of windmills and water-mills were discussed, and Berthollet and his assistants carried out complete analyses of the dissolved solids of the Nile water. The resources of the country for manufacturing gunpowder, and the possibility of finding a substitute for hops in beer, were other problems dealt with.

Of all his scientific advisers at this time, Bonaparte seems to have placed most confidence in Berthollet. Their connection had begun in 1796, when Berthollet and Monge were sent to follow the victorious general in Italy, and to select the works of art which were to be sent from the captured towns to Paris, Berthollet was one of the small party which accompanied the General's sudden return from Egypt in 1799.

Beginning of Studies in Adsorbtion

During the Revolutionary wars against the First Coalition, Berthollet had been employed by the Committee of Public Safety to superintend the manufacture of nitre, and this work seems to have given rise to his first ideas on chemical statics and affinity. He observed that the earthy matter from which the nitre was extracted always retained a portion of it, in spite of the fact that the aqueous solution was far from saturated; and he attributed this to an equilibrium between the "affinity" of the nitre for the earthy matter and its tendency to pass into solution. The phenomenon is now called adsorbtion, and it is well known that the proportion of a substance adsorbed can vary continuously. Hence doubts arose in Berthollet's mind as to the validity of the Law of Constant Proportions. These ideas were further developed during his stay in Egypt by an investigation of the natron lakes in the desert southwest of the Delta. The action of brine on the calcareous rock has caused deposits of carbonate of soda, and these deposits were the subject of Berthollet's first paper on chemical affinity and mass action, read before the Cairo Institute. The complete theory was published in the famous *Essai de Statique chimique* in 1803.

Mamelukes not Impressed by French Science

Berthollet used to give frequent experimental demonstrations before the Institute in his laboratory, which was installed in the palace of one of the Beys. The Mamelukes had a great respect for prophets and magicians, and Bonaparte, with his usual readiness to draw advantage from circumstances, determined to oppose sorcerer to sorcerer. He therefore invited the principal sheiks to one of these demonstrations, expecting to enjoy their astonishment and to impress them with awe of the French conquerors. "But," says Bourrienne, "all the wonders of the transformations of liquids, electrical commotions, and galvanism occasioned in them no surprise. They watched our clever chemist with imperturable calm." And when the demonstration was concluded, the Sheik, El Bekri, informed the interpreter that it was very fine "but ask him," he said, "if he can make me be in Morocco and here at the same time." Berthollet shrugged his shoulders. "Then in that case," answered the Sheik, "he is but half a magician." The standard of professional competence for magicians has always been high in Egypt; he needs both courage and skill who will claim succession to Moses and Hermes Trismegistos, or maintain the traditions of Memphis and Alexandria.

Berthollett's services ultimately gained him the Cross of the Legion of Honour, and he became a Senator and Count under the Empire.

Bonaparte became First Consul towards the end of 1799, and in organizing his administration he chose Laplace as Minister of the Interior. Laplace's studies in mathematical astronomy, his nebular hypothesis, his theory of capillary and his proof that soundwaves are propagated under adiabatic conditions, form a sufficiently imposing monument in the temple of science; but as a minister he was a failure. Bourrienne says of him: "As to Laplace, Bonaparte always held a high opinion of his talents. His appointment to the Ministry of the Interior was a compliment paid to science, but it was not long before the First Council repented of his choice. Laplace, so well adapted for science, displayed the most inconceivable mediocrity in administration; as if his mind, constructed to grasp the system of the universe and to interpret the laws of Newton and Kepler, could not descend to the level of matters of detail nor apply itself to the duties of the department with which he was entrusted." Laplace was indeed wasted in the ephemeral details of administration. Of his ministerial colleagues, Carnot set a high example of integrity in public life; Talleyrand has left us a few epigrams and a reputation for political agility; while Cambaceres was famed for the excellence of his dinners. But what permanent fruits have their labors given to posterity? *Tenues recesserunt consumti in ventos.* Laplace has rendered humanity a more enduring service, and can say, with Horace, *Monumentum feci aere perennius.*

Laplace was superseded after a ministry of six weeks, and nominated to the Senate. He and the First Consul, each the most eminent living man in his *metier*, had a cordial regard for each other. The statesman gave the scientist the Cross of Honour, and the scientist dedicated his *Mecanique celeste* to the statesman.

After a short period under Lucien Bonaparte, the Ministry of the Interior was again offered to a man of science, Jean Antoine Chaptal, Comte de Chanteloup.

An Industrial Chemist's Work

Chaptal was primarily an industrial chemist. Although his name is still to be found in chemical textbooks, it is not associated with any fundamental discoveries such as those of his contemporaries, Berthollet, Gay-Lussac and Vauquelin. The value of his work lay in his applications of chemistry to agriculture and manufactures. Already in 1781, when professors of chemistry at the College of Montpellier, he had started a factory where he made mineral acids, alum, sal-ammoniac, white lead, copperas and other chemical products. He devised improved processes for the extraction l application of the dye in madder ot, and was the author of several rks on applied chemistry (*Teinture coton,* 1807; *Chimie appliquee aux s,* 1807; *L'industrie francaise,* 1816). rring the Terror, on the repeated itation of the Committee of Public fety, seconded by the entreaties of friend, Berthollet, Chaptal devoted nself to organizing the great pow- factory at Grenelle. This circum- nce saved him from sharing the e of Lavoisier, for he had been im- soned once as a leader of the South- Girondists, and would certainly ve been brought before Fouquier- nville as a political "suspect" had t his services been necessary to the obins.

Chaptal became a member of the stitute in 1799, and was called to Council of State in the following ar. Here he came in contact with First Consul, and in November, 00, succeeded Lucien as Minister of Interior. He was an active and ccessful administrator. It was he o was charged with the reorganiza- n of the Institute in 1803, and with formation of the Society for the couragement of National Industry. any useful reforms and projects in ucation, public works, and the im- ovement of agriculture and manu- cture were carried out under his nistry.

Chaptal Resigns and is Promoted

As Napoleon developed his system, no longer wanted men of independ- t mind. He wished everything to under his own immediate cogniz- ce. As Chaptal puts it: "He needed lets, not counselors. His ministers ere merely head clerks." Chaptal as by no means this kind of man, d in August, 1804, two monts after apoleon became Emperor, he ten- red his resignation, alleging the de- e to resume his scientific work. apoleon accepted the resignation, t nominated him to the Senate, here his scientific knowledge and perience continued to be of great e. Mineval the Emperor's *Secretaire Portefeuille,* says in his memoirs: have heard Napoleon complain at this minister did not seek oppor- nities to talk to him . . . and did t inform him often enough of the siness of his department. Perhaps e Emperor was yielding to certain ejudices inspired by the recollec- on of his unsuccessful experiment entrusting the same ministry to aplace . . . and he thought it was bad thing for savants to be distracted om their studies, and that they were ot able to devote themselves entirely the multifarious details of adminis- ation. . . . However, this was not in the case of M. Chaptal, who was practical savant. For the rest, he continued to be treated with great regard by Napoleon, who constantly gave this distinguished scientist the proofs of appreciation of his talents."

Chaptal rejoined the Emperor during the Hundred Days, being made made director-general of agriculture, commerce and industry. His declining years were spent in agricultural pursuits at Chanteloup, where he enjoyed the society of his friends Laplace, Berthollett and Monge.

Making France Industrially Independent

After Trafalgar, it became of the first importance to make France as nearly as possible independent of overseas products. A Council of Commerce and Manufactures, of which Chaptal was a member, was formed to advise on this problem. Strenuous efforts were made to find substitutes for indigo, cotton, cane-sugar, coffee, quinine and the like, and large rewards were offered to inventors. Chevreul, then assistant to Vauquelin at the Museum of Natural History, carried out one of the earliest researches of his long career on the coloring-matter of the woad plant (*Isatis tinctoria*), with a view to restoring it to the position in the dyeing industry from which Indian indigo had ousted it.

Coffee, so extensively used in France, was very difficult to replace. *Tisanes* of various herbs were an alternative rather than a substitute. The annual report of the Institute in 1814 mentions that an infusion of the roasted seeds of the yellow flag (*Iris pseudacorus*) is recommended, and is said to possess febrifuge properties which make it a possible substitute for quinine. Other roasted seeds and roots had been tried, but the report finally admits that "the drinks so obtained resemble coffee only in their dark color and bitter taste."

The scarcity of sugar was the most keenly felt of all privations. Proust, the famous defender of the Law of Constant Proportions against the attacks of Berthollet, had discovered grape-sugar while working in Madrid in 1799. As the overseas markets for wines were cut off, an alternative use for the grapes was welcome; and a member of the Institute named Parmentier published in 1811 directions for purifying grape-sugar and preparing a sweet syrup from it. Proust received the Cross of Honour and a considerable sum of money from the Emperor. The reward was clearly well deserved, but the public opinion at that time was unaccustomed to seeing honors conferred for any but military and political services, and the learned pharmacist seems to have incurred some ridicule in the press:

"Pour avoir compose
De sirop de raisin trois ou quatre topettes,
Mon vieil apothicaire est mis dans les gazettes!"

Beet Sugar Development

The existence of sugar in beetroot had long been known, and the first beet-sugar factory had been started in Silesia under the patronage of the King of Prussia in 1799. The Institute therefore appointed a committee to inquire into the production of sugar from beet and other vegetables. This committee, which included Chaptal, Fourcroy, Guyton de Morveau and Vauquelin, published in 1811 "Instructions pour extraire le sucre de betterave." The first successful French manufacturer was Baron Delessert, one of the leading industrialists of the day, and a member of the Council of Commerce. On hearing of the success of Delessert's process, the Emperor at once rode off with Chaptal to the factory at Passy. Having examined everything, he took off his own Cross of Honour and fastened it on Delessert's breast. Under the drastic protection of the Continental System the industry grew apace; but at the Restoration, the market suddenly flooded with West Indian product, many fctories were closed.

Encouragement for Technical Schools

Napoleon recalled with pride at St. Helena that he had established a system of technical education to supply the needs of industry. From his technical colleges, he said, "hundreds of able chemists went to the different manufactories. In each of them I caused a person well-skilled in chemistry to reside. In consequence, everything proceeded upon certain and established principles, and they had a reason to give for every part of their operations, instead of the old vague and uncertain mode." The provision of teachers for the technical colleges was the function of the Imperial University, which was created in 1806, and placed under the control of a council of eminent savants. These educational measures were drawn up and piloted through the *Corps Legislatif* by the Comte de Fourcroy, director of public education under the Ministry of the Interior. Fourcroy, like Chaptal, was not only a chemist but an efficient minister. Indeed, his work in organizing the educational system, successively under the Convention, the Consulate and the Empire, is a better title to fame than his chemical work; for, although he turned out a great bulk of research, chiefly in collaboration with his pupil and friend Vauquelin, much of it was superficial and hasty. He was an excellent teacher, however, and his lectures on chemistry at the Jardin des Plantes drew large audiences.

Scientists Honored

Professor Volta, of the University of Pavia, invented his electric pile in the year 1800, and the First Consul invited him to come to Paris and demonstrate some experiments before a committee of the Institute. In spite of his load of administrative work and the peace negotiations with England, Napoleon insisted on being present at the session when Biot presented the committee's report, and on his proposal a gold medal and a sum of money were awarded to the inventor. So struck was he with the importance of Volta's work, that he created an annual prize of 3000fr. for the encouragement of studies in the science of electricity and galvanism. This prize was awarded to Davy in 1808 for his work on electrolysis of solutions, and was divided in 1809 between Gay-Lussac and Thenard.

Napoleon was similarly interested by Chaldni's observation that sand spread on a metal plate forms regular figures when the plate is set in vibration. After seeing the experiment he desired the Institute to offer a prize, open to all the scientists of Europe, for a mathematical theory of the phenomenon. There appears to be no record that this prize was ever awarded.

Science in 1798

In the year 1802 the Institute was charged to present to the Council of State a report on the progress and condition of science, literature and art in 1879. Owing to the war, the report was not presented to the Emperor until 1808. The deputation of the class of science was admitted first into the Imperial presence, and after an introductory speech by the president Bougainville, the secretaries Delambre and Cuvier read the reports of their respective sections. These reports give a striking picture of the foundations of modern science in the making.

Delambre, for the mathematical section, dealt with the measurement of the arc of longitude on which the metric system is based. He was himself responsible for the northern half, from Dunkirk to Rodez, and his colleague Mechain for the rest as far at Montjouy, near Barcelona; a further extension to the Balearic Isles was carried out by Biot and Arago.

Covier then gave an account of the advances in physical science, of which may be briefly mentioned: Lavoisier's theory of combustion; the work of Dalton and Gay-Lussac on thermal expansion; Berthollet's theory of affinity and mass action; Hauy's proof of the uniformity of corresponding angles in crystals; the discoveries of Galvani and Volta, and Davy's applications of the voltaic pile; Jenner's discovery of vaccination; the application of chlorine to destroy "germs of contagion" by de Morveau; the analytical work of Fourcroy and Vauquelin on vital products.

The Emperor replied briefly to the deputation, assuring the Institute of his support. "The well-being of my peoples and the glory of my throne," said he, are alike interested in the progress of science."

Meneval, who was present on this occasion, says that "the Emperor remained struck by the eloquence and clearness of ideas of M. Cuvier, who spoke fluently for several hours. Suspending the rule which he had imposed on himself, of not distracting learned men from their studios, Napoleon made M. Cuvier Master of Requests in the Council of State, and gave him a high appointment in the Imperial University."

Cuvier, whose first paper on palaeontology had appeared at the opening of the Institute in April, 1796, was in fact made a Councilor of the University, and later Councilor of State.

Humboldt in Paris

It has been mentioned above that the Emperor became increasingly reluctant to hear any opinion but his own on administrative matters. His contempt for men in general, the habit of despotic power, and his confidence in his star, made it useless to offer advice directly, however good the arguments by which it was supported. But he was always more receptive towards scientific men. He welcomed their conversation; he was always alive to the possibilities of their work, and ready to encourage research. The following anecdote, recounted by Chaptal himself, shows the circumspection necessary in approaching him, and at the same time proves his real regard for scientific work. The celebrated Prussian scientist and traveler, Alexander von Humboldt, had settled in Paris in 1808, and the Emperor suspected him of being a spy. "One day he ordered Savary, Minister of Police, to have him removed from Paris within 24 hours. The order was communicated to Humboldt, who at once came to me and asked me to speak to the Emperor on his behalf. I went to the soiree at the Tuileries; as usual, the Emperor drew me aside to converse.

"What is there new in the scientific world?" he asked.

"Nothing," I answered, "and were not M. Humboldt publishing his travels in Central America, we should be in a state of complete stagnation."

"These works are very important, very important?"

"They could not be more so. M. Humboldt is master of all the sciences, and when he travels, it is as if all the Academy of Science went too. It is astonishing that he has been able to collect in three years all the material on which he is working in Paris. Moreover he has adopted our country; he publishes his work in our language, he employs our engravers, our artists, our printers."

"Does he not engage in politics?"

"His reputation brings him into contact with many foreigners, who come to see him; but I have never known him to concern himself with anything but science."

"You think he is necessary to France?"

"There would be general regret if he chanced to leave us."

Napoleon called Savary, and ordered him not to put into execution the order which he had received that morning. . . . If I had appeared to be aware of the step he had taken, and had spoken to him on the subject, I should have obtained nothing."

Napoleon's predilection for science was not entirely a white passion. It was made subservient to aggressive political designs. But whatever his ultimate motives were, we must ascribe to him this merit, that he was the first great monarch to give science its true place as a factor in human life. Others before him had indeed patronized science. The Academy of Sciences under Louis XIV. and XV. was an appendage of the Court, and the Court took an interest in the little tricks and wonders of science, just as it did in Madame du Barry's Indian dwarf or a new ballet. Frederick the Great liked to surround himself with learned men such as Voltaire and Lagrange, not so much because their knowledge was of value to the State, as because they gave an intellectual luster to his Court British monarchs would sign charters allowing a Society or an Institution to call itself Royal; but it is to be feared that their interest evaporated with the ink.

These rulers cannot, of course, be blamed for not seeing beyond their generations. They lived for the most part when physical science was as yet in its childhood. But Napoleon came at a time when it had begun to prove itself, and was prepared to play a fundamental part in civilization and progress. He encouraged it to do so. His Legion of Honour was open to scientific, as well as military and political achievements. His keen and enlightened interest in the advancement of science and his respect for scientific men are in refreshing contrast to the ruthless combativeness and self-will of the rest of his career: and under his rule science enjoyed a prestige which it had no known before.

The Issues of the Convention

WHETHER or not the attendance of representatives of the pulp and paper industry at the various meetings to be held in New York during the week of April 7 will surpass that of previous years, it is difficult to say. One thing does stand out clearly and that is, the matters to be discussed will exceed in importance those of any previous year. This is especially true as regards the American Paper and Pulp Association and its affiliated organizations, the Technical Association, the Woodlands Section, the Pulp Association and the Salesmen's Association.

Of the doings of the National Paper Trade Association which meets in convention at the Waldorf Astoria on Monday, April 7, and closes with a banquet on Wednesday night, it is unnecessary to say much. This organization of the paper merchants of the country have two main divisions which embrace fine paper dealers and wrapping or coarse paper dealers. The sessions of this association are continuous and the members stick closely to business. As usual, PAPER will present a full account of what takes place at the meetings of the divisions. The banquet of the National Paper Trade Association is always enlivened by a high class vaudeville performance. Unlike the banquet of the American Paper and Pulp Association formal speechmaking is not encouraged or even permitted. Enjoyment is the order of the evening which usually closes with dancing in the main ballroom of the Waldorf Astoria.

From all that can be learned this year's meeting of the American Paper and Pulp Association will be the most important in point of action that may be taken for the reorganization of the association that has been held since the old sections were abolished and group or individual associations formed subsidiary to the main association. It has long been known to those who are close to the officers of the association that the method of providing funds for its maintenance and the prosecution of important work has never been satisfactory. Notwithstanding the adoption of specific budgets calling for definite expenditures it has never been possible to collect the entire amount that may have been pledged by vote at the annual meeting. This has on more than one occasion caused serious embarrassment to the executives in New York. It explains the suspension of certain operations of the secretary's office, especially during the past year. First the Information Service Bureau had to be practically given up and it is understood that the Woodlands Section is marked for reorganization and consolidation with the Pulp Manufacturers Association. It is on the cards that some rather radical steps will be taken during the week of April 7 to put the Association on a more satisfactory financial basis.

Meanwhile the offspring of the parent association with the exceptions noted are manifesting unusual vigor. The big problem, or "paramount issue," that of overcoming European competition is to be made a special feature of the Salesmen's Meeting. At the informal dinner and smoker to be held at the Waldorf Astoria on Tuesday evening Henry A. Wise, the well known attorney and paper expert who has figured in the biggest fights in the courts as counsel for the American Paper and Pulp Association, will talk on the plan devised by him for reorganizing the American Paper and Pulp Association so as to protect American manufacturers of pulp and paper from undervaluation, improper classification and dumping of imported paper.

The activities of the new association advocated by Mr. Wise would be under the direct supervision of legal experts. The funds for its maintenance would be derived from assessments on individual manufacturers based on tonnage and value of product. It is a mighty imposing program that has been formulated by Mr. Wise. Among other things contemplated is that of placing the office under the direction of a paper expert, the organization to include the necessary office help and experts in the Customs Service. It is a revolutionary program, differing in all its details from anything previously attempted. All of us know that attempts to reorganize and revitalize the American Paper and Pulp Association have been made times without number, the subject being a stock one for discussion at nearly every annual meeting.

It does not seem possible that Mr. Wise and his supporters can carry through so daring and novel a program as the one outlined. But the announcement of it should insure a large and interested attendance of pulp and paper manufacturers from all parts of the country and it is quite likely, as predicted by Secretary Hugh P. Baker, that the attractions of this year's meeting will bring an overflow crowd to the general meeting and banquet scheduled for Thursday, April 10.

In talks with the secretary of the Technical Association it is evident that T.A.P.P.I. is going to break all records for attendance and general interest. Stress is laid on the importance of a joint meeting of the Technical Association and the Woodlands Section for the discussion of the use of decayed wood in the manufacture of sulphite pulp. A preliminary report by J. D. Rue and associates of the Forest Products Laboratory made at the annual meeting of the Technical Section of the Canadian Pulp and Paper Association in January at Montreal showed that it was perfectly feasible to use wood that had been attacked by insects and fungi in the manufacture of pulp. Some of the investigations of the Forest Products Laboratory men which have been continued since the Montreal meeting have developed the knowledge that after spruce timber is killed by attacks of the bud worm, the tree is ripe for the growth of fungi. A peculiarity of certain fungi is that they attack only the lignin of the wood, so that such wood instead of being rendered useless for pulp manufacture is actually improved in value, giving an apparently higher yield of cellulose owing to the destruction of lignin by the fungi.

The subject of meeting unfair competition from foreign paper manufacturers will be brought to the fore at a meeting of the Paper Testing Committee of T.A.P.P.I. It has been discovered that a certain grade of paper which reaches the port of New York from German and Swedish sources as wrapping paper, duty being paid on it as such, afterwards makes its appearance on the market as greaseproof or imitation parchment. We have handled specimens of this paper and the material bears few of the earmarks of a greaseproof or imitation parchment. It has a tinny rattle that might indicate a certain amount of parchmentizing in the beater—that quality which is variously designated by the terms hydrated cellulose and oxycellulose. The ordinary test for a greaseproof paper is to form a pool on the surface of it with an oil of turpentine to which has been added an oil-soluble dye. The paper to be tested rests on white blotting paper and it is withdrawn with a sliding motion at intervals of half a minute. Good greaseproof paper will resist the action of turpentine for ten minutes. This is considered a good diagnostic test. The flame test is also used. This is applied by holding a lighted match to the under surface of the sheet. Imitation parchment will show bubbles or blisters on the upper surface under this test. The wrapping paper of foreign origin which masquerades as imitation parchment or greaseproof paper stands the turpentine test but feebly, and may stand the flame test better, as is characteristic of some hydrated papers.

Another attractive feature of this year's meeting of T.A.P.P.I. will be a report by McBain's "Committee of Fifteen on Standards." This is a joint committee of members of the Technical Association and the Superintendents' Association organized to work up standards for mill practice. It will be their duty to say how many pounds of sulphur are permissible per ton of sulphite pulp; how many pounds of soda ash and lime per ton of soda pulp; how many pounds of salt cake per ton of kraft pulp; how many horsepower per ton of groundwood as well as how many pounds of steam to dry a pound of paper.

The foregoing will give the reader a taste of what is coming during paper week in New York but there will be much more to hold the interest of manufacturers, engineers, superintendents, technical men and merchants of paper. Nothing has been said about the Paper Industries Exposition which will occupy the Grand Central Palace while the conventions are in session.

If Northern manufacturers do not wake up in time they will find new sources of competition within the Nation's boundaries. Among recent additions to the exhibits in the Paper Industries Exposition is one of papers made from Southern woods by the kraft process. This will be exhibited by the Southern Kraft Manufacturers' Association. There is a strong movement on foot for the development of paper manufacture in the Southern States, one of the best evidences of which is supplied by a projected meeting of the superintendents, managers and engineers of Southern paper mills which is to be held at the St. Charles Hotel, New Orleans, April 17, 18 and 19, for the organization of a Southern Division of the American Pulp and Paper Mill Association.

New York Trade Notes

Atterbury & McKelvey, importers of and dealers in wood pulp and other papermakers' supplies, have moved from 145 Nassau Street to Rooms 501-2 at 11 Broadway, New York, where they occupy more commodious quarters. The new telephone numbers are Bowling Green 2148 and 2149.

* * *

S. W. Dunning, agent for several paper mills, who has been located at 132 Nassau Street, New York, for a good many years, will move within the next few days to 150 Nassau Street.

* * *

About the middle of this month Fred Cherrie, of Castle & Overton, Inc., importers of and dealers in paper mill supplies of 200 Fifth Avenue, New York, will leave for Chicago where he will open a branch office for his firm. Mr. Cherrie has leased office quarters in the new South Section of the Wrigley Building, Room 464, in Chicago, and from this office he will travel through the Middle West selling wood pulp, rags, waste paper and other materials for his firm. Mr. Cherrie has been in the paper stock trade for a quarter of a century and is widely and favorably known, particularly among paper manufacturers in the Middle West where he has traveled extensively in recent years.

* * *

Charles E. Robertson, for the last five years with the Whiting-Patterson Company, paper jobbers and importers of 265 Canal Street, New York, has joined the sales force of A. R. Melker, of 110 East Forty-second Street, who represents the Ajax Paper Mills, the Franklin Coated Paper Company, the J. P. Lewis Company and the Unity Paper Mills in the metropolitan area.

It is expected that quite a large number of paper mill men who will be in New York at the time for the paper convention will be present at the annual dinner of the Waste Merchants' Association of New York, whose membership includes virtually all of the large dealers in paper mill supplies in this city, at the Hotel Commodore on the evening of April 9 in the middle of Paper Convention Week. An elaborate vaudeville entertainment is always provided at this dinner to take the place of speechmakers, and reports are to the effect that a wonderful array of talented artists has been engaged for this year's affair. Walter H. Martens, of George W. Millar & Company, Inc., 284 Lafayette Street, has charge of the tickets and reservations.

* * *

At a conference held at the Hotel McAlpin on March 19 an organization of Greater New York salesmen of paper, paper bags and allied lines was formed to be known as the Allied Salesmen Association. Officers were elected as follows: President, Edward Landers, of the Federal Match Corporation; Treasurer, Ben Kohn, of the Continental Paper and Bag Mills, and Secretary, Samuel Hoffman, of Schorsch & Company, paper bag manufacturers.

* * *

The Scandinavian Export Paper Company, of New York City, was awarded articles of incorporation at Albany several days ago to do a commission business in paper. The corporation is capitalized at $30,000, and F. Lockwood and H. Svenson were the incorporators.

* * *

R. H. Macy & Company won before the General Appraisers in a decision reducing the tariff rate on box stationery, comprising writing paper and envelopes put up in individual boxes. Duty was levied thereon at the rate of 35 per cent ad valorem under Paragraph 1313, Act of 1922, as manufacturers of paper not especially provided for. Judge Fischer held that duty should have been assessed at the rate of 3 cents per pound and 15 per cent ad valorem under Paragraph 1307 on the writing paper, and on the envelopes at the same rates plus 10 per cent under the provision in Paragraph 1308 requiring that "paper envelopes not especially provided for shall pay the same rate of duty as the paper from which made, and, in addition thereto, if lined, 10 per centum ad valorem."

* * *

Objective For Tourists

The two large paper manufacturing plants at Oregon City are both of interest to motorists travelling over the Pacific highway.

The modern mills of the Crown-Willamette Paper Company, embracing some of the finest papermaking equipment in the country are situated on the west side of the Willamette River. Extensive improvement is being made in the mill's capacity. The average number of employees for the month of January in this plant was 1129 with a loss of only 59.50 days from accidents to the employees.

Across the river on the east side is located the Hawley Pulp & Paper Company's big plant which is capitalized at several million dollars.

Here a modern concrete and steel mill to house one paper machine is now under construction. It will replace the building recently destroyed by fire.

The management is contemplating the erection of a $2,500,000 mill unit in which will be placed two large paper machines.

The mills of Oregon City specialize in newsprint furnishing much of the newsprint for the Pacific coast dailies and shipping quantities of newsprint to foreign countries. The mills also manufacture paper towels, wrappings, fruit tissues, manilas and krafts.

* * *

Takes New Position

Charles Longenecker, formerly Sales Engineer with the Bonnot Company at Canton, Ohio, has become associated with the Combustion Engineering Corporation, 23 Broad Street, New York. Mr. Longenecker was one of the first men to specialize in pulverized fuel and he has been active in this field for many years past. His efforts have been directed particularly along the line of industrial application to both boilers and furnaces. In this new connection he will be identified with the recently created Industrial Department of the Combustion Engineering Corporation. This Department, in charge of Mr. H. D. Savage, will specialize in the application of pulverized fuel to industrial work of all kinds.

* * *

Mill Founder Dies

Frank O'Neill, one of the founders of the Lebanon paper mill which began the manufacture of paper in 1892, died at his home in Oakland, California, on March 4, 1924. He was about 65 years old and unmarried. The Crown-Willamette Paper Company purchased the Lebanon mill in 1906.

* * *

Talk of Decrease

At Tacoma, Washington, one hundred and fifty lumbermen from all the producing centers of Washington and Oregon recently met in secret conference to consider the decreased price of lumber in the light of threatened overproduction. Production is given as twenty percent more than the demand. A curtailment of production was discussed at this meeting. The Northwest mills have been operating about 25 percent above normal and if they only cut the normal amount it is expected to prevent a threatened overstock.

Wisconsin Mill Notes

A wage increase of 2 to 4 cents an hour for Kimberly-Clark employes of the mills at Niagara, Wis., has been announced by company executives.

Harry Goben and Frank Soper, employees of the Fort Howard Paper Company at Green Bay, received injuries last week which resulted in their confinement in a hospital. It was the first time accidents have marred the Fort Howard record in some time. Goben's arms were crushed between two rollers, but they were not close together and his injuries are reported not serious. Soper had three fingers caught between rolls, one finger being torn off and the others crushed.

Logging will end earlier in Wisconsin this year than usual, according to reports from the woods. While there is still plenty of snow to permit getting logs out of the woods it has practically disappeared in the cities. While the season has been short, it has been satisfactory for getting out pulpwood.

Considerable mystery surrounds the death of Robert Uckermann, an employee of the Interlake Pulp and Paper Mill at Appleton. He apparently fell off his bicycle on his way home from the mill, but there was no collision and when it was found he had left the plant hurriedly without punching the time clock it was decided he had been taken ill.

* * *

Announce Wedding

The marriage of Robert J. Kieckhefer, president of the American Lace Paper Company of Milwaukee, has just been announced. The bride was Miss Grace Norton of Milwaukee, a graduate of Milwaukee Downer college in the class of 1922. The marriage took place in New York City and the couple are now making a tour of the world, having sailed for the Orient from San Francisco.

Mr. and Mrs. Kieckhefer will be gone three or four months and on their return will occupy the Kieckhefer residence at 180 Thirty-first Street.

Mr. Kieckhefer is well known in Milwaukee business circles. Before entering the lace paper business seven years ago he was associated with others in the Kieckhefer Container Company.

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Short News Items

The Belhaven Pulp & Lumber Co., has been incorporated in Belhaven, N. C., with a capital stock of $100,000, by J. A. Wilkinson, W. C. Allen, Jr., and others.

The Ken Williams Thrift Savings System, Inc., has been chartered in St. Louis, Mo., to manufacture wrappers, containers, etc., for ice cream. A. D. Davidson is president and Jules R. Field is secretary.

The Nashville Pulp & Paper Co., Nashville, Tenn., is reported to have begun construction of its $1,000,000 paper mill, to be operated in connection with its $1,000,000 pulp mill.

The Gibsonville Hosiery Mills Co., Gibsonville, N. C., of which A. B. Owen is secretary, is in the market for shipping containers.

Tolan, Tellez & Prieto, Manzana de Gomez 314, Habana, Cuba, is in the market for paper milk bottles, etc.

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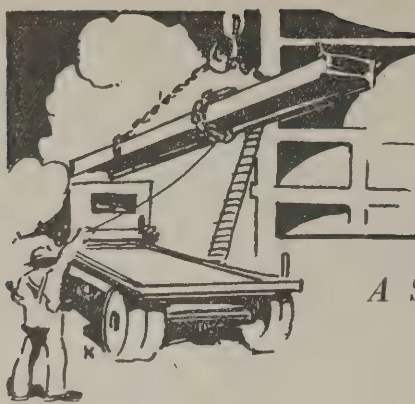
The Finance of It

In payment for the Rumford, Maine, plant the International Paper Company received $2,500,000 from the Continental Paper & Bag Mills Corporation. This amount will be used by the International company, it is expected, for the reduction of bank loans. Payable notes would thus be brought down to approximately $8,500,000. Under the terms of the sale the International Paper Company will receive about $2,500,000 additional over a period of 18 months for Rumford inventories.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Kalamazoo, Mich.—The Standard Paper Co., has acquired a tract of land and is said to have preliminary plans under way for the construction of a new mill, estimated to cost in excess of $300,000, including equipment. It will include a power house.

Waterbury, Conn.—The Waterbury Paper Box Co., Leonard Street, has filed plans for the construction of a new addition, estimated to cost about $45,000. Work will be commenced at once.

Ogdensburg, N. Y.—The Algonquin Paper Co., has preliminary plans for the construction of a new addition to its mill, to be one-story, steel and reinforced-concrete, 80x200 ft., estimated to cost $200,000, including equipment.

Franklin, Ohio—In connection with the proposed rebuilding of the portion of the plant of the Srere Pulp & Paper Co., recently destroyed by fire with loss of about $35,000, it is planned to locate the structure on a site adjoining the pulp mill on Anderson Street. Albert Srere heads the company.

Dallas, Tex.—E. C. Palmer & Co., have authorized plans for the construction of a new four-story and basement warehouse and distributing plant at 406-8 Lacy Street, South Dallas, to replace its building recently destroyed by fire. It will be 50x140 ft., and estimated to cost about $60,000. L. R. Whitson, Dallas, is architect. Headquarters of the company are at New Orleans, La.

Rumford Falls, Me.—The Oxford Paper Co., has completed plans for the construction of a new addition to its mill, and expects to commence work at an early date. It will be used for general increase in production, with reported cost placed at $175,000.

Poquonock, Conn.—The Poquonock Paper Co., recently organized to take over the local plant of the Hartford Paper Co., has plans under way for extensive operations at the mill, and is said to have preliminary plans under advisement for a number of improvements for greater efficiency in output. The new company will specialize in high grade magazine papers. It is capitalized at $300,000. George A. Leavitt is president; Edward J. Manning, vice-president and general manager; and Howard R. Manning, secretary and treasurer.

New York, N. Y.—The Columbia Corrugated Co., 50 West Twentieth Street, manufacturer of corrugated paper, etc., has leased the five-story building, 96x172 ft., on Eleventh Avenue, between Twenty-seventh and Twenty-eighth Streets, owned by the Terminal Warehouse Co., and will use for extensions in its works. The structure totals about 82,500 ft. of actual floor space, and has been known as the Keystone Building.

Cincinnati, Ohio—The Globe Folding Box Co., will commence the erection of a new addition to its plant at Mill Creek and the Baltimore & Ohio Railroad, 80x225 ft., for which a general contract recently was awarded to the Fisher-De Vore Construction Co. It will be equipped for increased production. Samuel Hannaford & Sons, Dixie Terminal Building, are architects.

New York, N. Y.—The Southern Pulp & Naval Stores Co., 42 Broadway, C. M. Thorsen, president, is reported to have plans under way for the construction of a new pulp mill on site selected in the vicinity of St. Andrews Bay, Florida, located in the northern part of the state. The initial plant will consist of a number of buildings, including power house, and is estimated to cost in excess of $500,000, including equipment. It is said that a bond issue of $1,000,000 will be sold, the proceeds to be used for this and other expansion.

Van Buren, Me.—The International Paper Co., 100 East Forty-second Street, New York, has closed down its local pulp mill for an indefinite period, and is reported to be considering plans for remodeling the plant for a paper mill, with the installation of considerable additional machinery. The plant has been running on a basis of 50 tons per day, giving employment to a working force of about 300 men. The company recently disposed of its plant at Rumford, Me., to the lately organized Continental Paper & Bag Mills Corporation, for a consideration of about $2,500,000.

Kansas City, Mo.—The Central Paper Box Co., has made enlargements in its local plant and installed considerable additional equipment, in connection with its improvement program. It is expected to double approximately the former capacity.

Detroit, Mich.—The Detroit Sulphite Pulp & Paper Co., West Jefferson Street, is reported to be planning for the installation of an additional machine at its local plant. The company is now operating a total of six machines.

Tonawanda, N. Y.—The Spaulding Fibre Co., Wheeler Street, has filed plans for the erection of an addition to its plant to cost about $125,000, including equipment. Work will be placed in progress at once.

Bridgeport, Pa.—The Diamond State Fibre Co., has completed plans and will soon begin the erection of an addition to its plant for increased output, making the fifty-eighth building at the works. It will be one-story, 60x250 ft., with reported cost placed at $50,000.

New Companies

Detroit, Mich.—The Corrugated Paper Box Co., 1230 Wilbor Avenue, has been incorporated with a capital of $50,000, to manufacture paper boxes and containers. The incorporators are Harry R. Marien, Redford, Mich.; and Charles G. Grey, 8100 East Jefferson Street, Detroit.

New York, N. Y.—The Fleming Paper Corporation has been incorporated with a capital of $11,000, to deal in paper products. The incorporators are P. B. and C. C. Fleming and J. B. Baylis. The company is represented by M. W. Beyers, 41 Park Row, New York.

Holyoke, Mass.—The Eastern Specialties Co., has been incorporated with a capital of $6,000, to deal in paper products. Charles E. Desmarais is president; and Paul N. Desmarais, 66 Beacon Street, Holyoke, treasurer.

Wilmington, Del.—The Thomas Paper Converting Co., care of the Corporation Service Co., Equitable Building, Wilmington, representative, has been incorporated with a capital of $100,000, to manufacture paper products.

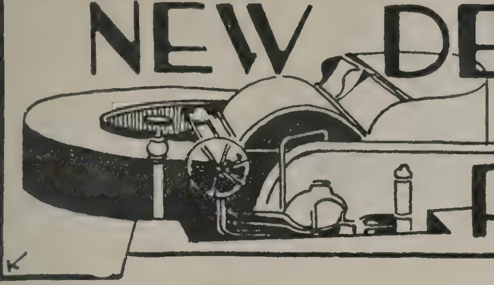
Cleveland, Ohio—The Reliable Paper Box Co., has been incorporated with a capital of $50,000, to manufacture paper boxes and containers. The incorporators are A. E. Barton and S. A. Smith, both of Cleveland.

New York, N. Y.—The Best Envelope & Paper Corporation has been incorporated with a capital of $20,000, to deal in paper products. The incorporators are S. Witte and J. Broudy. The company is represented by Shapiro & Witte, 1540 Broadway, New York.

Jersey City, N. J.—The Modern Paper Trading Co., 587 Summit Avenue, has filed notice of organization to deal in paper products. George Wallace, 110 West Ninety-fourth Street, New York, heads the company.

New York, N. Y.—The P. D. Wynne Co., has been incorporated with a capital of $20,000, to manufacture and deal in paper products. The incorporators are I. S. Wynne, M. J. Ramirez and E. C. Richards. The company is represented by Bell, Russell & McNulty, 375 Pearl Street, Brooklyn.

Huntington, Ind.—The Huntington Paper Box Co., has been incorporated with a capital of $25,000, to manufacture paper boxes and containers. The incorporators are Wilfred J. Whitelock, E. Rex and R. Eugene Lowey, all of Huntington.



NEW DEVELOPMENTS IN PAPERMAKING

Cloth Boards for Cardboard

Bolts of cloth are wound up on boards, which are known as cloth boards. A process for making an improved board from cardboard or kraft stock is described in British Patent No. 209,208. The improved form of board is more or less hollow or cellular in structure.

The board consists of a core formed of two or more separate and superimposed sheets of corrugated material, having one or more separate plain facing sheets interposed between and adhesively secured to each two adjacent sheets of corrugated material and a plain envelope or covering which is glued on to the core. The core is made of some cheap grade of fiber board and it also may be corrugated. The envelope may consist of one or more sheets which are glued together.

By using a core which consists largely of corrugated fibrous material a saving is effected in amount of cost of material. At the same time a strong structure is obtained, which it is strong enough to prevent breakage or bending beyond the proper limits, it is to a desirable degree flexible or resilient which is a decided advantage over the ordinary type of cloth board. An important feature of the process consists in the coating or impregnating some or all of the materials used in the manufacture of the cloth boards with sodium silicate (water-glass) or a suitable form of glue.

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Paper and Other By-Products

Vegetable material containing pentosans, such as oat hulls, is heated with water in a digester. The first product that is obtained is furfural which is distilled off during this treatment. The residue comprises a liquid adhesive and cellulosic material which is suitable for the manufacture of paper in the place of woodpulp. In an example 200 to 225 pounds of oat hulls and 600 to 700 pounds of water are heated by steam under pressure until the temperature reaches 180 degrees C, when the blow-off valve is slightly opened so that about one pound of distillate a minute is collected. These conditions are maintained from thirty to forty-five minutes, after which the steam is cut off and the pressure in the digester is released. The residue is drained off and pressed. The extracted liquid is evaporated to adhesive viscosity in a still, and the first portion of the distillate is collected separately. The celluosic cake is washed, and the washings may be used in place of water in the initial treatment. The furfurol which is obtained both from the digestion and the evaporation is re-distilled. It is stated that the addition of small amounts of acids, acid salts, and other hydrolzing agents increases the yield of furfurol at the expense of the adhesive.

* * *

Lignin

When peat is treated with acetyl bromide the lignin and cellulose are dissolved, leaving the "peatified' portion unattacked. The process may serve as a means of studying the composition and genesis of peats. The residue from a number of different peats varies from 19 to 33 per cent, containing 1.3 to 3.5 per cent of methoxyl. Air-dried beech, oak, or fir sawdust dissolves completely in acetyl bromide, but the vacuum-dried material is more slowly and sometimes incompletely attacked. Distillation of lignin with zinc dust gives a viscous oil (120 grams from 700 grams of lignin) which when fractionated at two millimeters pressure gives fractions boiling between 66 and 280 degrees C. All the fractions contain methoxyl up to approximately three per cent, and other oxygen probably representing furan rings, up to 8.6 per cent. The highest boiling point fraction contains the least proportion of oxygen. From some of the fractions a small quantity of a new hydrocarbon $(C_6H_5)x$, which has a melting point of 210 to 212 degrees C, was obtained. For further details see *Helvetica Chimica Acta,* volume 6, pages 817 to 822.

* * *

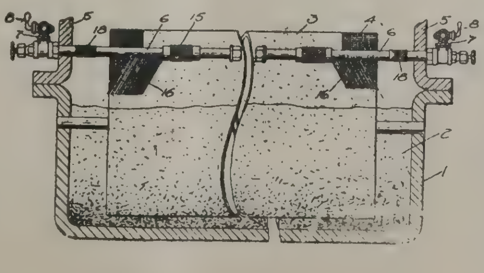
Manufacture of Self-Sizing Paper Stock

The process which is patented in German Patent No. 388,778 is concerned with a process for obtaining a paper stock which contains in addition to the regular fiber certain sizing materials which are necessary to the production of sized paper. The process depends on the knowledge that certain plants known as hydrophytes or helophytes afford a raw material for paper manufacture which contains both the fiber and the sizing agent. The process that is used for converting this material in condition ready for use on the papermaking machines precludes the digestion of the fiber but involves mechanical treatment only. The first step in the process consists in subjecting the raw material to the softening action of water and when the fiber has absorbed sufficient quantity of water to render it very soft and not liable to breaking when bent, the product is subjected to beating in the beater or treatment in an edge runner mill. It is claimed that the paper which is made from this kind of raw material is admirably well suited for making photographic films as the raw products have not been subjected to the action of chemicals and therefore there is nothing present in the paper which would react with the sensitive photographic emulsions.

* * *

Apparatus for Making Paper

The apparatus for making paper which is patented in United States Patent No. 1,485,256 consists of a combination of a cylinder, and a water pipe which is arranged parallel to the same. The water pipe, as may be seen from the diagram, has outlet openings extending at an angle and these openings are adapted to direct the water upon the cylinder and the pulp that is contained thereon in the form of a paper web. The pipe is so fixed that it can turn on its longitudinal axis.



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RARE STAMPS IN WASTE PAPER

About to Be Pulped in Holyoke Mill When Traced by Ardent Stamp Collectors

A NUMBER of rare United States and foreign postage stamps which were salvaged a year ago from a mass of letters and papers carted away by a dealer in waste paper from one of the oldest firms in New York were sold at auction a few days ago and realized big prices. They formed part of what is known as the "Prosser Find," which ranks in philatelic annals as one of the most romantic finds ever recorded.

The discovery resulted from alterations made a year ago in the old building at 22 Platt Street, occupied since 1850 by Thomas Prosser & Sons, which is still there.

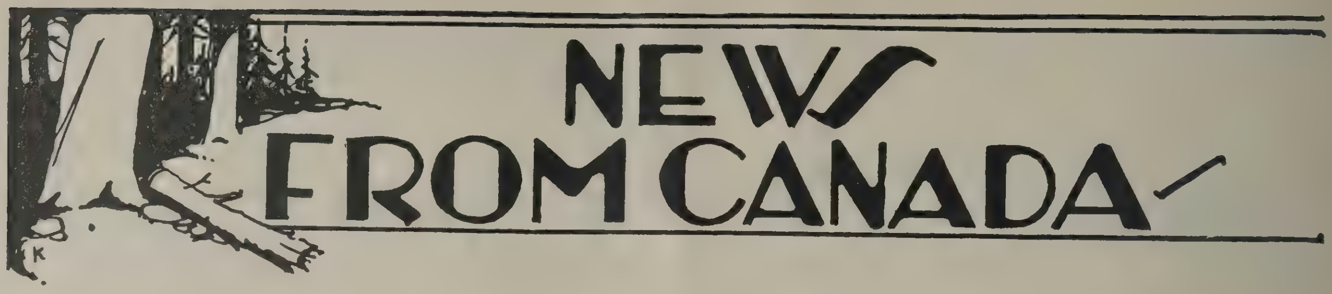
During alterations to the building, a mass of the old correspondence was carted away without investigation. Some of the musty envelopes had curious stamps on them and a few were abstracted before the junk dealer got them and sold to Nassau Street dealers who recognized their value, for the stamps were of the 5-cent and 10-cent 1847 issue, the first United States stamp issue, now worth many dollars apiece. In a few days several dealers were prospecting energetically for this philatelic mine.

One of these prospectors was Herman Toaspern. "With the aid of another dealer, who had obtained some of the stamps, he located the waste paper dealer after a long search, only to learn that the stock had been sold to a paper mill in New England.

"We went right up to the mill," said Mr. Toaspern. "The Prosser papers were mixed with a mass of other scrap paper, but we purchased six bales, and when we got them into a New York warehouse we spent several days in sorting them. The results were better than had been looked for.

"There was a splendid lot of the first and second United States issues, and among the rarities were several envelopes with Canadian and United States stamps on the cover. There were all sorts of rare railroad and steamboat cancellations and many letters had designs of early Krupp guns."

One of these rare combinations covers had a 3-cent stamp and a 12-cent of the United States 1851 issue with a 4-penny rose of Great Britain, the letter being mailed from the Bahamas on March 26, 1859, and sent via New York to Canada.



NEWS FROM CANADA

VIEWS DIFFER ABOUT WOOD EMBARGO

Commission Finds That Part of People Favor and Part Oppose

VIEWS regarding the advisability or otherwise of applying an embargo on log exports to the United States, as expressed to the royal commission collecting evidence in British Columbia and eastern Canada differ according to the particular interests of localities in which sittings are held.

On the coast where water transportation to the United States market encourages exportation of certain grades of timber the evidence was almost unanimously against an embargo. Hearings at Vancouver and in Prince Rupert brought forth vigorous testimony indicating that an embargo would be actually injurious to the timber industry of British Columbia.

But in the Interior districts where practically all logs cut are transported to adjacent lumber mills and where hopes for a thriving pulp and paper industry in the future are nurtured, testimony was quite as emphatically in favor of an embargo. It is a fact, however, that the central portions of the province stand to gain or lose little by the ultimate outcome of the present agitation for an embargo. They constitute, to a large extent, an independent unit in the timber industry of western Canada.

Two and a half hours sufficed to dispose of all testimony brought before the royal commission when it sat at Kamloops, B. C.

D. B. Johnstone, representing the Kamloops Board of Trade, submitted a resolution endorsing the principle of an embargo on raw timber. Neal Murray, a lumberman, referred to the tremendous available pulpwood resources of the district, placing these at 10,000,000 cords.

W. T. Anstie, chairman of the commission, while stating that some valuable data had been received, remarked that the district, considering its resources, had not shown an appreciative interest by offering help at the sitting.

The final meeting of the western sessions of the commission was held in Cranbrook, B. C., a lumbering and farming territory near the Alberta boundary.

Messrs. Moore and Stevens, district forester and his assistant, gave valuable information on the timber resources of the district. H. A. McKowan and S. G. Clarke spoke for the lumbermen of Cranbrook and district while W. H. Wilson and W. R. Grubb represented the board of trade. Practically all of the witnesses spoke in favor of an embargo.

As in Kamloops, evidence of timber resources and available water power were given to substantiate claims that the localities were admirably adapted to maintain pulp and paper industries.

J. F. Hutchcroft advocated embargo as a wise policy for Canada to adopt for all her natural resources. In Ontario, he said, an embargo on logs had been put into effect 20 years ago with the result that many mills had been established in the province. Formerly the logs had been shipped to the United States.

The commission has returned to eastern Canada and, it is understood, will join certain of its members who have been delegated to hear evidence in eastern districts to draw up a report for presentation to the government, possibly before the close of the present session of parliament.

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BATHURST COMPANY LOSES CASE

Supreme Court of Canada Renders Decision Against It

THE Bathurst Company, pulp and paper manufacturers of Bathurst N. B., in which United States capital is largely interested, has lost its case against the New Brunswick Workman's Compensation Board, in the Supreme Court of Canada. The board appealed to the highest tribunal in Canada against a decision of the New Brunswick Supreme Court, which was in favor of the company. This litigation has been in the courts for the past three years. The company has refused to pay the assessments levied on the company by the compensation body, which total about sixty-two thousand dollars. The grounds submitted for the refusal of the company were; that the company deserved a special rate because of the operation of a compensation system of its own; that the board was extravagant, and that salaries and expenses of the board and staff consumed about forty per cent of the moneys received from levies. About six suits have been filed against the company by the board and in turn the company filed several suits against the board, so that the disputes have been continually in the courts of New Brunswick for the past three years. Indications are that an appeal to the Privy Council at London will be made by the Bathurst Company although no definite decision has yet been made according to Angus McLean, president and general manager, who is also president of the New Brunswick Lumbermen's Association, the official mouthpiece of the pulp and paper industry in New Brunswick.

The decision of the Canadian Court was somewhat unexpected as it was anticipated that this body would uphold the verdict of the New Brunswick Supreme Court. However, the court of final appeal in Canada ruled that contrary to the contention of the company it was assessable by the board. It is estimated that over $25,000 have been expended in the litigation since it was started between the company and the board.

The New Brunswick Workman's Compensation Board has been one of the heaviest burdens the pulp and paper industry has been called on to bear. Changes have been proposed by the pulp and paper interests, including the abolition of the unlimited liability clause in the law, and also the elimination of medical treatment.

POWELL RIVER PLANT TO EXTEND

Additions Valued at 4,000,000 Are To Be Made

EXTENSIONS to the plant of the Powell River Pulp & Paper Company at Powell River, B. C., having a value of more than $4,000,000, may be made this summer, it has been learned in Vancouver, and confirmed in part by Norman R. Lang, managing director of the company.

"To state definitely that we are going to undertake the work this season would not be quite correct," said Mr. Lang. "We have a large development programme under consideration and may reach a decision on it in the near future.

"We have been planning to make alterations and additions to our plant for more than a year but are not yet in a position to announce new construction work as a certainty."

The Powell River mills already are outstanding on the Pacific coast for their proportions and output.

Preparatory to increasing their manufacturing facilities the company has completed plans for increasing the height of the water storage dam at the outlet of Powell River to give more extensive water storage in Powell Lake and make possible a consequent increase in the amount of electrical energy that will be required when additional papermaking machines are installed. The dam will be raised about 16 feet.

The power project, which has been approved by the board of directors, will be started early in April and will cost in the neighborhood of $200,000.

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New Sulphite Plant

Plans have been prepared and machinery ordered for a complete 90-ton sulphite pulp plant to be erected at Prince Rupert, B. C., by the Prince Rupert Sulphite Fibre Company, Limited.

It will take seven or eight months to procure the machinery, some of which has been ordered in Europe. In the meantime the site will be prepared and the buildings erected. The work on this is to be started in a short time.

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Taken by Government

The Grand Falls, on the St. John River on New Brunswick, near the Main boundary, formerly held by the International Paper Company, has been taken over by the New Brunswick government which plans to develop a large hydro-electric plant there. The location was formerly under lease to the paper company, but in view of the proposed development, the lease was cancelled by the New Brunswick government.

News of Paper Week in New York

MOVIES OF HARDING TRIP

Last Trip of President to Be Depicted for First Time in New York

THE motion pictures of Alaska made by direction of President Harding while on his Alaskian Tour, will be shown for the first time in New York at the Second Paper Industries Exposition. This is one of the notable additions recorded the past week to the program for the big Paper Show at the Grand Central Palace the Week of April 7th, during the convention week of the various Paper Associations. A fine program of other motion pictures is being arranged, and among the films to be shown will be pictures portraying the manufacture of newsprint, fine papers, tissue paper, paper cups, and in fact nearly every picture extant showing paper manufacture in any of its phases will be seen during the week.

The detailed motion picture program has not yet been arranged, but it is certain that the "Romance of Paper" of the Butler Paper Corporation will be one of the features of the opening day's program.

Several additions have been made to the program previously announced for the Technical Association day at the Exposition, Thursday afternoon, April 10th. On this afternoon when the American Paper and Pulp Association leaves its program open for its members to see the Exposition without conflict with other programs of a busy week, the following among others will speak to the Technical Association members: Viggo Sahmel, of F. L. Smidth & Company on "Short Center Belt Drives" and D. E. Batesole of the Norma Company of America on "The Use of Hoffman Roller Bearings in Paper Mill Machinery."

Three notable group exhibits are among the latest to find place on the Exposition floor. The new American Association of Paper Specialty Manufacturers will have a booth as headquarters of the new organization, and during the week there will be a meeting to perfect the organization of this large group. Another group exhibit will be that of the New York Employing Printers, while the third will be a special showing by the kraft paper manufacturers.

A survey of the list of exhibitors shows that when the Exposition opens Monday, April 7th, there will be double last year's space devoted to the wide variety of exhibits. By that time all available space will have been taken, and the entire field of paper manufacture will be thoroughly covered, from the raw material situation to the use of paper in manufactured products.

The raw materials used in the paper industry will be completely covered by the various exhibits. Control apparatus for the development of increased efficiency in the mills will be particularly well shown, and specialty devices for use in unusual phases of paper manufacture.

In the field of machinery, every phase of paper manufacture will be shown with elaborate showings of every method of handling the raw material. No phase of the field will be neglected, and many of the exhibits will be of machinery in operation. Grinders, beaters, rolls, dryers and all such forms of heavy machinery will be seen.

In the displays of paper there will be some of the most notable exhibits, one big company having taken double its space of three booths used last year. A most artistic display of fine papers for social and business use will be shown, and the same will be true in the products of the paper converters, such as bags, boxes and bottles. The Greeting Card Association will have an elaborate display of its wares in this division of the big first floor of the Grand Central Palace.

Machinery for use in the conversion of paper will also feature this section, including cutters, slitters and coating machines.

All in all, the 1924 Paper Industries Exposition will be one full of interest throughout to the public, the papermaker, the printer, and every person interested in any way in this sixth among the great manufacturing industries of the United States.

* * *

SISSON TO SPEAK TO SALESMEN

Program of Unusual Interest Arranged for Salesmen's Association

WITH the securing of Francis H. Sisson, Vice-president of the Guaranty Trust Company of New York, as the speaker for its morning session, the Salesmen's Association of the Paper Industry has completed a program of the greatest interest to all paper salesmen and mill executives. The indication of a large attendance at the evening dinner and smoker are so promising that for the first time in its history the Salesmen's Association will make table reservations for the early applicants. F. N. Countiss, chairman of the convention committee, has notified the members of the Association that reservations for tables for eight or ten diners will be made no later than April 3, and smaller reservations must be in the hands of the committee not later than April 5.

The address by Mr. Sisson on "Business Conditions, Today and Tomorrow," will be the only formal address of the forenoon session, which will be devoted after his address to matters involving the future of the association, and the wider field of work which its leaders believe should be exploited.

Henry A. Wise, with an address on "The Import Problem," will be the first speaker at the evening dinner which is to be strictly informal, and he will be followed by H. V. Kaltenborn of the *Brooklyn Eagle,* who will elaborate in a more extended manner the radio broadcasting talk in "Current Events," which have made his weekly talks famous among the thousands of radio enthusiasts.

After the question box which will follow Mr. Kaltenborn's address, there will be a vaudeville entertainment, as the smoker side of the evening program, and the program of entertainers follows:

Madam Koslova—Famous Jazz toe dancer, a young beauty with beautiful costumes.

Ruth Clark—Comedienne giving the kidding songs featured at the Monte Carlo.

Maurice—Comedy Trixter.

Virginia Pearson—The Egyptian dancer who has been such a hit at the Moulin Rouge.

Ruth Wells—"The Pep Girl," with the songs and dances she has been doing all season at the Walton Roof, Philadelphia.

Sherman and Ryan—Best remembered as the features of the 1923 midwinter entertainment and supper of the New York Salesmen in honor of the paper mill executives.

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AEROPLANES will soon put Boston "only forty-five minutes from Broadway."

* * *

The surest way to hold a soft job is to put a lot of hard work into it.

COMPOSER OF "K-K-KATY" TO BE AT CONVENTION

Will Lead Singing Between Courses at the Convention

AN innovation in the Forty-Seventh Annual Banquet of the American Paper and Pulp Association at the Waldorf-Astoria Thursday, April 10, will be the appearance of Geoffrey O'Hara, the famous composer of "K-K-Katy" and the pioneer among the army song leaders as the leader of community singing between the courses at the big dinner which will be the culminating feature of Paper Week.

The reservations for the banquet, are so much larger than a year ago, that tentative arrangements are already being made to prepare tables in the balcony of the Grand Ball Room, to take care of the banqueters for whom there will not be room on the main floor. Practically every reservation coming in from the big paper companies is for a larger number of seats than were taken a year ago.

That the Association's policy of making its banquet program one of "Business—Not Politics," is a factor in this increased reservation is probably largely responsible for this increased attendance. This is not entirely the cause, however, for among the meetings to be held during convention week are several of groups which have been inactive for some time past.

On Tuesday, there will be a meeting of waxed paper manufacturers to discuss a plan for reviving the old Waxed Paper Manufacturers Association, on a new basis of service to this group. The Converting Paper Mills Association will also hold a meeting on Tuesday of Convention Week. Another conference, called for the same day is that of the Simplification Committee, to discuss the simplification of paper sizes.

On Wednesday, the American Paper and Pulp Association has assisted the Bristol Board Manufacturers Association to secure a meeting room, and this group also has not ordinarily held its meetings in conjunction with the other activities of Paper Week. And still another added feature of the 1924 Convention is the meeting of the Waterproof Paper Manufacturers, who formerly had an association of their own, but which was discontinued some time ago. These various additional conferences will combine to make the 1924 convention one of the most important in the entire history of the American paper industry.

* * *

SHORT ADDRESSES TO FEATURE PROGRAM

Exposition Program of Technical Men to Be Held Thursday

ONE of the most important programs of the Technical Association of the Pulp and Paper Industry during the convention of the Association in Paper Week, will be held at the Paper Industries Exposition in the Grand Central Palace, the afternoon of Thursday, Apil 10th. The close relationship between the Exposition and the conventions of paper manufacturers being held during the week of April 7th is shown by this cooperation for the Thursday program. In addition, this afternoon is left open on the program of the American Paper & Pulp Association, so that the manufacturers who are in the city for the convention week will have one definite period in which they can visit the Exposition without interference with any of the convention sessions.

The Technical Association, known in the industry as Tappi, from its initials, will open its Exposition program at 2 P.M. with an address by Phillips Dennett of the Bird Machine Company on "The Vickery Felt Conditioner." All of the addresses will be brief, making the afternoon program one full of interest and variety. Other speakers on the afternoon program, with their addresses will be:

H. A. Linch, the Dorr Company, "The Dorr White Water Save-All."

L. M. Booth, Booth Chemical Company, "White Water Economy."

R. H. Whitney, B. F. Goodrich Rubber Company, "Special Soft Rubber Press Rolls for Paper Machines."

George H. Spencer, S. K. F. Industries, "Ball and Roller Bearings and Their Effect on the Paper Industry."

Charles A. McKeand, Seaboard Air Line, "Papermaking Opportunities in the South."

W. W. Spratt, Westinghouse Electric & Manufacturing Company, "Electricity and the Paper Industry."

Karl O. Kunde, The Electric Tachometer Co., "Tachometers."

C. S. Hardy, William A. Hardy & Sons Co. (Title not given).

A. M. Goodloe, Midwest Air Filters, "The Latest Development in Air Cleaning Equipment and Methods for testing its Efficiency."

A. E. Armstrong, Armstrong Machine Works, "Armstrong Steam Traps and Their Application to the Paper Industry; the Efficient Drainage of Paper Machine Dryers."

R. E. Wooley—General Electric Co., "Uses of Electric Flow Meters in the Pulp & Paper Mill."

Viggo Sahmel—F. L. Smidth & Co., "Short Center Belt Drives."

With the Exposition still a fortnight distant, most of the available space has been taken. Several groups are to exhibit cooperatively, and not the least interesting will be a cooperative exhibit of the Leather Belting Exchange which will operate a demonstration machine to show how belts transmit power, and the relative values of different types of belting. In addition there will be an exhibition of a leather belt running in water, and of leather belts being made endless on the pulleys. This exhibit will be purely educational, as the Exchange has nothing to sell, but will show in this manner the results of the work which has been done for several years at its Research Laboratory at Cornell University. The demonstrations will be from both the scientific and the practical standpoints.

Some exceptionally interesting motion picture films have been scheduled for exhibition during Paper Week at the Exposition, including pictures from the Forest Service, showing woods operations and problems in the getting out of raw material for the paper mills, and industrial pictures portraying the manufacture of various type of paper, from news print to the fine papers and the specialty products made from paper. As nearly as possible every motion picture showing paper mill operations will be included on the program.

A most interesting film will be that of the Snow Motor hauling huge logs through great snow drifts, making its own road as it travels, by means of an egg-shaped drum providing traction. This metal drum presses down the snow, and a spiral steel runner like an ice skate gives the traction. The motor was to have been given a public demonstration in Northern New York during the winter just ended, but there was not sufficient snow fall to make an adequate showing possible.

The manner in which the paper industry is cooperating to make the Second Industries Exposition a success is shown by the fact that arrangements have been made to include those attending the Exposition in the reduced railroad rate privileges extended to members of the paper industry attending the various conventions during Paper Week. To secure the reduced rate those coming to the convention should secure a certificate from the ticket agent on buying their tickets to New York, and these tickets will be certified in New York by Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, a member of the Advisory Commitee for the Exposition. Those whose tickets are so certified will be able to purchase their return tickets for half the usual railroad fare.

* * *

GIVES FACTS ON EARLY PAPER MILLS

Radsch Gives Interesting Facts Regarding History of Papermaking

PULP making from wood is a comparatively recent discovery although groundwood was used in the middle of the seventeenth century, R. M. Radsch of Kaukauna, superintendent of the sulphate mill of the Thilmany Pulp and Paper Company, said in discussing the sulphate process before the Industrial forum of the Y.M.C.A.

"The soda process was used in England as early as 1854," said Mr. Radsch, "but it was not until 1884 that Dahl, a Swedish chemical engineer, discovered the graft sulphate process. From the pulp produced by this process is made the tough fibrous wrapping paper ordinarily known as kraft paper.

"The first sulphate pulpmill on this continent was operated at East Angles, Quebec, in 1910 and in 1911 the building of the mill at Kaukauna was commenced and in 1913 it began a career of successful operation. There are now about 35 sulphate mills in America.

"Kraft can be made from any resinous wood, but the best fiber is found in our northern woods, such as spruce and fir. Many mills are being built in the south, because of the accessibility of great forests of pine and the cheaper, if less competent, negro labor. The general preparation of the wood for the sulphate process is the same as that for sulphite."

Mr. Radsch took up in detail the cooking and the intricate chemical reactions of the process, dwelling particularly on chemical reclamation. Upon the efficiency of this part of the process depends the success of the sulphate mill, he said.

* * *

Form Protective Association

The efforts of Connecticut State Forester Austin F. Hawes has brought about the organization of the Central Fairfield County Forest Protective Association. The association is the second of its kind to be formed in the state, the first being known as the Talcott Mountain Protective Association. Members of the association represent 20.000 acres of woodland in Fairfield, Monroe, Wilton, Easton, Trumbull, Weston, and Redding. Funds derived from membership fees are equalled by a like amount from the state and the whole will be used for the protection of the forests.

AMERICAN CHEMISTS TO MEET

Attendance of 1,000 Delegates Expected at Big Spring Meeting

HELIUM as an instrument of United States supremacy in aviation, progress of chemistry in this country since colonial days, development of the rubber industry, chemistry of cellulose, nationwide educational reform, and agriculture and the food supply will be stressed at the big spring meeting of the American Chemical Society, which, it is announced here by President Lea H. Baekeland, will be held in Washington, D. C., April 21 to 26.

Hundreds of papers dealing with chemistry, said to be now in its most fruitful era, will be read by distinguished scientists representing practically all the leading colleges, technical schools and universities, industrial enterprises and state and federal governments.

The papers and addresses, it is declared by leaders of the Society, will evidence amazing expansion of chemistry since pre-war days, great inroads having been made upon the supremacy formerly held by Germany in this field. Problems involving the maintenance of human life, of the petroleum industry, of enriching American farms, and of enhancing the nation's economic prosperity will be discussed at scores of sessions, to be attended by more than 1,000 delegates. The events will conclude with a spectacular field demonstration of material and equipment by the Chemical Warfare Service at Edgewood Arsenal.

* * *

Take Larger Quarters

The Gatti Paper Stock Company, Inc., large packers of rags, paper stock, etc., now located in the Fifth Avenue Building, 200 Fifth Avenue, will remove to much larger quarters in the Liggett Building, 41 East 42nd St., May 1st. The company will occupy rooms 805 and 806 and the new offices will be fully twice as large as the old quarters, thus giving the company much better facilities for conducting its rapidly growing business. Mr. Joseph Gatti, president of the company, is one of the oldest and best known men in the trade.

* * *

Gibbs-Brower at Show

The Gibbs-Brower Company will occupy Booth No. 61, at the Paper Industries Exposition, which will be in charge of Ogden Brower, Jr., assisted by Miss Vera Langfeldt. Service will be explained in connection with the buying and selling of mills in their Paper and Pulp Mill Brokerage Department, also, the "Go Between" Bulletin service to the paper and pulp mills in the disposal of, and locating of, used paper and pulp mill machinery.

* * *

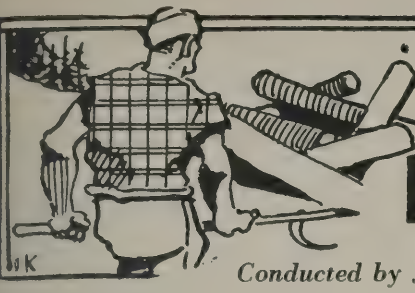
To Visit This Country

M. Dollfus, managing director of De Vains Process, Ltd., Paris, is planning a visit to the United States and will be in New York at the end of April to explain the workings of the De Vains process of pulping straw and grasses by chlorine. The process is said to be in actual use and working satisfactorily in several French mills.

* * *

Quoting New Prices

A prominent manufacturer is now quoting \$1.90 per hundred pounds on bleaching powder, carloads, f.o.b. works, on both contract and spot deliveries, and on liquid chlorine 4½c per pound in tank cars.



FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Fore ster, the New York State Forestry Association

PAPER AND PULP MEN BEFORE HOUSE COMMITTEE AT WASHINGTON

Endorse Clarke-McNary Bill and Present Statement Regarding Forestry Situation

HEARTY endorsement of the McNary-Clarke forestry bill was given before the House Committee on Agriculture, in a two day hearing, March 25 and 26, by two representatives of the paper industry, as well as others interested. R. S. Kellogg, secretary of the Newsprint Service Bureau, spoke on the opening day, as the chairman of the National Forestry Program Committee, and on the second day, Warren B. Bullock appeared with a brief statement in behalf of the American Paper and Pulp Association. This statement, brief but specific in its endorsement of the measure, was as follows:

"The Paper industry is a wood-using industry. Its permanency in this country depends upon a continuous and adequate supply of pulpwood. Of the approximately 7,200,000 tons of paper produced in the United States in 1923 over 95 per cent was made wholly or in part from wood.

"The paper industry, appreciating the great necessity for a Federal Forest Policy which will provide for adequate forest protection, management and reforestation, urges favorable action by Congress upon the Clarke bill because——

"1—The United States needs a definite and constructive forest program. This bill provides for such a program.

"2—No state of the Union has an adequate forest fire prevention system. This bill provides for a co-operative development of effective state and federal forest fire organization.

"3—The forests of the United States are being cut at least four times as rapidly as they are being replaced by natural growth or artificial reforestation. This bill would make possible commercial reforestation by the states, by the wood-using industries and by individuals.

"4—Excessive and confiscatory taxation of forest lands prevents the holding of forests or cut-over lands for successive growths of timber. This bill provides for a development on a rational system of forest taxation.

"5—The nation lacks adequate national forests to insure a perpetual supply of timber and other forest products. This bill provides for an extension of public forest ownership.

"While the Paper Industry in the United States is using only approximately 4 per cent of the annual cut of wood in the United States, yet, as a wood-using industry, it is facing the immediate and serious problem of its very existence through the present lack of adequate federal and state forest policies.

"The Paper Industry of the United States approves the Clarke bill and urges very early action upon the bill by Congress."

An important development in the national forestry legislation movement was the endorsement given the proposals of this bill by the director of the budget. The letter of the Secretary of Agriculture approving the bill, which, because of the authorization of appropriations involved was referred to the bureau of the budget, was returned with the following notation:

"Referred to the Bureau of the Budget, pursuant to Circular No. 49 of that Bureau, and returned to the Department of Agriculture with the advice that the foregoing report is not in conflict with the financial program of the president."

* * *

Speaks in New York

The New York Forest Club, composed of foresters in the paper and other industries who are located near New York, heard State Forester Wilbur of New Jersey tell of the work being done in his state, at the March monthly meeting of the club. An interesting phase of his talk was the description of plantation and other forestry work being conducted in northern New Jersey, in the hill region, and of the manner in which the fire fighting methods are being changed to make better results possible in fire fighting. He said that fires did tremendous damage each year because of existing inability to combat them in the incipient stages. Newly devised methods, if successful, will be recommended to state and private interests having forest conditions similar to New Jersey.

* * *

Timber Survey in Idaho

A survey of the forest situation in Idaho made by the state school of forestry shows that there is a total of over 84 billion feet of merchantable timber 12 inches or more in diameter in the state. The government and state own 93 per cent of the forest land, but only 30 per cent of timber, due to the fact that the best timberland is in the hands of private owners. The public timberlands include large areas in the higher altitudes where the quality is poor or the timber is in light stand.

* * *

Lumber Slowing Up

There has been a slowing up lately in the demand for lumber owing to the congested condition of the Japanese ports, and to the diminishing building activities of Southern California. Hence some of the lumber mills in Washington and Oregon are slacking up in production while others have closed down for a short time. Still others have resorted to a wage cut for the employees with in some cases resultant minor labor troubles. This condition is not expected to continue long. Most of the big lumber interests are looking forward to a 1924 large lumber production.

STATE APPROPRIATIONS FOR FORESTRY

How the Various States Are Meeting the Conservation Situation

THE men engaged in the paper and pulp industry throughout the United States have exercised more than ordinary patience in the face of often repeated warnings that the forests are vanishing and that the future of the paper industry is threatened. They have also faced indisputable facts, and unwelcome truths springing from their own and other people's investigations, with a great deal of courage and resourcefulness. They have shown a disposition to co-operate and to make sacrifices, and have many times taken the leadership in practical remedial measures.

Occasionally, individual corporations accused of undue negligence and lack of interest, have countered with the question, "What is the State itself doing to make the forests permanent, and to encourage us to carry out the kind of program advocated."

The answer is not always convincing. Even in the most progressive states forestry departments are comparatively young; practical demonstration in some states has not been in force long enough to provide adequate proof of economy; appropriations have been as difficult to wring from legislatures as special forestry budgets from private industries; taxation reform has come slowly; and the principle of free trees, or trees at cost of production, for use in reforesting unproductive areas is not yet in force in all of the states that have adopted a forestry policy.

The general situation, however, is rapidly improving, as evidenced by the report prepared by the state and private division of the forest management department of the United States Forest Service. Every odd year, corresponding with the year in which most of the state legislatures meet, it is the custom of the Forest Service to compile a statement of the appropriations made by the various states for forestry, exclusive of those for the educational work conducted by universities, colleges of forestry and schools. The report for 1923 is described by J. G. Peters of the Forest Service as a hopeful indication of the permanency of the forest movement. "Taken by and large, if the increase in the amounts appropriated is a practical measure of the progress of forestry in the states, the action of the legislatures of 1923, influenced as they were by programs of economy, may be considered as satisfactory."

Thirty-two states having forestry departments appropriated a total of $5,410,000, of which $2,441,000 was appropriated by 18 states for the purchase and maintenance of state forests, $1,727,000 by 28 states for fire prevention, $607,000 by 9 states for insect and disease prevention, $212,000 by 18 states for nurseries and planting, and the remainder chiefly for administration and publicity.

As compared with the appropriations for 1921, the net increase after deducting the item for protection against insects and diseases, which was included for the first time in the 1923 statement, was $738,000.

Two states make their initial appearance in the 1923 statement—New Mexico, with a small sum available for fire preventio,n and Alabama, with a special forestry fund of $50,000 derived, it is interesting to note, from privilege license taxes on lumbering, turpentining, and other forest industries.

* * *

Cuttings in Northeast Studied

Studies of reproduction and the behavior of trees left after cutting of the rest of the lumber are being conducted on recent pulpwood operations at Moosehead Lake, Maine, by the Northeastern Forest Experiment Station. Little windfall occurs among the trees, mostly white pine, left after logging, according to the Forest Service, United States Department of Agriculture. This is contrary to the general impression that there is a heavy loss from this cause among survivors. Of particular interest also in the course of these observations has been the striking increase in diameter growth among the remaining trees. On the plots studied a considerable amount of spruce is coming in, but nearly all of its seems to have started prior to logging. The observation at the Moosehead Lake tracts will be continued in the spring by Forest Assistant Walter Meyer, who will pay especial attention to the relation between reproduction and ground cover on these areas.

* * *

Direct Young Foresters

Two men of the paper industry will figure in some real forestry work to be done at a distance less than "forty-five minutes from Broadway," when R. S. Kellogg of the News Print Service Bureau and W. B. Bullock of the American Paper and Pulp Association, take charge of the Yonkers Boy Scouts on May 3rd in the planting of 5000 trees. New York's municipal forest movement started at Yonkers three years ago when the Scouts in a single day set five thousand trees on the cty's watershed. Today more than fifty cities have started forests. Special recognition in the way of medals and awards has been given of spruce is coming in, but nearly all of it under whose auspices the Yonkers projects and many others have been conducted. The boys who were directed by Messrs. Kellogg and Bullock last year captured considerably more than the average of prizes.

* * *

Reclaiming Forest Land

Comparison of the growth of white pine, Norway pine, and jack pine planted in the Lake States region is being made by experts of the Forest Service, United States Department of Agriculture, with the purpose of determining with which species the old cut-over forest lands of these States may be reclaimed for timber growing. On favorable soil white pine appears to be most suitable, followed by Norway pine and jack pine practically equal in value.

On the poorer, sandier sites, however, white pine must be preceded by the hardier though less productive pines. White pine plots showed an average annual production ranging from 74 to 101 cubic feet an acre at ages from 35 to 65 years, while Norway and jack pine range from 54 to 71 cubic feet. Hardwoods and aspen, though on better soils, grow much more slowly and produce at corresponding ages only from 27 to 56 cubic feet a year.

* * *

Planning New Mill

The Dunn Sulphite Paper Co., of Port Huron, Mich., is understood to be having plans prepared for a new mill consisting of a main unit with auxiliary structures equipped for an output of 15 to 18 tons per day. It is expected that the mill will cost approximately $275,000.

LEGISLATION PROPOSED IN NEW YORK

Contest Arises Regarding Preserving Forests of State

NEW YORK STATE'S constitutional prohibition, contained in section 7 of Article Seven, came in for a long and heated discussion last Tuesday before the Senate Committee on Conservation at the state capitol when the Association for Protection of the Adirondacks presented a most interesting substitute for Senator Rabenold's bill covering the rgulation of private cutting of timber within the Adirondack area.

The Rabenold bill is practically the same bill which the timberland owners opposed, and which failed of passage last year. It would prohibit the cutting and removal of timber on private land within the so called "blue line" without consent of the Conservation Commission. The new bill calls for the appointment of a special commission whose duty would be to make an investigation and report with recommendations to the legislature in 1925. The personnel of the commissin would be made up of representatives of nine interested groups, including the lumber interests, private land owners, the state colleges, the wood-using industries, the conservation commission and various associations throughout the state.

The bill does not provide that the proposed commission shall touch the question of amending the constitution in relation to use of the state forest preserve, and on this point a sharp controversy arose between the spokesmen of the Association for Protection of the Adirondacks and the spokesmen of the timberland interests. The sponsors of the bill admit that eventually the state-owned lands should be managed under forestry with a view to income, but hold that preservation must precede utilization and conservation, until the public at large has been so instructed that it can cast an intelligent vote. This, they hold, will require many years, and the public would at the present time decline any suggestion from a commission that contemplated an amendment to the constitution. On the other side of the table, it was contended that the proposed commission ought to be instructed to go the entire distance and bring in its recommendations, either one way or the other, covering section 7, Article Seven.

Those who occupied the middle ground, and the chairman of the Senate Committee, spoke for favorable consideration of the proposal, on the ground that it was a sincere effort toward co-operation, and would provide for a non-political commission to study and report on fair methods of handling the privately-owned forest lands of the state; that successful forestry practice on these lands would point the way to similar management of state lands and demonstrate to the public, in which ownership of the state land is vested, the true meaning of forestry and consideration.

* * *

Latrobe Paper Mills Resume Operations

The Barrett Paper mills, Kingston, Latrobe, Pa., have resumed operations at their local plant, following a curtailment for a number of months. During the shutdown a number of improvements and extensions have been made, and the mills are now in condition to develop maximum output under good efficiency. Employment will be given to about 60 operatives. The company is said to have orders on hand to insure production for a number of months ahead. F. M. Molson, heretofore of Peoria, Ill., will act as general superintendent at the plant; C. W. Bishop will be in charge of the papermaking department; and Paul Hilton will act as chief engineer.

With the Specialty Men

Twiller Sales Talks

A new customer is verified only when he sends a repeat order.

* * *

Continuous care is the price of continuous trade.

* * *

The reputation of the seller is made by the service the buyer receives.

* * *

Good will is the partner of straight dealing.

* * *

A promise promptly kept is a sure trade binder.

* * *

Association

By J. E. WILLERT

Everybody in the world is in association with everybody else, man is a social animal and there is no one thing that affects one person that does not affect every other person somehow or sometime.

The nearer people's interests lie together the quicker they are affected by one another.

The Paper Specialty Manufacturers' interests lie very close together, they are mutual, and each manufacturer is quickly affected by the other.

When these interests are brought into close formation with a clear and certain code of action, not only will the industry be advantaged but every buyer and every user in the country benefited.

Articles of supreme need, such as paper specialties have become, should have over them a continuous watch care.

The American Association of Paper Specialty Manufacturers will give this. The first meeting will be on the afternoon of Tuesday, April 8th at the Waldorf Astoria, Room 151.

At booth No. 68 at the Paper Industries Exposition the aims and methods of the Association will be explained.

* * *

A Valuable Day

Somebody said, "Time is money," and the day you will spend at the Paper Industries Exposition will be time money well invested and pay big interest.

Stop at Booth No. 68—you'll be welcome and glad you came.

* * *

Dies Suddenly

While directing preparation of dinner Sunday evening, Mrs. Marjorie Bardeen McClellan, daughter of the late George E. Bardeen, was stricken with an attrack of Bright's disease. She was carried by attendants to her room, where she expired in a few minutes. Mrs. McClellan recently inherited a half million dollars left by her father, who expired during the winter at his winter home in St. Petersburg, Florida. Her father and husband were among the founders of the MacSimBar Paper Company here, which derived its name from a combination of the names of McClellan, Simpson and Bardeen, the organizers. The time of the funeral depends on the arrival of the second daughter, Dorothy, who was in Florida when news of her mother's death was sent to her.

Through the Middle West

SAFETY ACCOMPLISHMENTS OF WISCONSIN MILL

Kimberly-Clark Company Make the Proud Claim of Having the Safest Paper Mill Crew in the World

AN official of the Kimberly-Clark Company, Neenah, Wis., recently received a letter from a former employee, containing this paragraph:

"If there is such a thing as a safety complex, the Kimberly-Clark organization —and especially the Niagara Mill—sure has a severe case of it. I am as proud of the record Niagara has made as if I were still in the organization."

The above comment fairly reflects the spirit of safety which has taken possession of Kimberly-Clark under the direction of M. G. Hoyman, safety director.

The Niagara plant, employing 653 men, with an accident record only a few years ago of twelve to fifteen a month finished 1923 with but five accidents causing loss of time. To cap the climax, they made a straight run of 150 days (97,500 man-days) with no accidents whatever.

The management and men of the Niagara plant, in view of this record and being unable to discover a groundwood, sulphite and paper unit of like size with a safety record touching theirs, lay claim to "The Safest Paper Mill Crew in the World."

Safety Challenge Cup

About a year ago, a Safety Challenge Cup was put up by the management of the company for competition between the three major plants, namely, Kimberly, Niagara Falls, and Niagara, Wis. Niagara won the first sixty-day heat with a clean slate, then repeated the performance over a second sixty-day stretch. Niagara Falls, coming from behind, captured the third heat and followed in with a second win during the fourth sixty-day period. Permanent possession of the cup was to come with the third leg on the cup, and this Niagara, Wis., secured on the night of November 30, 1923, with a third sixty-day stretch free from the lost time injury. In recognition of this achievement, the accompanying photographs were made, and on December 9 a safety jubilee was held with a mass meeting in the auditorium of the Community House, addressed by F. J. Sensenbrenner, first vice president of the company, who made formal presentation of the Challenge Cup to the men of the Niagara plant.

Intelligent, Enthusiastic Safety Leadership

Results such as these require leadership —earnest, enthusiastic leadership. Every department of the Kimberly-Clark Company is thoroughly sold on safety. In addition to this, the foremen's organizations of the three major plants have majored on safety. The reason why Kimberly-Clark Company inter-mill contests have brought such outstanding results finds its answer in the sporting element introduced by challenges of one group of foremen to another. Too often safety contests have been superimposed by the management and, when so started, are uniformly disappointing in their results. On the other hand, when a foremen's organization, ot its own volition, issues a challenge to another foremen's organization, the matter takes on a different aspect. Pride in accomplishment asserts itself. The urge then comes from the inside out and safety becomes a vital issue.

In the olden days, a dozen accidents might occur in a month and nothing was thought of it. Today, a lost time accident in the Kimberly-Clark Company causes as much commotion as a fire.

Proper Records Help

Right psychology has more to do with accident prevention than guarded machinery. In the Kimberly-Clark Company, safety records rather than accident records are featured. The weekly chart magnifies, in terms of each foreman, the number of actual days his crew has run without injury, the total consecutive safe man-days to date, and his best previous record in safe man-days. At the top of each weekly plant safety sheet is the total days the whole plant has gone without accident.

Every red blooded foreman takes pride in seeing his safety total accumulate and by the same token has no desire to be the foreman responsible for bringing the total consecutive safe days for the plant back to zero.

By-Products of Safety

For years, the Kimberly-Clark Company has carried its own accident liability. The first result of their successful safety campaigning has been a substantial saving on this account.

Still more important, however, is the team work and morale which develops through an organization of 65 men which can run, say, 150 straight days without injury of any kind. Men take pride in their work, give more allegiance to their leadership and the reflection through the whole community life is beneficial. At Niagara, the entire community caught the safety spirit and, during the year 1923, there were fewer accidents of all kinds through the village than occurred in the mill. The two doctors would starve to death if they were dependent upon mill or community accidents for their livelihood.

* * *

Western Manufacturers Elect

The Western Paper Manufacturers' Association met in Chicago in executive session to discuss association policies and to elect officers for the ensuing year. About twenty were in attendance when the meeting was called to order at 11 a. m. in the English Room of the Congress Hotel. While no details of the matters under discussion were given out, Secretary J. L. Beck, of Chicago, stated that officers were elected for the ensuing year, as follows: President. D. C. Everest, New York City; vice president, John V. Smith, Holyoke, Mass.; secretary, J. L. Beck, Steger Building, Chicago.

McBAIN RESIGNS FROM NEKOOSA EDWARD

Will Return to Pacific Coast After July First

B. T. McBAIN, Director of Manufacturing and Assistant General Manager of Nekoosa-Edwards Paper Co., with mills at Nekoosa and Port Edwards, Wisconsin, has tendered his resignation to the President and Board of Directors, asking that it be made effective July 1st, 1924. It is understood that his three year contract is up on April 15th and that he has given the notice called for therein to be given in case either party should wish to terminate same.

Mr. McBain has taken an active interest in Association work since coming East from the Pacific Coast where he was Operating Manager of the Crown Williamette Paper Company's mills in Oregon and Washington, manufacturing over 600 tons per day of news wrapping and tissues.

He is now a member of the Executive Boards of the Technical Association. The Woodlands Section, the Pulp Section of the American Paper and Pulp Association. Third Vice-President and Member of the Executive Board of the Superintendents' Association, Chairman of the Kraft Bi-Products Association of Minnesota, Wisconsin and Michigan and Secretary of the Wisconsin Forest Products Association.

It is understood that he is going to return to the Pacific Coast, in connection with a new enterprise in his chosen line and that he will continue in the Pulp and Paper Manufacturing game, which has had his undivided attention for the past thirty years, though he has not yet positively stated what has now connection will be.

He has just recently returned from a three week's trip to the Pacific Coast where he went to investigate some matters for his present connections.

* * *

Improvements at Glatfelter Mill

Work has been nearly completed on the installation of motors in the Beater Room of the P. H. Glatfelter Co., at Spring Cove, Pa. The triple-expansion Fitchburg engine which has been in continuous service since 1887 will no longer be used. The Beaters will be driven by motors, transmitting power by means of Lennix Drives. Three new Jones Jordan engines have been installed.

Eight new dryers have been added to the 100 inch Paper Machine which has resulted in increased production.

In February a new 1000 H. P. Edgemoor Boiler was put into service. The boiler is equipped with Taylor stokers and Sturtevant economizer, the draft being induced.

A new 84" Seybold cutter has been added to the Finishing Department.

All five machines are now equipped with Bird Screens, the smallest machine having just been furnished with a Bird Screen and Suction Roll.

* * *

The greatest truths in the world have been so often repeated that they are taken for trite sayings.

Watertown News

IMPOSSIBLE TO MAKE PROFIT

So Says Receiver for Carthage Sulphite Pulp & Paper Company

DECLARING a year's experience as receiver for the Carthage Sulphite Pulp & Paper Co. of Carthage has convinced him that it is absolutely impossible to conduct the company's business at a profit, and that losses last year amounted to $152,000 Charles E. Norris of Carthage, insisted in Federal Court at Albany Saturday, that it is to the best interests of the creditors to sell the company immediately and reiterated his request of two weeks ago to this end.

The company's output of sulphite, Mr. Norris declared, averages 45 tons a day, and the company is losing from $5.24 to $7.91 a ton. Sharp issue was taken with Mr. Norris by John S. Jackson of New York, who declared he was very optimistic as to the future of the company and believes it can be made to show a profit, provided the sum of $25,000 can be raised to finance the proposition temporarily while it is being put on its feet.

Thomas O'Connor and George E. O'Connor, of Watertown, representing the R. F. Hammond Co., Inc., declared that the Hammond Co has $100,000 worth of pulp in the Carthage Co. which, they said, is in danger of being declared personal property of the Carthage Co. and being included in the bill of foreclosure. They declared that in the interest of the company they represent, they are desirous of regaining possession of the pulp as soon as possible.

George O'Connor suggested that Mr. Jackson, who at one time was in charge of the Carthage Co., be appointed co-receiver with Mr. Norris, because of his optimistic view of the future of the concern.

Mr. Jackson said he could not agree with a statement of Mr. Norris to the effect that it cost $15,000 a month just to hold the plant. When questioned by Judge Cooper as to the reason for the poor financial condition the company finds itself in, as Mr. Jackson thinks it can be run at a profit, he replied:

"The big reason for the run down condition of the company now is the huge importation of cheap sulphite from Sweden and Norway. This condition is going to improve. Again, during the recent business slump, there have been only very small contracts. This hand to mouth method of buying made the running expenses very heavy. This situation, though is improving."

Mr. Norris further declared that operation at a profit seems impossible because of the very large mortgage. Judge Cooper advised all of the interested parties to appear in his court in two weeks. In the meantime they are all to determine their attitude on these three questions:

1. A new receivership.
2. Foreclosure.
3. Securing finances to continue operations for a time at least.

Judge Cooper indicated his opinion that it might be to the best interests of all concerned to try to secure finances to continue operations, even if a small loss was to be sustained, in the hope that eventually the property could be made to return a profit or could be sold at a better figure than now.

"Temporary financing," was the term used by Judge Cooper, rather than "new financing."

Francis F. Cullen of Watertown, appeared with Mr. Norris as his attorney.

Here Is Evidence

Evidence of the prosperity of paper mills of this section is contained in the fact that paper shipments from the St. Lawrence division of the New York Central have shown substantial increases in the last few months.

The daily paper train, which leaves the Watertown yards at 3:30 each morning, reaching Weehawken, N. J., at 4:30 the next morning, is carrying from 40 to 80 carloads of paper. During recent weeks the train has run more than 50 cars nearly every day, and at frequent intervals reaches the top figure of 80.

To provide better service to the paper manufacturers the Central established the through paper train over a year ago. It has proved its value and benefit to the paper trade. A big part of the daily shipment is newsprint made in newsprint mills surrounding Watertown and used by the big New York papers. In addition to this the train carries all other kinds of paper made in North Country mills as well as a heavy volume from Canada. At present a considerable amount of Canadian paper is being received on this division for forwarding to New York and other points.

The paper special is made up of some of the biggest and best freight cars available. Because of the nature of the product clean well-conditioned cars have to be used. Frequently the train goes out of Watertown as a double header and sometimes when the freight is heavy is run in two sections.

The train is made up in the Watertown yards, the cars being brought here from every direction in local freights during the day. Once the train is made up here it goes through without being broken until the New Jersey destination is reached.

* * *

Fuller New Super

Fred H. Fuller, of Watertown, N. Y., who was formerly superintendent of the Carthage Tissue Mills, is now superintendent of the new Columbia River Paper company's mill, which is being opened at Vancouver, Wash., a short distance from Portland, Ore. In connection with the new paper mill is a large saw mill which three weeks ago set a record by shipping 1,100,000 feet of lumber to New York City.

Before their coming to Watertown twelve years ago Mr. and Mrs. Fuller lived for four years at Camas, Wash., about 18 miles from their new home. After living here for five years, they went to Lancaster, N. H., for a year, after which they returned to Watertown, where Mrs. Fuller and her two daughters have since remained.

In the spring of 1918 Mr. Fuller left the Carthage Tissue mills and has held positions in various parts of the country in superintending and building new mills. He is also holder of a patent on Thompkins, Hawley, Fuller top felt attachment designed for making fine paper at high speed.

Last spring he returned to Watertown from Kalamazoo, Mich., where he had been acting as superintendent of the Kalamazoo Vegetable Parchment company and remained in Watertown until February 1, 1924, when he accepted a position with F. W. Leadbetter, president of the Columbia River Paper company. For a few weeks after going west, he was located at Mr. Leadbetter's Los Angeles, Cal. mill which is known as the California and Oregon Paper company.

In their travels about the country, Mr. and Mrs. Fuller have been from Maine to Japan, having spent two years in the orient setting up paper machines and instructing the natives in their use.

Mr. Fuller is a native of Massachusetts and his wife was born in California.

* * *

What appeals to us is "bully": what doesn't is called "bull." How do you regard Safety?

APPEAL FOR PAPER INDUSTRIES EXPOSITION

Advisory Committee Issues Statement Giving Facts Concerning the Exposition

IN a general letter to paper manufacturers and others interested, the advisory committee of the Paper Industries Exposition, has made the following statement:

Because of the very great importance of this exposition to the entire paper industry, the advisory committee at its meeting held several days ago recognized the necessity of paper manufacturers placing the weight of their moral and physical support behind the exposition and urge you to make an exhibit in it. Last year several manufacturers of paper placed exhibits and are again exhibiting, proving that this exposition was successful and a decided influence for them. Some of the basic and important facts which we should like you to know are:

1—The Paper Industries Exposition will do much to create business for the paper mills, the merchants and printers, and should be used to support any other campaign you are now conducting.

2—Manufacturers of paper have much to gain by talking direct to large consumers and educating them to the many different varieties and uses of their paper.

3—This personal contact will create a greater buying market for your paper; and this, of course, benefits your selling merchants.

4—It is equally as important that paper manufacturers the consuming public as for manufacturers of practically every other important commodity, the sales and distribution of which are made exclusively through jobbers. They are creating the market for the jobber.

5—The Paper Industries Exposition is a very important department of the paper industry and with your help can be made a most influential factor in educating the public to the size and importance of this industry and secure its confidence. It dignifies it in the eyes of those engaged in it and gives them an idea of its functions and methods that perhaps nothing else can.

6—The cost of an exhibit is very slight when compared with the direct benefit to yourself and the great good you can do the entire industry by supporting this exposition. The paper industry should get behind this exposition and support it enthusiastically.

7—Industrial history is replete with examples of industries which, because they have hid their light under a bushel, have made no distinct progress. The reverse is true where an industry has sought publicity through an exposition. Public confidence secured by this means of displaying the inner working of the industry has always brought prosperity and fullest cooperation.

8—Of all industries, the paper industry, surely, has much need to enlighten the public and seek its confidence.

9—We are assured of having a big attendance this year of large consumers of paper and are certain you will find the exposition to be an excellent medium for increasing business for your paper. Unless you exhibit you will never know how the exposition can benefit you. We ask you to give the coming exposition a trial and if you are not satisfied with the results obtained we will not again urge you to exhibit.

* * *

The engine may "die" many times; the driver dies but once.

New York Headquarters for Paper

More than fifty per cent of the country's output of book and coated stock is represented in this building. Hence it may be called "Headquarters." The following list of manufacturers and sales agents maintaining offices and salesrooms in this building contains the names of some of the most eminent firms in this line.

PAPER AND PULP MANUFACTURERS

American Coating Mills
A. P. W. Paper Company
Borregaard Co., Inc., The
Boldt Paper Mills, Chas.
Bryant Paper Company
Carthage Sulphite Pulp & Paper Company
Castanea Paper Company
Champion Paper Company
Combined Locks Paper Company
Consolidated Paper Tube Company
Container Products Company
Diana Paper Company
Doane Carton Company
Eastern Paper Can & Tube Co.
Eddy Paper Company
Emerson Paper Company
Fibro Manufacturing Company
Fort Orange Paper Company
French Paper Company
Gilbert Paper Company
W. C. Hamilton & Sons Co.
Hanna Paper Corp.
Hopper Paper Co.
Imperial Coating Mills
Kalamazoo Vegetable Parchment Company
Kinnard Manufacturing Company
Lebanon Paper Box Company
MacAndrews & Forbes Company
Maine Coated Paper Company
Menasha Printing & Carton Company
Munising Paper Company
Nashwaak Pulp & Paper Company
Nation Carton Company
National Carton Company
New York & Pennsylvania Company
W. B. Oglesby Paper Company
Oxford Paper Company
Pepperell Card & Paper Company
Phoenix Paper Company
Pride Pulp & Paper Company
Poland Paper Company
Peshtigo Pulp & Paper Company
Remington Paper Company
Republic Bag & Paper Company
Rhinelander Paper Company
H. Bridgman Smith Company
Strehl, Otens Company, Inc.
Sorg Paper Company, Paul A.
The Yaryan Company
Tissue Company, The
Tomahawk Pulp & Paper Company
U. S. Paper Goods Company
West Virginia Pulp & Paper Company
West Virginia Pulp Products Company
Warren Company, P. R.
Wolverine Paper Company

PAPER MERCHANTS

American Paper Company
Blake, McFall Company
Blake, Moffitt & Towne
Carroll, Frank G.
Cooper, C. M.
Chapin, W. N.
Kennelly Paper Company
George Kirby Smith
McEnery Paper Company
Seaman Paper Company
Sill Paper Company
Tacoma Paper & Stationery Company
F. R. Von Ullrich Paper Company

PAPER MILL SUPPLIES

Castle & Overton
Cohen & Sons, B.
Crown Chemical & Color Corp.
Eastern Burlap Bag Company
Garvan, Inc., P.
Gatti Paper Stock Corp.
Gross & Company, E.
Hoboken Paper Mills
Hicks, Inc., Daniel M.
Hicks, Costarino Company, Inc.
Kalbfleisch Corp., The
Keller Company, Inc., E. J.
Loveland Company, A. C.
Minsky Isaac Company
Morris Herrmann & Company
Murphy, Daniel I.
Nu-Era Paper Company
Salomon Bros. & Company
Slaymaker & Company, S. E.
Textile Paper Company

PAPER AND PULP MILL ENGINEERS

Ferguson, Hardy S.
Jenssen Company, G. D.

THE FIFTH AVENUE BUILDING

Broadway and Fifth Avenue, at Madison Square
NEW YORK

"More than an office building."

In New England

Governor Speaks

At the 38th annual meeting of the Boston Paper Trade Association at the Algonquin Club, Boston, an excellent banquet was followed by addresses by the two guests of the meeting, Governor Channing Cox of Massachusetts and Professor J. Bullock of the Harvard University School of Economics.

John A. Andrew of Stone & Andrew Paper Co., of Boston, retiring president, was toastmaster. At the business session these officers were elected: president, William B. Stevenson of A. Storrs & Bement Co.; first vice president, Norman Harrower of Linton Brothers; second vice president Joseph E. Snell of the Von Olker-Snell Paper Co.; treasurer, P. H. Casey of the Casey-Bigley Co.; secretary, F. Bendell Tracy of the Fort Hill Paper Co.; executive committee, the officers and F. B. Cummings, Charles A. Esty and Herbert L. Carter.

* * *

To Plant Many Trees

State Forester William A. L. Bazeley, of Massachusetts, announces that this year the state will plant 2,500,000 pine and spruce trees in the state, which is part of the program of reforestation and which will result in planting several millions of trees annually. The work will start at once.

The state has acquired over 7,000 acres of land for reforestation since December, and ultimately the state will acquire 100,000 acres. The recent purchases bring the holdings purchased for reforestation up to 72,000 acres.

This year's planting will be the first real effort on the part of the state for reforestation and the number of trees planted each year will be increased year by year, as trained men to do the work can be secured.

* * *

Fire Damages Logs

During the recent storm in Maine, a large log pile belonging to the Great Northern Paper Co. and stored at Madison, Me., caught fire from sparks from a donkey engine and the wind fanned the flames rapidly until a two hour battle by the paper company's crew, the Madison fire department and volunteers finally extinguished it. Four hours later the fire rekindled resulting in a half hour's battle. Crews were then left to guard the pile throughout the night and following day but no further trouble developed. The pile was damaged considerably. For a time the fire caused much alarm to residents in the vicinity of the pile.

* * *

Takes New Position

D. E. Davis, for the past few years in charge of the cost department of the Strathmore Mill at Woronoco, Mass., has resigned to accept a position with a paper company at Malone, N. Y.

* * *

New Incorporation

Henry Rose Company, Boston, has been incorporated with a capital of $50,000 to deal in paper stock. The incorporators are Henry Rose, Esther Rose and Sarah Rosenberg, all of Boston.

A LAUGH A WEEK

A Good Joke On a Paper Trade Man

$5.00 for Each One Used

THIS WEEK'S WINNER

J. B. DILLON

Denver, Colo.

FLY PAPER IN A JIFFY

We are told that necessity is the mother of invention and we have many examples that strengthen the assertion. Here's another.

It was late fall and there was a lone fly within the paper company's office. General manager Gesell had just finished reading that even one fly,—if it is the right kind,—could produce, within a short time, a small army of flies.

He had read such things before, but was not bothered about that, but this lonely fly seemed to find great delight in biting first one of his ears, then another, doing a song and dance on his neck,—the g.m.'s neck. The g.m. had spoiled a dozen sheets of good waxed paper trying to swat the fly, but had failed and was in despair for every time he tried to concentrate on business, the fly interrupted him.

The office boy who had been reading Nick Carter, jumped when the big chief let out a roar:

"Here, boy, get that dam fly."

"Dats easy, watch me."

The kid opened up a large envelope, dampened the mucilaged flap and sat down to see what Nick was doing, keeping one eye on the fly, while he extended an invitation to the fly to bite.

Within a few moments the fly settled on the mucilage end, the kid folded the envelope crushing the fly, and said:

"Its always easy to ketch 'em when you got fly paper."

Hollingsworth Report

Hollingsworth & Vose Co., of 141 Milk St., Boston, paper manufacturers, in their report to the commissioner of corporations for the year ending Dec. 31 show total assets of $2,413,179 of which $600,000 is capital, $1,324,213 is surplus, $71,000 is reserved for taxes, $8,750 is reserved for dividends and $409,216 represents accounts payable. Real estate and machinery is listed at $982,028, merchandise at $628,352, securities $394,045.

* * *

Shows Good Report

The Fort Hill Paper Co. of Boston, in its annual balance sheets, shows total assets of $141,423 of which $69,180 is represented by merchandise, $17,284 cash, $27,744 in accounts receivable and $20,388 in securities held. The company has an outstanding capital of $14,000 and a surplus of $94,467.

* * *

Minevitch Off For Russia

J. R. Minevitch, American representative of the Technical-Economical Council of the Russian Paper Industry, left New York recently, for an extended visit to Russia, where he will conduct investigations in connection with the chemical and paper industries.

To Raft Across Lake

The Consolidated Water Power and Paper Company is making preparations to raft about 40,000 cords of Canadian pulpwood across Lake Superior next summer. The wood will be transferred to railroad cars at Ashland and from there will be shipped to Wisconsin Rapids, Biron and other Wisconsin mills of the company. George C. Schneider, manager of the company's timber interests has been in Ashland making plans for the receipt and transfer of the shipment. In addition to the pulpwood it is expected that about 3,000 tons of groundwood from the Port Arthur, Canada, mill will be shipped across the lake each month during the summer.

The company is building a new dock at Port Arthur, from which its groundwood will be shipped in scows or freighters. The pulpwood is brought to Port Arthur from the forests and is there ground. Heretofore this product has gone by rail from Port Arthur to Duluth and thence to the paper mills in central Wisconsin. To avoid this long haul the Consolidated Paper Company will fit out the old commercial dock at Ashland and use it for storage purposes for the groundwood brought across the lake by scows.

The winter's output of groundwood at Port Arthur will be shipped by rail as usual as needed, but if not absolutely needed at the time it will be taken across the lake in scows during the summer months. The company probably will bring a half million dollar's worth of the pulpwood across the lake this season, not including the ground pulpwood which will be scowed across. The tugs Butterfield and Erna of Green Bay will tow a half dozen or more rafts across the lake, but the groundwood will be handled by other vessels.

* * *

Expect Big Season

The coming season at the pulp terminal at Waddington, N. Y., is expected to be largest in its history. Last year there were but two cargoes of pulp unloaded at the docks there due to the blowing down of the carriers by the wind on two different occasions.

This year it is expected that there will be at least one boat in that harbor each week. Difficulty was also experienced last year in securing boats which would carry the pulp as the company depended principally upon wild boats to do the hauling. It is said that a number of boats have already been placed under contract which insures a steady supply of the wood.

The wood is hauled by train to the mills at Norfolk, Raymondsville and Norwood and the wood will probably be handled by the local labor union the same as last season when a satisfactory price was made. In ordinary seasons about 30,000 cords of wood is unloaded at that terminal.

* * *

Move Offices

The Tileston & Hollingsworth Company, paper makers and dealers for over 100 years in Boston, and for the past 30 years located at 49 Federal street, have removed to the sixth floor at 211 Congress steet, Boston, where they have much additional floor space for their offices and stock room.

* * *

To Make Bags

The Consolidated Paper Bag Company has been organized to make paper bags at Boynton Yard, Somerville, Mass.

MODERN business development demands paper. Without paper—*abundant, varied, low-cost paper*—the great economic machine would soon have to shut down. To get paper in such volume and variety, we go back to the Forest. UNION BAG & PAPER CORPORATION does this literally—as you can see by attending

PAPER INDUSTRIES EXPOSITION
GRAND CENTRAL PALACE, NEW YORK
WEEK of APRIL 7th ▪ Booths Nos. 54 and 55

The Union exhibit—larger and more graphic than last year—will follow the path from Forest to Consumer. Logs, Lumber, Pulp, Paper and Paper Bags mark the various stages of converting spruce trees into wrappings and containers.

Of course the last stage—the Paper Bag—is the most interesting. Even those who are in a general way familiar with the paper industry will find themselves in a "new" field here. Union "Odd and Special" Bags, for instance, have found a thousand and one places to serve effectively, neatly, economically. Many of them are so refined (as to materials, formation and decoration) that they can hardly be recognized as "paper bags."

By all means see this annual Exposition. It is giving the public a new idea of the importance and development of your industry. And be sure that a welcome is waiting for you at the Union stand.

UNION BAG & PAPER CORPORATION
AND ASSOCIATED COMPANIES AND BRANCHES
Manufacturers of Lumber, Pulp, Newsprint, Wrapping Paper, Paper Bags and Paper Sacks
GENERAL OFFICES ▪ WOOLWORTH BUILDING ▪ NEW YORK CITY

TRADE MARK
UNION

What of 1924?

In *Co-operation,* mill organ of the Kimberly-Clark Company and the Neenah Paper Company, Ernst Mahler, vice president and general superintendent, who is widely known throughout the paper industry as one of the chief founders of the Technical Association of the Pulp and Paper Industry, has an article on the business outlook for 1924 that is marked by close thinking and clear vision. It is an article deserving of wide circulation and we are accordingly glad to reproduce it herewith.

Prophets are getting more numerous every day. One can get most any kind of an opinion as to what is going to happen in 1924. From the most pessimistic, dark views, which tend to shake every one's confidence, to the most glowing, optimistic outlook, which, on the other hand, is liable to make us too easy and to slacken our efforts, because "next year it is going to be easy picking." I feel that anybody who is too strong in his conviction on either the pessimistic or optimistic side will probably have to make a great many apologies when the history of 1924 is written. I look at the year 1924 with conservative optimism, and while there are a great many sound reasons for me to take this view, I just want to enumerate a few indisputable facts.

Favorable Factors

First of all, the year 1923 has definitely put all of us "back to work." Every working man has learned that it is again necessary to give an honest day's work for an honest day's pay, and as long as this is fixed in everyone's mind we can manufacture effectively and meet all honest competition.

Secondly, confidence has been restored in the buying public, which manifests itself above everything else in the tremendous building program for the coming year. Hundreds of thousands of new homes are planned for, besides tremendous expenditures for new offices, public buildings, and factories. This means that the lumber, steel, and all other building industries will have a satisfactory year, and will give steady employment to their men.

Third, there is no one other element on which the prosperity of a nation depends as much as on the efficiency of its transportation system. The Railroads are still suffering from the inefficiency and run-down condition of their equipment during the Government's administration. The budget of the railroads for 1924 calls for expenditures for new locomotives, cars and rails, amounting to hundreds of millions of dollars.

Fourth, confidence has been restored in national advertising, and many big campaigns are planned for 1924. This means a better consumption of paper by the magazines and better sales for those who advertise, because honest advertising brings new customers.

Clouds on the Horizon

Now what are the chief factors that may dampen this fairly bright outlook for the coming year? First of all, the unsettled foreign situation. There is a great deal of weight to the argument that we cannot enjoy continuous prosperity in this great country of ours, with hundreds of millions of people, molded from the same clay as we are, in misery, unemployed, and facing starvation. It is necessary that again a balance be established which gives everyone all over this world a fair return for his daily efforts. Secondly, unfair foreign competition with money on the European continent depreciated to a point where it is practically of no value over here, but still of enough value in its own country to buy a few daily necessities. With the European workmen content to live on this low level, these countries can manufacture their goods much more cheaply than we can and, despite a protective tariff, can undersell American-made goods in our home market. The only way we can hold our own is through superior service; that means efficient manufacturing.

With Congress again in session, there is promised an attempt to make prosperity for the farmer by law, a thing which no law-making body can do. Prosperity can only come, as it is coming through adjustment to basic conditions, plus hard work.

In Wisconsin we face more legislation hostile to industry which is slowly but surely forcing our larger industrial institutions to incorporate under the laws of other states, making Wisconsin a state of branch factories. This is a subject which comes close home to every Kimberly-Clark employee who is also a loyal citizen of Wisconsin.

Our Job

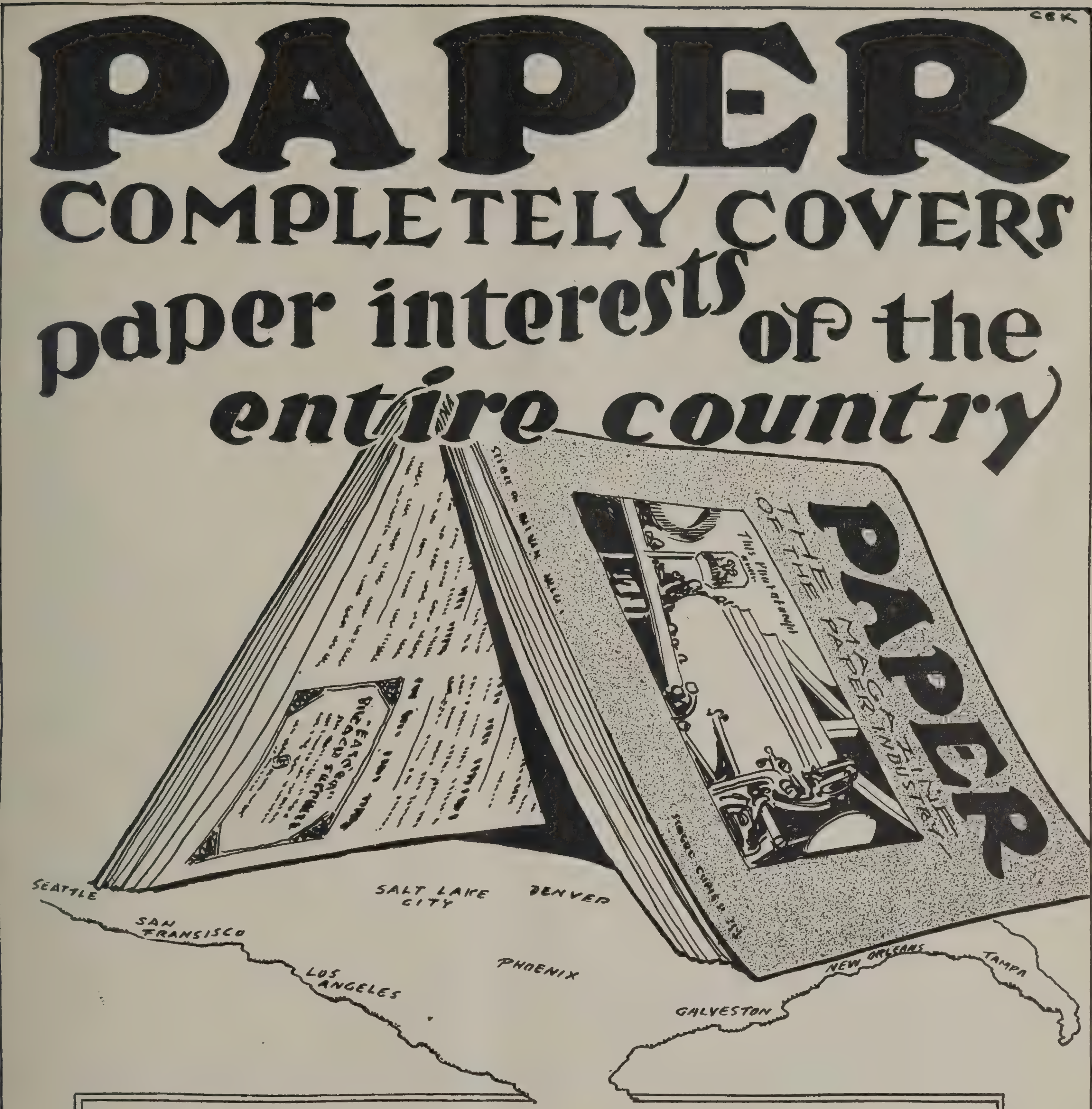
What must we do in our own business family to be able to say at the end of 1924 that both management and men had a satisfactory year? We must make satisfied customers by selling them the best possible goods at the lowest possible price, that insures continuous employment, right wages, and a fair return on the investment.

To go through with this program successfully we must put all our efforts behind the waste-saving campaign. Every minute, every penny, must be made to be productive to the public, and not used to produce waste.

In our homes we must be spending our money wisely. Cut out all expenditures not necessary for our well being, but try and save, even if only a small part of our earnings.

And last, but not less important, we must further cement the friendship between management and men by giving due consideration to each other's problems.

Let us pledge ourselves to live up to this program, so that at the end of 1924 we can look in each others' eye and say, "We did a good job."



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Annual Convention Number of PAPER

To Appear Thursday, April 17

With a host of new features and all the old ones rejuvenated

CONDENSED PROGRAM FOR THE WEEK

American Paper and Pulp Association

Waldorf-Astoria, New York City

MONDAY, APRIL 7, 1924

Forenoon

10:00	Technical Association of the Pulp and Paper Industry	Room 109, 110, 151

Afternoon

2:00	Technical Association of the Pulp and Paper Industry	Room 109, 110, 151
2:30	Tissue Paper Manufacturers—Merchants Conference Committee	Room 120

TUESDAY, APRIL 8, 1924

Forenoon

10:00	Technical Association of the Pulp and Paper Industry	Myrtle Room
10:30	Converting Paper Mills Association	Room 151
10:30	Salesmen's Association of the Paper Industry	East Room
10:30	Tissue Paper Manufacturers Association	Room 110
10:30	Waxed Paper Manufacturers	Room 109
11:00	Simplification Committee	Room 100

Afternoon

1:00	Cost Association of the Paper Industry	Room 115
1:00	U. S. Pulp Producers Association	Room 112
2:00	Gummed Paper Manufacturers Association	Room 109
2:00	Technical Association of the Pulp and Paper Industry	Myrtle Room
2:30	Cover Paper Manufacturers Association	Room 110

Evening—Dinners

7:00	Salesmen's Association of the Paper Industry Dinner and Smoker	Roof Garden
7:00	Tissue Paper Manufacturers Association	Hotel Astor
7:00	Technical Association Banquet	Hotel Commodore

WEDNESDAY, APRIL 9, 1924

Forenoon

9:00	Bristol Board Manufacturers Association	Room 114
10:00	Technical Association of the Pulp and Paper Industry	Room 110, 151, Myrtle Room
10:30	Cardboard Manufacturers Association	Room 109
10:30	Woodlands Section of A. P. & P. A.	Room 115
10:30	Wrapping Paper Manufacturers Service Bureau	Tea Lounge
10:30	Writing Paper Manufacturers Association	East Room

Afternoon

12:30	Papermakers Advertisers Club	Room 112
1:00	Waterproof Wrapping Paper Manufacturers	Room 100
2:00	Glazed and Fancy Paper Manufacturers Association	Room 109
2:00	Technical Association of the Pulp and Paper Industry	Room 110, 115, 151, Myrtle Room
2:00	Woodlands Section of A. P. & P. A. (Joint Program with the Technical Association)	Myrtle Room
2:30	Writing Association—Fine Paper Division	Room 114
2:30	Writing Association—Sulphite Bond Division	East Room

THURSDAY, APRIL 10, 1924

Forenoon

10:00	American Paper and Pulp Association, General Business Meeting	Astor Gallery

Afternoon

1:00	Binders Board Manufacturers Association	Room 112

"EASTCO"
BLEACHED SULPHITE

Using "Eastco" Bleached Sulphite ourselves, testing it day by day, in producing our line of "Eastco" Fine Writing Papers, we have complete control—because we have complete knowledge—of its quality, uniformity and adaptability to the requirements of the paper maker.

"Eastco" Bleached Sulphite is good pulp; it makes good paper. Furnished in Bales, Rolls or Laps as required. Write for Samples and Prices.

EASTCO
E

EASTERN MANUFACTURING COMPANY
501 FIFTH AVENUE . NEW YORK CITY

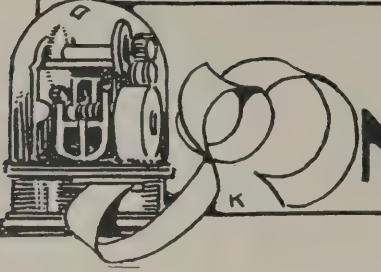
It's the
Paper That Counts
When Planning
That Particular Job

White Unglazed Onion Skin

Runs well on the press and turns out work above the average. Samples will convince you. Ask for them.

Manufacturers of
"Quality Papers at Quantity Prices"

WOLVERINE
PAPER COMPANY
OTSEGO, MICHIGAN



LATEST MARKET REVIEW

New Company Busy

The Pacific Straw Paper & Board Company which has been organized recently is financed largely by Oregon capital. The company has purchased a 15-acre tract of land in the central manufacturing district of Longview, Washington—the city full-grown in a year. This tract has a 700 feet frontage on the Cowlitz River.

Tracks will be laid to the site chosen for the erection of the plant, construction of which will be commenced as soon as the means for transporting the building materials is in readiness.

The new firm is capitalized at $500,000 and has already sold sufficient stock to guarantee the erection of buildings to cost approximately $60,000 and to purchase machinery estimated to cost $100,000.

Daily capacity of the first unit will be 50 tons of the finished product, it is announced. The first unit will include a mill structure, rotary room, warehouse, and storage room, fuel building, engine house and office building. A part of the structures will be one-story high, the others will be two stories.

Officials of the new company are: Charles Schaub, Portland, Oregon, president; John F. Parrott, Portland, Oregon, vice-president; George Sweet, Vancouver, Washington, secretary-treasurer.

President Schaub and Secretary Sweet will be in active charge of the plant at Longview while Vice-President Parrott will remain in Portland and superintend the sales and financial office in Portland.

* * *

Studying Trade Conditions

The "All Oregon Motor Expedition" headed by Willard P. Hawley, manager of Hawley Pulp & Paper Company mills at Oregon City had left Los Angeles for the desert when last heard from. The camera man, Brownell, who started with the expedition was called back to Portland and David W. Gobbett, a man with world-wide picture making experience is taking his place.

The party will learn something of trade openings in Mexico during the two months' automobile journey from Oregon City, Oregon, to Mexico City, Mexico, and return.

* * *

Announce Report

The Cambridge Paper Box Co., of Cambridge, Mass., shows a total business by its annual balance sheet of $307,981 of which $118,349, is real estate, $59,850 machinery, $80,446 merchandise, $11,166 cash, $25,623 cash receivable. The company's capital is $85,000, mortgages of $75,000 and surplus of $147,981.

* * *

Files Balance Sheet

The Millers Falls Paper Co., of Erving, Mass., in its quarterly balance sheet filed with the commissioner of corporations, shows total business of $1,290,685. The company has outstanding capital of $1,050,000, reserved for taxes $103,804 and surplus of $109,551. Real estate is valued at $264,606, machinery and equipment $261,257, merchandise $182,778, cash $56,899, dams $197,347, water rights $175,000.

Late Market Prices

Prices at closing Tuesday

American Writing Paper.........	2	2½
International Paper, Pf..........	63	65
International Paper...............	36½	36
Union Bag & Paper Co..........	52.	52½

Bankruptcy Schedule Filed

A schedule in bankruptcy has been filed by the Rainbow Paper Corporation of Windsor, Conn., with liabilities listed at $138,332 and assets at $10,535. Of the claims only one, P. Garvin & Conning for $1579, is secured. Among the other large creditors are Hartford Aetna National Bank, $1700; R. D. Kent, Passiac, N. J., $58,824; E. Gross & Co., Hartford, $4456; W. M. Eastman, Inc., New York, $17,500; Farmington River Power Co., New Britain, $4338; Hartford Electric Light Co., $3569; and a score or more of other claims each of less than $1000.

* * *

Shepherd In Continental

Owen Shepherd, treasurer of the International Paper Company, has been elected treasurer, director and member of the finance committee of the Continental Paper & Bag Mills Corporation.

* * *

Give $10,000 To Church

Mrs. Frederick G. Crane, widow of the well known Dalton, Mass., paper manufacturer, Miss Rosemary Crane and Frederick G. Crane, Jr., have presented to the Dalton Congregational church a fund of $10,000, the money to be invested in a trust fund and the income to be used for church purposes.

* * *

Elect Officers

The Poquonock Paper Company of Hartford, Conn., which recently bought the plant of the Hartford Paper Company in Poquonock, a town about eight miles from Hartford, has organized with the election of these officers: president, George A. Leavitt; vice president and general manager, Edward J. Manning; secretary and treasurer, Howard R. Manning. The company is capitalized at $300,000 of which $150,000 is common stock and $150,000 preferred. The plant has water power as well as electrical power and is equipped to manufacture high grade paper.

* * *

Have Good Report

The Union Bag & Paper Corporation has issued its report for the fiscal year just closed showing net profits of $950,709, equal to $6.34 per share on the $14,977,850 capital stock after deducting depreciation, interest, etc. This compares with net profits of $1,029,865, or $6.87 a share on the stock outstanding last year.

Should Have Research Dept.

In a comprehensive survey of the Lands and Forests Department of the Ontario Government, of which he is head, with particular references to Northern Ontario potential wealth and development, Hon. James Lyons told the Legislature at Toronto last week that the time would come, if it was not yet already at hand, when the Ontario Government must consider the establishment of a Department of Research to see what could be done in the way of conservation of forestry products by utilizing by-products. He said it was the intention of the Government to work out a policy that would provide continuous supplies of raw material, not only for existing industries, but any others that the Government might approve of in perpetuity. A general survey of Ontario's timber resources would be undertaken very soon. The Minister quoted statistics to support his advocacy of a policy of the retention in Canada for manufacturing purposes of the raw materials of the forest and estimated that Canadian workmen and Canadian industries had lost untold millions in past years in permitting the bulk of the manufacturing to be done in the United States by American workmen. If Canada was going to continue to sell pulpwood to the American manufacturer, she would get in return free entry of all Canadian wood products into the United States. Hon. Mr. Lyons said that the Province of Ontario expected to save on the aircraft service of forest protection over the present system at least a quarter of a million dollars a year. By this air service the Government proposed to have patrolled 30 million acres of land never patrolled before.

* * *

Doing New Financing

Toronto and Montreal financial houses are offering an issue of about a million and a half 7 percent first refunding mortgage sinking fund gold bonds of the Howard Smith Paper Mills, Limited. The purpose of the issue is for retiring the principal sum of $200,700 of first mortgage bonds of the company's plant at Cornwall, which will be called for redemption on September 1st next; completing payment of timber limits; and to reimburse the company for expenditure on its properties, including the recent improvements at Cornwall.

* * *

To Build New Mill

A new paper mill, to cost $2,200,000, will be erected at Fort William, this spring in conjunction with the plant of the Great Lakes Paper Company, according to the statement of J. H. Black, president of the company. Mr. Black, who is a Toronto man, is in Fort William now looking over the ground. The new paper mill will employ 350 hands. The groundwood mill now in course of construction will be rushed to completion, so that everything will be ready for the reception of power which will be delivered at the mill by May 1. Raw material for the pulp mill is arriving daily. There are now 10,000 cords on the ground and 30,000 more cords are yet to come. The pulp mill will employ 250 hands.

BASIC MARKET QUOTATIONS

FINE	
Bond	9.00 @ 40.00
NEWS	
Contract Basis	3.75 @ 4.00
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.75 @ .85
Manila No. 1	.70 @ .75
WRAPPING	
No. 1 Domestic Kraft	6.00 @ 6.50
No. 1 Jute	8.00 @ 8.50
No. 1 Wood	4.50 @ 5.00
Butchers	3.75 @ 4.00
BOARD	
News	45.00 @ 50.00
Chip	40.00 @ 45.00

Paper and Board

New York, April 1—On the eve of the annual gathering of paper manufacturers in New York for the annual convention of the American Paper and Pulp Association the markets are showing some signs of quieting, as well as easing. Demand during the last few days has not developed in the manner producers and jobbers would like to witness. Consumers seem to have practiced increased care in their purchasing, and the call for paper of some kinds from at least certain quarters has decreased. Possibly the forthcoming convention has had something to do with this slowing down of market activity, since it is nothing unusual for jobbers and even large users of paper to hold off temporarily in buying while waiting for their mill friends to come to town so that purchases can be made in person. It is also probable that the rather sharp decline in many grades of raw material has led to the narrower demand for paper as consumers naturally refrain from buying excepting to cover actual and direct wants when the market exhibits a downward tendency. Furthermore, there has been a general slowing down of business in various lines, and it is more than likely that the quieter position of many consuming industries has resulted in the slower demand for paper.

No changes of consequence have developed in paper prices. Quotations seem to be very well stabilized, and in spite of some appreciable declines in raw material, paper prices appear to be holding in a satisfactory manner. This is not surprising when it is considered that in the recent uptrend of raw material values prices of finished paper failed to respond and move upward with the increasing cost of manufacture. Manufacturers were hesitant about advancing prices of their own product despite the greatly increased production cost, evidently being fearful of upsetting the equilibrium of the market, and judging from the events of the last few days they were right in their analysis as raw material is now down to more equitable levels with the prices prevailing on the finished product and paper consumers have not been disturbed by any broad fluctuation in paper prices.

Newsprint continues to be the leading class of paper in point of demand. Print paper is moving in a steady way and in heavy tonnage, and mills are operating at very close to capacity and are shipping out their product as rapidly as it becomes available. Newsprint prices are firm, as would be expected with publishers absorbing supplies in such large amounts. Moreover, as the pre-Easter shopping season draws near, when department stores use increased advertising space in the daily press, consumption of newsprint is on the rise. Present indications are some new records of newsprint consumption will be established during the coming spring shopping period as already publishers in New York and other cities are adding pages to their issues as larger amounts of display advertisements are offered them.

Fine papers are in fairly good demand. In New York the feature has been the increased stocks noted of low-grade sulphite bonds, which have been offered at slight price concessions. Apparently some jobbers have loaded up with wood bonds and have pressed buyers to some extent. White bond paper of comparatively good quality has been offered freely by local jobbers at 9½ cents a pound, and colored lines at half a cent higher.

Book paper mills are moderately busy. There is a much better demand for book paper than there was recently but the movement has yet some distance to go before all the mills have sufficient business to warrant anything approaching full production. Prices are holding fairly steady though now and then sales at recessions from generally accepted market levels are reported.

Coarse papers are enjoying a fair demand, especially from the retail trade, which reflects the stocking up of merchants in preparation for the Easter trade. Tissues also are feeling the stimulation of spring demand, and are moving in larger amounts.

SCANDINAVIAN PULP
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WOOD PULP

of every description
FOREIGN and DOMESTIC

PLUGS
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any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

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BOX BOARD - WOOD PULP

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Wires
FOR
Larger Tonnage

With over 20 years of practical experience in the wire business, we started our present plant six years ago and in spite of the adverse conditions of the paper industry, we have brought our production up to over half million sq. ft. per year. We are constantly adding to our list of satisfied customers. We are making special weaves, seams and edges for all paper making purposes.

Write us for prices and samples

GREEN BAY
WIRE WORKS
GREEN BAY
WISCONSIN

Box boards are relatively quiet. There has been some broadening of demand from certain consuming quarters but the movement is still below par for this time of the year. Quoted prices range around $40 a ton f.o.b. New York for plain chip, and $45 per ton for news board.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.18	@	.40
Superfine	.16	@	.30
Tub size	.12	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.00	@	6.50
No. 2 Domestic	5.00	@	5.25
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.75	@	.85
Manila No. 1	.70	@	.75
White No. 2	.70	@	.75
Colored	.80	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	6.00	@	6.50
No. 2 Fiber	5.00	@	5.50
Card Middles	4.00	@	4.50
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	50.00	@	55.00
Binder Boards	80.00	@	85.00
Chip	40.00	@	45.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

Probably the principal factor in the mechanical pulp market is that there is seemingly a plentiful supply of pulp available not alone for forward shipment but also for quick delivery. Mills are mostly reported grinding at a good rate, and producers seem to be on the anxious seat regarding the disposal of their output, with the result some rather low prices are reported figuring in transactions from time to time. Quotations on groundwood are at best on a wide scale. Domestic grinders are said to be asking $35 and higher per ton f.o.b. pulp mills while sales at much lower figures have been reported, some buyers telling of getting prime spruce groundwood down to $30 a ton at grinding plants. Imported groundwood is quoted at around $33 a ton ex dock New York, with sales at a dollar per ton or so under this price reported in some instances. Demand is nothing out of the ordinary, being principally of routine character with consumers chiefly concerned with covering their direct requirements.

Foreign and Domestic Chemical Pulp

Reports differ on the prevailing situation in chemical pulp. Some members of the trade assert that the market tone is much firmer, that sellers are holding for higher prices and that they are receiving the rates asked in most transactions, and that consuming demand is on the increase. This may be so in some instances but it is also apparent that pulp is being marketed at price concessions, and that some of those on the selling side of the trade are anxious to effect sales.

The strike of pulp and paper mill workers in Norway is said to be having a strengthening influence on bleached sulphite prices for the reason that if production continues at a standstill in the Scandinavian country the available supply of bleached sulphite may be considerably reduced. However, prices have been but sentimentally affected here thus far. Kraft pulp appears to be a little steadier in tone but actual market price levels are unchanged. Quotations ex dock New York and f.o.b. pulp mills follow:

Sulphite, foreign—			
Bleached No. 1	3.75	@	4.25
Unbleached No. 1	2.60	@	2.80
Unbleached No. 2	2.40	@	2.60
Easy Bleaching	2.75	@	3.00
Sulphite, domestic—			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.60	@	3.00
Unbleached news grade	2.50	@	2.75
Easy Bleaching	2.75	@	3.00
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.60	@	2.90
Sulphite screenings, refined	1.50	@	1.75

Domestic Rags

Papermaking rag values display an easing trend. That is, most grades are on the downward move, since demand from mills has subsided, yet there are some grades which are holding fairly steady in spite of the lessened call from consumers. It is the usual thing for paper manufacturers to let down in their buying in the spring as it is this time of the year when collections increase and prices recede, and indications are consumers are now purposely holding off as purchasers in anticipation of new low prices in the near future.

Roofing rags have declined to where sales of No. 1 stock at 2.35 cents per pound f.o.b. New York and of No. 2 packing at 2.25 cents New York have been reported. Some new cuttings also are moving off in price, notably blue overall cuttings, new black mixed cuttings, and unbleached muslins, which are available to mills at a quarter to a half cent per pound below recently prevailing prices. Old whites are steady, and so are thirds and blues. Prices f.o.b. New York are as follows:

New Shirt Cuttings, No. 1	14.00	@	14.50
No. 2	6.75	@	7.00
Fancy Shirt Cuttings	7.00	@	7.50
No. 1 Whites, repacked	7.50	@	8.50
No. 2 Whites, repacked	4.50	@	5.00
White Lawns	11.50	@	11.75
New Muslins, unbleached	11.75	@	12.00
Light Silesias	9.00	@	9.25
Black Silesias	5.50	@	5.75
Overall Cuttings, Blue	9.00	@	9.25
Washables	5.50	@	5.75
New Black Mixed	4.75	@	5.00
Soiled Whites, house	4.00	@	4.25
Soiled Whites, street	3.75	@	4.00
Thirds & Blues, repacked	3.75	@	4.25
Thirds & Blues, misc.	3.25	@	3.50
Black Cotton Stockings	4.00	@	4.25
Roofing Rags, No. 1	2.35	@	2.45
Roofing Rags, No. 2	2.20	@	2.30

Imported Rags

There is a quieter demand for foreign rags, and it is noticeable that buyers are showing principal interest in spot supplies while more or less neglecting offerings for forward shipment from abroad. Prices in some cases are tending lower. Dark colored cottons for roofing paper mills are reported selling at 2.25 cents a pound ex dock New York, and blue cottons are easier in tone if not in price. Ex dock New York quotations are:

Lins., White, No. 1	15.00	@	16.00
Ger. Blue Cottons	3.25	@	3.50
French Light Blues	3.50	@	3.75
New Light Prints	6.50	@	7.00
New Unbleached	10.50	@	11.00
German Linen, blue	4.50	@	5.00
German Linen, grey	6.00	@	6.50
German S. P. F.'s	6.00	@	9.00
German Light Prints	4.00	@	4.25
Dk. Colored Cottons	2.20	@	2.30

Bagging, Rope, Etc.

Despite the weakening trend in most descriptions of papermaking stock, prices of old rope are on the rise. Sales of domestic No. 1 manila rope are reported at 7 cents a pound f.o.b. New York, and even at higher prices in exceptional cases, while foreign manila rope has been sold to paper mills at close to 7 cents a pound ex dock New York. Old bagging is quiet and easy. Prices are very uncertain at approximately 1.50 cents a pound New York for No. 1 scrap bagging and 1.25 cents for roofing bagging. Quotations f.o.b. New York follow:

Gunny, No. 1	1.50	@	1.60
Foreign	1.40	@	1.50
Wool Tares, light	1.50	@	1.60
Wool Tares, heavy	1.40	@	1.60
Roofing Bagging	1.20	@	1.30
Wool Tares, heavy	1.60	@	1.75
For. Manila Rope	6.50	@	6.75
Domestic Rope	6.50	@	7.00
Mixed Strings	1.25	@	1.50

Old Paper

A very easy market exists for old paper. There is scarcely any grade that is moving in normal volume, and the trend of prices is steadily downward. In fact, prices have worked off to levels where dealers complain of the lack of profit in collecting and grading stock, which situation is probably leading to some curtailment of collections. Magazine stock is particularly weak. No. 1 flat magazines are reported offered by New York dealers at 1.35 cents per pound f.o.b. this city, and possibly at lower figures, and ledger stock has declined to 1.65 cents a pound New York. Folded newspapers are selling at 75 to 80 cents a hundred pounds New York, No. 1 mixed paper at 60 cents, common mixed paper at 50 cents, old No. 1 kraft at 2 cents, and white news at 1.90 cents per pound. Shavings are quoted at 2.85 to 3 cents a pound New York for No. 1 soft white, and 3.75 cents for No. 1 hard white shavings. F.o.b. New York prices follow:

No. 1 Hard White Shavings	3.75	@	4.00
No. 2 Hard White Shavings	3.25	@	3.50
No. 1 Soft White Shavings	2.85	@	3.00
Box Board Chips	.70	@	.75
No. 1 Colored Shavings	1.50	@	1.65
Magazine flat stock	1.30	@	1.40
No. 1 Crumpled	1.10	@	1.20
Solid Ledger Books	1.85	@	2.00
Ledger Stock	1.65	@	1.75
Kraft, No. 1	2.00	@	2.10
New Manila Cuttings	2.00	@	2.25
New Manila Env. Cuttings	2.50	@	2.75
Bogus & Mill Wrappers	.75	@	.85
News, strictly overissue	1.00	@	1.05
Folded News	.75	@	.80
No. 1 Mixed Papers	.60	@	.65
White Blank News	1.90	@	2.00
Common Paper	.50	@	.55

Twines

Twine business is of strictly routine character, and, according to manufacturers, does not begin to measure up to usual proportions for this period of the year. However, quoted prices are maintained, due in large part to the firmness of raw material. Quotations are as follows:

Sisal Hay, pure	12.25	@	13.25
Manila Hay, pure	16.25	@	17.25
Sisal Lath Yarn	12.25	@	13.25
Manila Rope, pure, ¾ inch diameter	14.25	@	15.25
Hardware Rope	11.25	@	12.25
Jute rope, ¼ diam. and over, coils	14.00	@	15.00
Sail twine, A grade	20.00	@	
Jute Wrapping twine, A grade	20.00	@	
Papermakers Twine	11.50	@	
B. C. Hemp, 18	.39	@	.40
B. C. Hemp, 24	.38	@	.39
B. C. Hemp, 36	.37	@	.38
America Light India— No. 6	14.50	@	
No. 7	13.50	@	

Chemicals

There is a fairly steady movement of papermaking chemicals. Contract buyers are taking moderately good amounts of the various items, whereas current demand is slow in developing. No changes of importance are recorded in quoted prices.

Appleton Wires Are Good Wires
Fourdrinier Wires
Cylinder Wires
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Paper Testing Methods (1922)

A large edition of this handbook for paper mill laboratories was exhausted shortly after the type had been distributed. In view of the insistent demand the Technical Association has arranged for a republication and *Paper Testing Methods* is again available at $3 per copy.

The work covers detailed procedure for microscopical analysis, physical testing and chemical analysis of the paper with descriptions of the apparatus employed.

It is the only complete and up-to-date handbook on paper testing published in the English language.

It should be in the hands of every paper manufacturer and paper dealer as well as concerns who are large users of paper.

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IMPORTS AT NEW YORK

Week of March 24-29

Paper

Str. Albert Ballin, Hamburg—Metropolitan Import & Mgf. Company, 38 cs. pasteboard; Falsing Paper Company 1 cse.; P. H. Petry & Co., 8 cs.; Bendix Paper Company, 23 cs.; Italian Book Company, 3 cs.; International Acceptance Bank, 13 rolls printing; W. Hartmann & Co., 118 rolls and 28 bls. wrapping and 2 cs. paper bags.

Str. Andania, Hamburg—Traders Paper Company, 681 rolls; Premier Shipping Company, 81 cs. pasteboard; A. H. Ringk & Co., 25 cs. pasteboard.

Str. Duilio, Genoa—Japan Paper Company, 35 cs.

Str. Liberty, Havre—Standard Products Corporation, 170 cs. cigarette; F. P. Gaskell & Co., 38 cs. cigarette.

Str. Olen, Bordeaux—American Tobacco Company, 800 cs. cigarette; from St. Nazaire—DeManduit Paper Corporation, 339 cs. cigarette; R. J. Reynolds Tobacco Company, 1,060 cs. cigarette.

Str. Blydendyk,, Rotterdam—Miller & Wright Paper Company, 4 cs. printing; Perkins-Goodwin Company, 109 cs. printing; Pulp and Paper Trading Company, 116 rolls strawboard.

Str. Columbia, Glasgow—Blauvelt-Wiley Paper Mfg. Company, 5 bls.; M. Ward, Inc., 6 cs. writing; Perry, Ryer & Co., 90 cs. printing.

Str. Mongolia, Antwerp—C. W. Williams & Co., 27 cs.; Louis DeJonge & Co., 17 cs.; P. C. Zuhlke, 195 cs. printing; P. J. Schweitzer, 24 bls. cigarette; F. C. Strype, 30 cs. wrapping.

Str. Trolleholm, Gothenburg—Mechanics & Metals National Bank, 449 rolls wrapping.

Str. Tyrifjord, Christiania—T. D. Downing & Co., 16 rolls newsprint.

Str. Drottningholm, Gothenburg—M. Gottesman & Co., 63 rolls newsprint; National Paper & Type Company, 1 cse.; A. E. MacAdam & Co., 599 rolls and 37 bls. wrapping; Wilkinson Bros. & Co., 91 bls. wrapping; Brooklyn Standard Bag Company, 455 rolls wrapping; Arkell Safety Bag Company, 290 rolls and 23 bls. wrapping; C. K. MacAlpine & Co., 143 rolls and 3 bls. wrapping; Borregaard Company, 400 bls.; H. Reeve Angel & Co., 399 rolls; D. S. Walton & Co., 3,270 rolls wrapping; J. P. Heffernan Paper Company, 197 bls. wrapping; Hyman & Schultz, 132 rolls wrapping; Chase National Bank, 185 rolls wrapping; Melby, Kuttroff & Co., 28 rolls wrapping; Federal Commission Company, 2 bls. hanging.

Str. La Savoie, Havre—Globe Shipping Company, 4 cs. writing; American Express Company, 7 cs.; R. E. Thibaut, 1 cse. hanging; H. H. Ayer, 3 cs. cardboard; H. Lips, 22 cs.; Le Curto & Funk, 32 bls.; Coenca-Morrison Company, 6 cs. writing; Whiting-Patterson Company, 7 cs.; Order, 10 cs.

Str. Vellavia, London—Favor, Ruhl & Co., 7 cs. drawing; W. H. S. Lloyd & Co., 19 bls. hanging; T. F. Wilmot & Co., 2 cs. photo; H. Reeve Angel & Co., 2 cs. drawing and 5 cs. filter; E. Dietzgen & Co., 3 cs. drawing; Order, 3 cs. drawing.

Str. Athenia, Liverpool—J. J. Gavin & Co., 2 cs. photo; B. F. Drakenfeld & Co., 12 cs. printing.

Str. Collamer, Havre—Standard Products Corporation, 57 cs. cigarette.

Str. Grootendyk, Rotterdam—F. G. Prager Company, 276 bls. hanging; W. Van Doorn, 22 bls. wrapping.

Str. Belgenland, Southampton—J. J. Gavin & Co., 3 cs. photo; G. W. Sheldon & Co., 1 cse.

Str. Innoko, Rotterdam—Republic Bag & Paper Company, 3,719 rolls and 679 bls. wrapping; Wilkinson Bros. & Co., 12 bls. wrapping; Maurice O'Meara Company, 8 bls. wrapping; Sefton Manufacturing Company, 84 rolls strawboard; A. Vuyck, 138 rolls strawboard.

Wood Pulp

Str. Bergensfjord, Kristiania—Guaranty Trust Company, 2,000 bls.; Nilsen, Lyon & Co., 1,000 bls.

Str. Blydendyk, Rotterdam—M. Gottesman & Co., 1,200 bls.; Globe Shipping Company, 10 bls.

Sch. Dorothy, Port Midway, N. S.—Ira L. Beebe & Co., 800 tons.

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* * *

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* * *

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* * *

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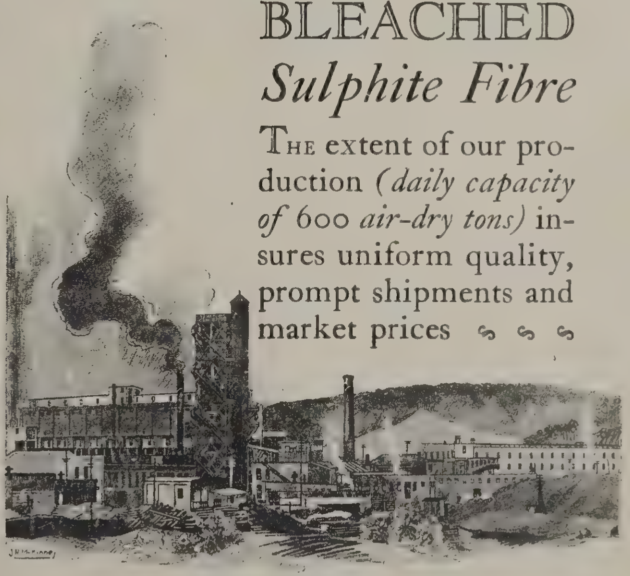

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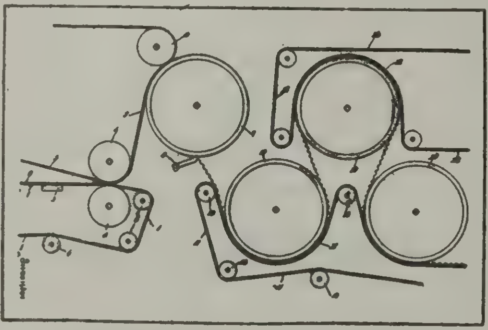

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CLASSIFIED DIRECTORY—Continued

Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
Combined Locks Paper Co., (sulphite fibre), Appleton, Wis.
Marshall Paper Co., (wood), Appleton, Wis.
Riverside Fibre Co., (bleached — unbleached sulphite fibre also paper), Appleton, Wis.
Ashland Paper Co., (spruce ground wood), Ashland, Wis.
Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.
Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.
Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.
Kaukauna Ground Pulp Co., Kaukauna, Wis.
Outagamie Paper Co., (ground wood), Kaukauna, Wis.
Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
Medford Lumber Co., (wood), Medford, Wis.
Mellen Lumber Co., Mellen, Wis.
Island Paper Co., (sulphite fibre), Menasha, Wis.
Ewing Everest Pulp Co., (ground wood), Merrill, Wis.
Grandfather Falls Co., (ground wood pulp), Merrill, Wis.
Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood and sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Flambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.
Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS

Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia. Pa.

RAGS

American Woodpulp Corporation, New York.
Keller Co., Inc., E. J., New York.
CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill.

ROPE DRIVE

LINK-BELT Co., Chicago, Ill.

SCREENS

Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del.
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill.
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman, H. L. (centrifugal), Dayton, Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale, Pa.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill.

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS

Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS

Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific St., Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.
Paper Makers Chem. Co., (combination), Easton, Pa.
Boley, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.
Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.
Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel, T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
MURRAY Mfg. Co., D. J., Wausau, Wis.
Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.
Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Cohoes Iron Foundry & Machine Co., (Cylinder; Hot Air), Cohoes, N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.
Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA

Ash

DIAMOND Alkali Co., Pittsburgh,
MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

SODA

Pulp

SODIUM SULPHATE

(Salt Cake)

Cooper & Cooper, Inc., 23 Cliff St., New York.

Mead Fibre Co., The, (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SPLITTERS

Wood

Grace, C. M. & Co., Huntsville, Ala.
Ripley, Lewis R., Harvard, Mass.
Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.
Ryther & Pringle Co., Carthage, N. Y.
Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Multnomah Iron Works, Portland, Ore.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works, Co., Appleton, Wis.
Smalley Mfg. Co., Manitowoc, Wis.

SPROCKET WHEELS

LINK-BELT Co., Chicago, Ill.

STOCK REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

STONES

Wood Pulp

Pusey & Jones Co., (Kollergang), Wilmington, Del.
Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.
Lombard & Co., 238 A Street, Boston, Mass.
JONES Bros. Co., Boston, Mass.
Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.
Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.
Empire Pulp Stone Co., Empire, Ohio.
C. & M. Quarries Co., Marietta, Ohio.
Smallwood Stone Co., Steubenville, Ohio.
American Stone Co., Wheeling, W. Va.
JONES Bros. Co., Barre, Vt.

SUCTION BOX COVERS

Menasha Wood Split Pulley Co., Menasha, Wis.

SULPHATE MILL EQUIPMENT

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.

SULPHITE FITTINGS

EASTWOOD Wire Mfg. Co., Belleville, N. J.

SULPHUR

UNION Sulphur Co., New York.

SULPHUR BURNERS

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.
TRIMBEY Machine Works, Glens Falls, N. Y.

CHAIN DRIVE SILENT

LINK-BELT Co., Chicago, Ill.

TANKS

Settling & Pulp Thickening

Chicago Bridge & Iron Works, 2036 Transportation Bldg., Chicago, Ill.
Eagle Tank Co., 2436 No. Crawford Ave., Chicago, Ill.
Johnson & Carlson, 848 Eastman, (Wood), Chicago, Ill.
New York Central Iron Works Co., Inc., Hagerstown, Md.
New England Tank & Tower Co., Boston Postal District, Everett, Mass.
Acme Tank Co., 41 Cortlandt St., (Wood), New York City, N. Y.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Hendrick Mfg. Co., 75 Dundaff St., Carbondale, Pa.
Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.
Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawer 539, Sharon, Pa.
Newport Foundry & Machine Corp., (Siphon), Newport, R. I.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.
Textile Finishing Mach. Co., Providence, R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill.

DE-INKING PROCESS

CASTLE & OVERTON, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

VALVES

Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.
WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

WET FELTS (Woolen)

H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.

FOURDRINIER WIRES

H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.
EASTWOOD Wire Mfg. Co., Belleville, N. J.
CHENEY-BIGELOW Wire Works, Springfield, Mass.
LINDSAY Wire Weaving Works, Cleveland, Ohio.
WM. CABBLE Excelsior Wire Mfg. Co., Brooklyn, N. Y.
INTERNATIONAL Wire Works, Menasha, Wis.
GREEN BAY Wire Works, Green Bay, Wis.
APPLETON Wire Works, Appleton, Wis.
WISCONSIN Wire Works, Appleton, Wis.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

CYLINDER MOLDS

Appleton Wire Works, Appleton, Wis.
BLACK-CLAWSON Co., Hamilton, Ohio.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

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WOLVERINE Paper Co., Otsego, Mich.

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THE CLEARING HOUSE
OF THE PAPER INDUSTRY

Situations Wanted, Help Wanted, Machinery for Sale, Machinery Wanted, Business Opportunities, Materials Wanted and For Sale, Business Wanted or For Sale.

Advertisements in this department cost $1.00 for 25 words or less, payable in advance. Additional words, two cents each. This price covers the cost of remailing answers directed to boxes, care of this office. Matter for insertion should reach the office of PAPER not later than the Saturday preceding date of issue.

All Advertisements under the Situations Wanted or Help Wanted Classifications are published FREE OF CHARGE, except for cost remailing letters addressed here.

POSITIONS WANTED

MECHANICAL ENGINEER, 14 years broad experience with large industrial firms desires responsible position as executive, supervising engineer, plant or mechanical engineer. Construction, office, plant efficiency and maintenance, mechanical processes, power plants, investigations, reports, etc. Will travel part time if desired. Member A.S.M.E., age 32, highest references. Address Box 1285, care of PAPER.

PULP AND PAPER MILL ENGINEER, graduate mechanical engineer, married, 15 years experience in paper and pulp mill industry. Designing, testing, developing, erecting paper and pulp mill machinery. Experienced in mill maintenance, operation, investigation and reports. Good knowledge of mechanical process. Executive experience. Member Technical Association of the Pulp and Paper Industry. Open for engagement with progressive concern. References. Address Box 1290, care of PAPER.

CHEMICAL ENGINEER, expert on digesting process and acid making for sulphite manufacturing desires position as chemist, assistant to superintendent or in research and development work. Experience from Sweden and United States. References. Address Box 1291, care of PAPER.

Single young college man, American with several years experience with Canadian newsprint manufacturers now ready for position of wider opportunity. This with approval and assistance of present employers. Experienced in paper mill, in engineering dept., sales office and especially in handling statistics. Capable of organizing and maintaining statistical department, chart control, reports, etc., or making himself useful in sales or manufacturing departments. Excellent references. Address Box 1292, care of PAPER.

ACCOUNTANT-EXECUTIVE, specializing in the solution of problems in the stores, cost and accounting departments, wants permanent position with manufacturing concern. Good accounting education and fourteen years' experience in varied lines of industry, including public accounting work in the installation of stores, cost and accounting systems. Successful in handling situations requiring tact and diplomacy. Progressive and up-to-date. Age 36. Present location Central States and location considered. Address Box 1293, care of PAPER.

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FOR SALE—Unlimited quantities of finest pulpwood. F.o.b. mill in New York State, $23.75 per cord. Address Box 236, care of PAPER, 1478 Broadway, New York City.

POSITIONS VACANT

SALESMANAGER WANTED—One thoroughly acquainted with the trade, and having mill experience, to take full charge of the selling of imported papers. Give full information, experience and terms in your reply. Address Box 1288, care of PAPER.

POSITIONS WANTED

CANADIAN, 26, college trained, with 3 years in big news mill office and control work, wants a chance in export or selling organization. Address Box 1294, care of PAPER.

GRADUATE CHEMIST, age 21, wishes position as junior in pulp and paper mill. Available May 1. Address Box 1295, care of PAPER.

PAPER SALESMAN—University graduate with chemical experience in the manufacture of pulp and paper desires to connect with a firm where hard work and results will be rewarded. All correspondence strictly confidential. Address Box 1287, care of PAPER.

MISCELLANEOUS

WANTED—A paper company to locate a large pulp and papermaking plant in North Carolina, with a million cords of pulp wood deliverable at the plant at $3.75 a cord, a saving of $20,000,000. Lands for plants, **fronting deep water for deep sea** loading. Millions more cords of wood available very cheap. A clear stream of fresh water free for washing pulp. Address Box 245, care of PAPER, 1478 Broadway, New York City.

FOR SALE

Beaters—One N & W 48x48 rolls, 21"-6". Two iron tub rolls 52"x40".

Bed Plates—Large lot, all sizes. New.

Calenders—One 7 roll 72"; one 9 roll 72"; one 5 roll 78"; one 7 roll open side 84". One 7 roll 124".

Calender Rolls—Large assortment, all sizes; one 14x86"; one 18x84"; one 18x100" and many others.

Coaters—One 45" Waldron, double coater, and others.

Cutters—One 38" Guillotine.

Cylinder Moulds—One 36"72"; one 30"x52"; one 12"x22".

Drives—One No. 1 Reeves Class E; two No. 3 Reeves Class E, 4 to 1; one No. 3 Class E; one No. 6 Large Reeves; one No. 10 Reeves, F-3 to 1 with extra disc.

Dryers—48x116.

Exhausters—One Sturtevant.

Fans—3 Hunberry; 2 Perkins.

Jordans—One N & W Monarch, with new shell two Horne; two Emerson, large size, one base; one N & W Pony, with extra plug.

Pulleys—One 98"x34" face, double arm, modern, Iron pulleys; Cone pulleys for Marshall Drives.

Pumps—One dry suction Knowles 12x22x18; one 1000 gal. Blake Tank pump; two Lawrence Mch. Co.'s Class A 8" high duty; two 6" Emerson make; one 4" Centrifugal; one Type 4 Gould 5" triplex, self contained. Two Lawrence Machine Co.'s Class A, No. 4, double suction pump for high elevation or for low speed. Thoroughly rebuilt and ready for shipment.

Press Rolls—One pair new, one RC 18x80"; one Gun metal 18x81"; one 16x75"; one RC 15½x73½".

Rag Cutters—Two No. 2 Daniels; one Perkins.

Screens—4-8 pl. New Success.

Slitters—One 86" P & J.

Winders—One 86" P & J; one 100" P & J; one 112" M & W.

Wet Machines—One N & W with cut offs, mould 30x52"; two spare moulds.

One set Dillion Doctors for 80" calender rolls.

MILLS MACHINE COMPANY
Lawrence. Mass., U. S. A.

THE CLEARING HOUSE—Continued

MISCELLANEOUS

REPRESENTATION is solicited of responsible mill which seeks to sell paper or pulp in this country. Considerable experience and success enjoyed in the industry. Age 34; university training and well connected. Will share expense of a trip to home office of mill interested in interview. Address Box 1289, care of PAPER.

EXPERIENCED publicity and advertising man who can make paper carry any desired message of interest to the promoter, for any legitimate business or its expansion for greater profit, is open for engagement. Address H. C. Beatty, Box 58, Wilkinsburg, Penn.

Pulp and Paper Men Behind Bill

(Continued from page 5)

States in 1923 over 95 percent was made wholly or in part from wood.

"The paper industry, appreciating the great necessity for a Federal Forest Policy which will provide for adequate forest protection, management and reforestation, urges favorable action by Congress upon the Clarke bill because——

"1—The United States needs a definite and constructive forest program. This bill provides for such a program.

"2—No state of the Union has an adequate forest fire prevention system. This bill provides for a co-operative development of effective state and federal forest fire organization.

"3—The forests of the United States are being cut at least four times as rapidly as they are being replaced by natural growth or artificial reforestation. This bill would make possible commercial reforestation by the states, by the wood-using industries and by individuals.

"4—Excessive and confiscatory taxation of forest lands prevents the holding of forest or cut-over lands for successive growths of timber. This bill provides for a development of a rational system of forest taxation.

"5—The nation lacks adequate national forests to insure a perpetual supply of timber and other forest products. This bill provides for an extension of public forest ownership.

"While the Paper Industry in the United States is using only approximately 4 per cent of the annual cut of wood in the United States, yet, as a wood-using industry, it is facing the immediate and serious problem of

"The Paper Industry of the United States approves the Clarke bill and urges very early action upon the bill by Congress."

* * *

Visited Interior Minister

George C. Carruthers, Toronto, president of the Canadian Pulp and Paper Association, was in Ottawa last week, as part of a delegation that waited on the Minister of the Interior on the subject of improving the Forest Products Laboratory at McGill University, Montreal, to the end that the research work of the Association may be put on a more effective basis. A number of the executives of the larger pulp and paper mills were also included in the delegation which were assured of sympathetic action by the Government.

Held For Conspiracy

Edwin R. Mosher and Maurice Deverich, members of the paper jobbing firm of E. R. Mosher & Company, formerly at 52 Vanderbilt avenue, New York, were held in $1,000 bail each last Friday for trial in Special Sessions after a hearing before Magistrate George W. Simpson in the Commercial Frauds Court on a conspiracy charge. Assistant Distict Attorney Harold H. Spellman announced that the case was considered a test of its kind and that "the result of the trial in Special Sessions would be awaited with much interest both on the part of the prosecuting authorities and business men in the State."

It was alleged that E. R. Mosher & Company over a period of three years bought paper from other firms and then sold it to the Interstate Pulp and Paper Company, by which they had been employed many years before, at prices lower than they agreed to pay for it. Assistant District Attorney brought out that the partners declared dividends and awarded each other commissions when there was a deficit and they put off creditors by refusing to show their books. In his decision Magistrate Simpson said: "The elements of the crime of conspiracy are clearly indicated in the testimony. There is a reasonable and probable cause for me to believe that the crime charged has been committed and there is sufficient cause for me to believe the defendants guilty thereof." Messrs. Mosher and Deverich did not offer any defense.

GOVERNMENT BIDS

Treasury Department,, Bureau of Engraving and Printing, Washington, D. C., March 1, 1924. Sealed proposals are invited to furnish Dextrine, Oils, Textiles, Dry Colors, Paper Boxes, Paper and Check Paper, during the fiscal year beginning July 1, 1924. The right is reserved to reject any or all bids or parts of bids. Samples of Dextrine, Oils, Textiles and Dry Colors must be received at the Bureau of Engraving and Printing not later than 2 P.M., Wednesday April 9, 1924. Samples of Paper Box Blanks, Paper and Check Paper, must be received not later than 2 P.M. Monday, April 7, 1924. Blank forms with specifications for proposals, giving dates on which the bids for the several schedules will be opened, and further information will be furnished on application to Paul E. Twyman, Assistant Director.

TREASURY DEPARTMENT, Office of the Secretary, Washington, D. C., March 15, 1924. Sealed proposals will be received at this office until 11 o'clock a. m., Wednesday, April 16, 1924, from manufacturers of bond, bank-note and other fine papers for furnishing bank-note paper of the highest quality containing the distinctive feature now in use by the Department, for the printing of United States currency and public debt securities, national and Federal reserve bank-notes, Federal reserve notes, etc., for the fiscal year beginning July 1, 1924. Blank forms for submitting proposals, with specifications and further information will be furnished manufacturers who intend to bid upon application to this office, where samples of the paper required may be examined. A. W. MELLON, Secretary of the Treasury.

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is one reason for the rapidly growing popularity of the Hotel Martinique.
Another is the consistent economy of the entire establishment. Here you may enjoy a Club Breakfast at 45c., consisting of Fruit or Cereal, Bacon and Egg, and Rolls and Coffee—Special Luncheon and Dinners of superior quality are also served at the most moderate possible prices.
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and Engineer

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Volume XXXIII, No. 25

PAPER

The Magazine of the Paper Industry

April 10, 1924

THOMAS J. KEENAN, F.C.S., Editor

RUSSELL C. HUGHES, Publisher

ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

IT is Paper Week. The world revolves around paper. Everybody is talking paper. The manufacturers of paper are commingling in a happy mixture of business and pleasure. The serious problems of the year are merged into the joys of good fellowship; sociability is intertwined with business.

* * *

In the Grand Central Palace throngs are crowding about the attractive booths of the exhibitors, absorbing education, partaking of entertainment, enjoying themselves. Paper and pulp men join with laymen in the engrossing contemplation of the displays.

The Waldorf-Astoria is the Mecca of the makers of paper, large and small, important and unimportant, rich and poor. Hands are clasped in the first grip since last year. Shoulders are slapped, smiles are free and expansive. Tongues are wagging freely. Laments are few and smothered at birth. Optimism is in charge. Life is buoyant, carefree, joyful. The restraints of the year are tossed off by the perennial youths of the paper industry, as by colts. A new vision appears. In the new program of the American Paper and Pulp Association is hope, paliptant, exuberant hope. The jaded souls of the paper industry are being recharged for a new year. The bugaboo of foreign competition doesn't look quite so monstrous, the forests do not seem to shrivel quite so rapidly. And the spirit of the annual convention goes back home with the boys from all parts to accompany them through another year.

* * *

PAPER welcomes every last mother's son of the paper industry at this convention. Representatives of the magazine will be glad to see everybody at Booth 83 at the Grand Central Palace. A room will always be open for you at the Waldorf-Astoria. Do not hesitate to use either.

Indications at the opening of the week are that it will be the greatest convention in the history of the associations. Plans that verge on the revolutionary are being broached in some of the smaller associations. The industry is in a state of flux. One or two new associations are expected to spring into life during the week. There will be a reconsecration to the spirit of broad, considerate co-operation that will work to the advantage of the industry as a whole. It is a healthful sign. Realizing that all must stick together, obliterating the prejudices and petty trifles of cut-throat competition, the executives of the mills of the country come to the convention this year with a higher regard for their fellow manufacturers and a clearer conception of the duty of the industry as a whole.

* * *

The moot question is the Wise plan to combat European competition. The entire industry almost breathlessly awaits the outcome of the week.

* * *

But keep the good-fellowship uppermost. The doldrums must not have a place at the annual convention. Let joy be unleashed, but let the cold logic of business have its fair place during the week, for upon it rests the coming year's prosperity.

RUSSELL C. HUGHES,
Publisher.

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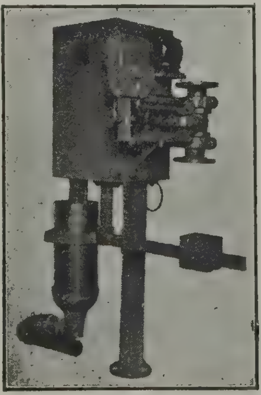

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PAPER
The Magazine of the Paper Industry

To Reorganize Financing of Association

Startling Changes Expected at this Year's Convention of American Paper and Pulp Association

RECOMMENDATIONS for a general reorganization of the methods of financing the Ameri- an Paper and Pulp Association, a roposed revision of the association's rogram of activity, and a statement hat the association is for the first time n years free of indebtedness and eady to proceed under a budget of nown income, will be an important eature of the forty-seventh annual onvention of the association, on hursday, April 10. The recommenda- ions will be made by a joint report of wo special committees which have een working for months on the fu- ure activities and financing of the entral association of the paper indus- y. The finance committee was un- er the chairmanship of Walter J. aybold, former president of the as- ociation, and the committee on activi- es and program under Norman W. Vilson, vice-president. The report ill be submitted for action at the renoon business session on Thurs- ay.

The committee completed their ork during the past week, and the ecommendations are now being put form for submittal to the associa- on membership.

While this work has been going on, e plans for the more routine events convention week have been pro- eding without interruption, and it w seems certain that there will be wards of 1,000 persons in attend- ce at the annual banquet Thursday ening.

The forenoon program of discus- ons has been completed, and the ree main groups of the industry ill be discussed by the following en:

ulp—E. W. Kiefer, Port Huron Sulphite Pulp and Paper Company.
Coarse Papers — C. R. McMillen, Union Bag and Paper Company.
Fine Papers—Charles McKernon, B. D. Rising Paper Company.

Another interesting feature of the program of the day will be the president's luncheon at noon of convention day, when seven of the eight living former presidents of the association will be the guests at a complimentary luncheon. The only missing one of the group will be E. C. Rogers, who was president from 1888 through 1889, and who feels that he can not get to New York this spring. The luncheon will be devoted to reminiscences of early days in the paper industry, as several other men who have been ong in the industry will be among the guests.

The program of convention week indicates a considerable revival of interest in American Paper and Pulp Association work by groups which have not been working closely with the central association for some time past. The Converting Paper Mills Association has closed arrangements for cooperative work with the American Paper and Pulp Association, the new Boxboard Manufacturers Association has been accepted for membership as one of the affiliated associations, and the Waxed Paper Manufacturers have scheduled a meeting which is likely to be followed by the reorganization of this group with considerable new strength added to the old time membership. The Paper Specialty Manufacturers will meet during the week, for organization, and the Bristol Board Manufacturers Association, though not affiliated with the American Paper and Pulp Association has been aided in arranging a meeting during the Paper Week.

The Gummed Paper Manufacturers Association will consider an advertising campaign for the promotion of the use of gummed tape for sealing boxes and several other groups will take up business of interest to manufacturers of various grades of paper.

Meanwhile the salesmen are preparing for a busy day on Tuesday, as the big opening event of paper week. Ticket reservations have been coming in rapidly for the dinner and smoker, already four tables of ten guests have been reserved. Chicago is sending a dozen or fifteen representatives, the Miami Valley a proportionate number, and New England will also be represented.

On Wednesday, the Woodlands Section will hold its meeting, and will have two main subjects for discussion. One will be the problem of forest fire control, and the discussions will center on how the owners of pulpwood lands can cooperate with Federal and State officials, and lumbering organizations for a joint war on the fire demon. The other subject, which will be discussed in joint session with the Technical Association will be pulpwood decay, the Woodlands Section meeting taking up this subject from the woods side, rather than from the standpoint of the mill. The discussion will involve the operations in the woods, the work which may be done by the timber cutting crews in getting out wood which is partially decayed, and the cooperation of the woodlands operations with the mill in not taking out wood which is decayed to the point where it can not economically be utilized in the mill. Speakers on this subject will refer to the laboratory side of the problem, but the woods men will be most interested in the field work and its relation to the studies, made of utilization by laboratory specialists of the Forest Products Laboratory.

Simplicity In Research

A Study of Beater Action or Effect of Beater Roll on Pulp—Control of the Variables of Beating and Measurement of its Progress by Use of Beater Drag

By **ARTHUR B. GREEN, A.B., S.B.**

Manager at Middletown, Ohio, for the Nashua Gummed & Coated Paper Company

THOSE who attended the Technical Association dinner held on Mt. Tom, near Holyoke, Mass., in the fall of 1917 will remember the delightful Scots burr of George Carruthers when he told of the two Scotsmen rowing across the lake. A storm arose, the wind blew, the rain descended, the waves began to break over the gunwales, the shore was hidden, and stalwart Scots courage began to weaken. Conscious that their attendance on church had not been such as to entitle them to much consideration from on high, they nevertheless, in final desperation, decided to pray; and they organized it so that one should row the boat while the other got on his knees as best he could under the circumstances. He was about to pledge them both to a life of devotion and piety, "If, Oh Lord, ye'll only breng us oot o' this, this ainct!"—but suddenly the man rowing looked around, and then admonished, "Hold on a wee, Sandy. Dinna commit yersel, I think I can see land!"

What a Laboratory Report Reveals

Send out to a consulting laboratory and get a report on what is the effect of the beater roll on the pulp, and you obtain a result that is at once attractive and enthralling; microscopic studies, photomicrographs, dissertations relative to the disputed points in the chemistry of cellulose, exhaustive speculations as to the nature and origin of "slime," arguments pro and con on the point of a proper scientific name for "slime"—whether it should go by the name "hydrocellulose" or "hydrated cellulose"—elaborate tracery of the evolution of the fiber from the wood or other plant, and the influence of the species on the tendency to "hydrate," discussion of the effect of sizing, loading, coloring, and the influence of alum on all these, a wonderful picture with the charm of being absolutely harmless. With the report in, there is nothing that can be done about it. That is a point of satisfaction. The mind has been greatly stimulated, and at no risk. No new duties are added either to the beater room crew or to the management. The very complexity of the report tends to give reason why things-as-they-are are about as good as can be expected. It is always something of a relief to feel that nothing more may be expected of us, and we can settle down and wait for somebody to step in and hand us control of our operations packed in a box and guaranteed or money refunded. "Dinna commit yersel', Sandy!"

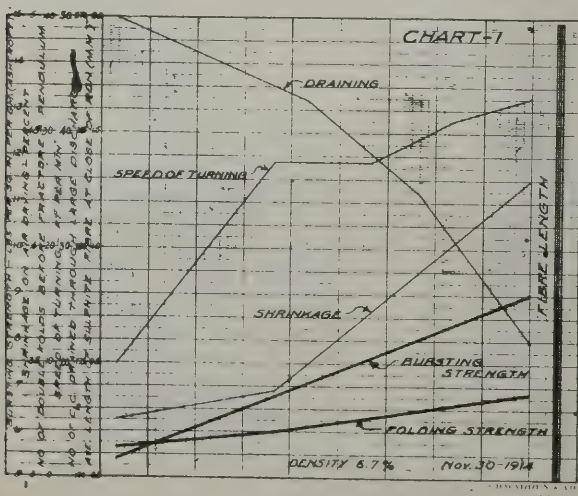
We need hardly be disappointed, however, if such attitude of mind is slow in bringing to us the coveted control of our operations. Control is in two parts:—First, control of processes, and secondly, control of men. The first is material and technical, and the second is human and moral. One without the other is scarcely worth its cost. But of the two, the greater is the human and moral side of management.

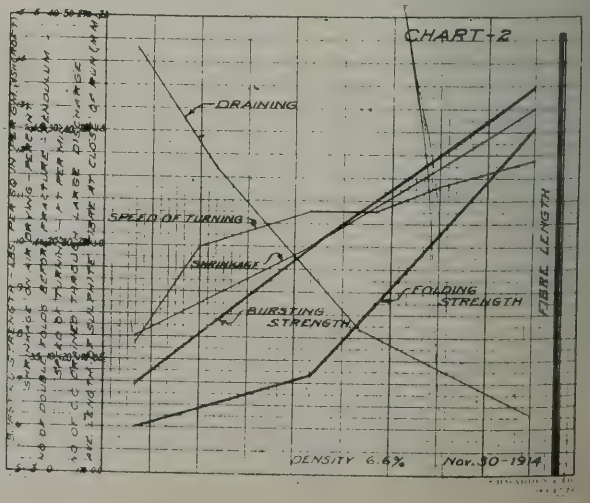
Action of the Beater

Fortunately there has been lately a revival of interest in the problem of beating. Coming at a period not marked by industrial prosperity, in which mental lethargy has been the habit and "normalcy" the watchword, special credit is due Dr. Sigurd Smith, the distinguished Danish engineer who gave the subject study, and to the Royal Society of Arts in England, who gave him their enthusiastic hearing and broadcasted his work with dignified publicity. No person who hopes for a better era in the management of paper mills can afford to neglect his book, *The Action of the Beater,* as published by the Technical Section of the Papermakers' Association of Great Britain and Ireland.

Dr. Smith's Theory of Beating

Dr. Smith's approach to the problem is from an analysis in detail of the mechanical action between beater roll, bedplate, and the fibers in the stuff. Without stating it, the assumption evidently is that all beating takes place where and when the roll flybars pass over the bars of the bedplate. Dr. Smith develops through experiment and calculation a new theory to explain this action, and on this theory has based a method of working up the design of the beating engine. It is indeed a refreshing accomplishment, for paper manufacturers have been intermittently stormed for years by persons who had new designs of beating equipment to sell, which had been developed wholly out of hand, as the result of a "hunch," without any backing in analysis or calculation, and such salesmen have proverbially been bold if not foolhardy in their promises of what could be done with their innovations. As against the many thousands of dollars that have been spent unwisely on beaters that had been actually built and sold before any engineering knowledge had been developed about them, there is much to be said for the work of an engineer such





as Dr. Sigurd Smith, who shows the possibilities that lie in the problem for engineering.

Lack of Data to Determine Speed of Roll

A great paper mill of long standing, which had grown piecemeal from small beginnings, contained no less than five different types of beating equipment, all of which were employed for similar work, and the management had no data on which to determine the right speed of roll for any of them. As for the rest of the information that should be summed up in an intelligent design of beaters, they knew certainly as little. And that was typical of mills everywhere, in this country and abroad, ten years ago. The shame is that engineering development in other fields has not penetrated more into this field, and that what was typical of mills ten years ago is still typical today.

Ten years ago, in the mill referred to, as a result of some engineering work done by methods now about to be described, the most advantageous roll speed for one of these types of beaters was found to be radically different from the speed recommended by the builder. When that speed had been found and applied, a net saving of $60 a day was made on a single paper machine. The mill housed eleven other machines, and the cost for research did not exceed $700. That was a single by-product of an effort to control the operation of beating. The entire cost of that effort could have been charged against this one advantage, and a profit shown of several hundred percent even if no control of beating had been gained. Such are the opportunities. Consider also, in passing, that the factor of roll speed is only one of the many factors that must be accounted for in preparing the design for a beater for a given class of service. This multiplies the opportunities.

Where Beating Action Takes Place

The assumption that all beating action takes place where and when the roll flybars pass over the bars of the bedplate does not find easy support. From that point of view, the tub is only a means of returning the stuff to the roll and bedplate. Multiple rolls would increase the beating capacity in direct ratio with the number of rolls and bedplates. Carrying the reasoning one step further, the ideal beater, if this assumption were true, would be a series of elements performing the work of roll and bedplate together with means of passing the stuff from one to the other by gravity, so that the travel from one element to the next would be as short as possible.

This has been tried numerous times. It is a speculation to which the mind naturally reverts. Yet it has never been possible to set up by such means the same action that takes place where the beater tub is employed and the stuff comes repeatedly around under the roll. This is particularly evident where fine papers are made. Difficult as it may be to describe it, the tub seems to have a function.

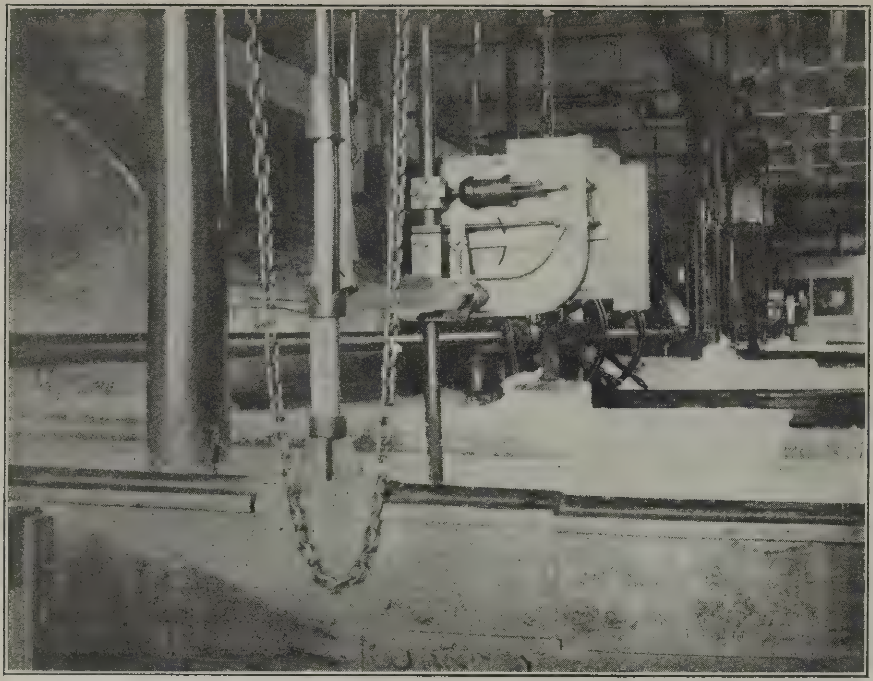
Charts That Show Beating Action

Moreover, if this theory were true, then it must follow that the papermaking characteristics of the fibers would be expressed by the nature and extent of the damage done to them in beating. Fibers from a given pulp which had been much shortened, for example, must be found to possess certain papermaking characteristics distinguishing them from other fibers from the same pulp that had been shortened less. On the other hand, fibers which come out of the beating process at about the same average length should not be expected to show radically different properties. Some interest, therefore, attaches to the accompanying charts, taken from experiments made by the writer in 1914. Methods had then been fairly developed for expressing the papermaking characteristics of a batch of stuff under treatment in the beater, independently of the subsequent action of Jordan or paper machine, and the curves shown on Chart 1 and Chart 2 represent the changes that took place in shrinkage, bursting strength, and folding strength, during the period of beating and prior to the addition of alum. The curve marked "Draining" represents a measurement of slowness by the Schopper-Riegler principle. At the right of each chart is seen drawn to scale the average fiber length after beating. Both runs were made on the same day, with the same furnish, and the density of furnish was the same within one-tenth of one percent. These charts were published in PAPER in the Annaul Convention Number, February 23, 1916.

The roll action in these two runs was radically different. So different was it, that although the roll speed was the same and the density of furnish almost identical, yet even the speed of turning in the beater (speed of travel might have been a better term) was much different, though starting from the same point in each run. One run gave a greater development of strength, a less speed of travel, and a distinctly slower stuff (Chart 2), whereas the average fiber length at the end of the run was 1.93 mm. as compared with an average fiber length at the end of the other run (Chart 1) of 1.98 mm. Not what could be termed a significant difference in fiber length. The two runs represent radically different grades of paper with apparently little difference in the extent of actual physical damage to the individual fibers.

TAKING A DRAG READING

Each beater is visited once every twenty minutes and the actual reading is compared with the prescribed. The beater roll is then adjusted in accordance with this comparison



BEATER DRAG IN WORKING POSITION

Another case similar in character is to be found in Volume II, page 8, of the Proceedings of the Cumberland Institute for Paper Perfection, a now abandoned organization of men at the Cumberland Mills works of the S. D. Warren Company. For a few years very interesting gatherings were held for the exchange of thought and experience in the making and selling of high grade book papers. The question before the house on the evening of September 19, 1913, was, "How important is it to the formation of the sheet to shorten the fibers?"

Long Fibers and Soft Sheets

A certain grade of cover paper was running over one of the machines on a day previous to that meeting. The sheet was too "soft," in the judgment of the superintendent. His diagnosis was that the stuff was too "long," and he gave orders to set up the Jordan and shorten it. As a result the sheet was rendered "harder." It went together better on the wire. The superintendent had accomplished what he intended. Samples of the paper made before and after this "shortening" of the fibers were brought to the gathering, and all correctly agreed, after examining them in code, which was the "soft" sheet and which the "hard." Samples were also prepared for the microscope from the stuff as it passed from the Jordan, some taken before the "shortening" and some after. These were numbered in code and thrown on a screen by a projecting lantern so that all present could see. The gathering comprised practically everyone in that large organization who was competent to have expert opinion on papermaking matters. They were to choose which slides represented the "long-fibered" stuff, and which the "short-fibered." They agreed that there was small choice, but after long and careful consideration they finally chose for the "long-fibered" stuff the sample that had been taken subsequent to the "shortening."

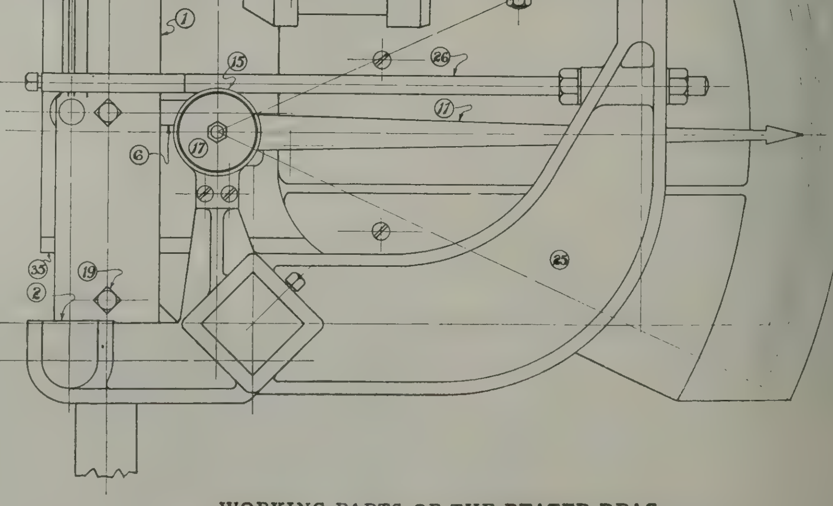
Determining Conditions in the Control of Beating

Generalizing from data such as this must be done with regard to the classes of fiber in question. In older times, and even now, when rags and other long-fibered stuffs are used, certainly some shortening of the individual fibers had to be accomplished in order to make paper at all; hence the tradition which draws contrasts between long and short stuff. Not so, however, with chemical woodpulps, or groundwood. In this class of pulps the individual fibers are short enough to form into any grade of paper without being further shortened by beater action and as we have seen, the conditions which determine the papermaking characteristics of the stuff are in this class of pulps other than conditions of fiber dimension. It is the study of these determining conditions that may lead to control over the variables of beating.

Attributes of Paper

Now, there is a choice in line of attack. We may plunge headlong into the maze of analytical chemistry, dealing with the more or less vague changes and reactions that go on during beating, or into the equally baffling maze of analytical physics, dealing with the unseen minutiae of the separate fibers during their career under the action of roll, bedplate, and tub; and in both these cases, after the plunge, we have become blinded to the very objects for which beating is carried on. I think that most studies of the problem have been undertaken in one or the other of these wrong and impractical ways.

The object of beating is to accomplish certain results which are manifest in the final product, the paper. Paper is a fabric made and used because of fairly simple physical attributes, as e. g. thinness, smoothness, color, resistance to moisture, bursting strength, folding



WORKING PARTS OF THE BEATER DRAG

(2) Main Bearing
(17) Indicator Bearing
(6) Connecting Bar
(11) Indicator
(28) Spring Housing
(38) Automatic Recorder Housing

endurance, tearing strength, freedom from curl, opacity, and the like. These are physical properties. Paper is a physical product, no less than wood, steel, or glass. We have our problem then in two parts. On one side lie the complexities and mysteries of the beating operation, and on the other lie the simple requirements paper is made to fulfill. *When we have found the relation between the two, we have a practical solution of the problem of control of beating.*

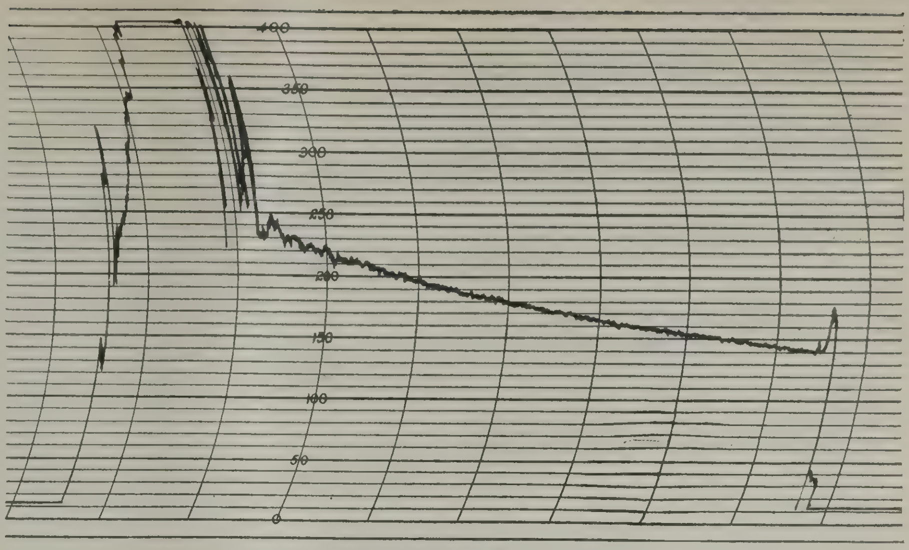
Instead of plunging into the beater, then, and getting involved between the roll bars and the bedplate, the first step is rather to define and measure these physical attributes of paper. The logic and practicality of this seemed perfectly obvious to us when we launched out on the problem twelve or thirteen years ago, though so far as I know there has been no other study of the subject made in this way either before or since.

Tools for Measuring Action of the Beater

The first tool needed is something by which to make a sheet of paper from a sample that may be taken from the beater at any time, embodying the essentials of the paper machine, but free from the variables of the paper machine and independent of human error. To fill this need the standard pulp sheet mould was developed. Round sheets can be made by its aid containing a predetermined weight of pulp, formed with uniform thickness under a uniform suction, removed from the mesh without the pressure of couching, and dried under uniform conditions.

Curves that Show Changes in Pulp During Beater Action

Next come means for testing these sheets. Tests of bursting strength, tensile strength, and shrinkage, were either already developed or quite obvious at that time. We had to develop a test for sizing effect, and for folding endurance. The Schopper folding tester could not be adapted to pulp sheets. Tearing strength is an important property of paper that we did not succeed in devising a test for, and the Elmendorf had not then been offered. By taking suitable samples from the beater, then, and forming them into standard pulp sheets, and making tests such as these on the sheets, we could make curves showing the development of papermaking qualities in the pulp throughout the process of beating. Charts 1 and 2 are early examples of such curves. We referred to them as composite moving pictures of the changes in papermaking characteristics going on in the mass of pulp while the beating action is taking place. Such curves are quite necessary to a study of beating from a papermaking standpoint.



A TYPICAL BEATER DRAG CURVE

Tests for Free and Slow Pulp

Finally, there is the question of freeness, or slowness. This, too, is a physical property, but it does not exist in the paper. It is a property of the stuff determining in important respects the kind of paper that can be formed, and the speed at which it will form. We had to develop a test for slowness. The curve of slowness through a run in a beater is of great interest and importance.

The final result of the effort to obtain a reliable and speedy determination of the slowness of paper stock is described in *Paper Trade Journal* for March 13, 1924, page 51. The apparatus has been improved over the design with which we performed our original researches into the laws governing the beating process, and the articles referred to aims to set forth the improved and standardized design.

Up to this point, then, we had provided ourselves with measurements of the *papermaking characteristics* of pulps. Recognizing the physical nature of paper, we had then at our command methods and means of measuring many of the physical characteristics that would exist in paper if made from a given pulp at a given time. Periodic samples of pulp taken while it was undergoing any kind of change, studied with the aid of these new means of measurement, could be made to show what the changes taking place actually were, from the *papermaking standpoint;* and not only could the nature of such changes be faithfully pictured, but the degree, or rapidity, of the changes could be charted. Armed with this power, we were able to express with accuracy, and with considerable adequacy, the effect of any beater treatment *in its practical bearing on the paper to be made.*

Problem of Roll Bar and Bedplate

The problem of dissecting the action of roll bars and bedplates and the like was the second step, not the first. Before we could evaluate any of the elements of beater action, we had to be able to show *how they would result in the paper to be made.* But in this second step in the work there is also a choice between two general lines of approach, one blind and complex, and the other straight forward and simple. The first of these would be to bring to the beater at once the extremely refined methods of the detached laboratory, by launching out on a study of fibers under the microscope, or on a mathematical treatment of the flybar action, or on a chemical treatment of the initial stuffs and changes that occur, or on more or less of a combination of these. With the power to evaluate such discoveries as these lines of investigation would yield in relation to the *paper to be made,* such involved studies would no doubt be far from hopeless; yet it seems the part of better judgment before getting entangled in complicated prospecting to exhaust first the simpler changes that take place in the stuff, such as have been observed every day in every mill by every beaterman since beaters have been used. What do these things indicate about the character of the *paper to be made?*

Applying the New Means of Measurement

Now, the hardihood of any reader who has stuck with us thus far deserves some reward, and the various steps by which we utilized the homely observations that practical beatermen make about the behavior of stuff will not be detailed again here. They will be found in the Annual Convention Number of PAPER, February 14, 1917, under the title, "Management of the Beater Room." Suffice it to say here that we applied our new means of measurement repeatedly to the stuff under different conditions and with relation to different known facts, diligently for three years, and were fortunate in bringing out of it a law underlying the action of the beater. The law, of course, was not new. Beatermen had been applying that law more or less well for many years, when they felt of the stuff with their hands. But to have the law in specific form was new, and rendered it possible to control with accuracy the action of the beater.

The kind of changes that take place in the stuff, and the extent to which they take place, can be predetermined and governed by measuring the changes also taking place in the surface friction and the internal friction of the stuff in the beater. Obtain measurements of these two frictions. Throw up these measurements in the form of a curve. Every time that this curve is duplicated in form and duration, using the same furnish to the beater, the papermaking characteristics of the stuff will be accurately duplicated.

The Author's Beater Drag

On this law as a basis the Beater Drag was designed. This appliance fits the conditions under which stuff is beaten in the book paper mills of the S. D. Warren Company. It will not fit all conditions, for the law upon which it was designed always applies. The illustrations show it in use. The curve reproduced herewith is a typical curve drawn from the practice at Cumberland Mills, an actual curve made by the automatic recording attachment of the Beater Drag. It is by the duplication of such a curve as this that stuff of uniform papermaking characteristics can be made.

In final result, we had come upon a fundamental law. We had applied that law to the process. As it turned out, our appliance was in effect an accurate, continuous, self-recording, way of *feeling of the stuff*, and that has been the method of judgment used by skilled beatermen one generation after another. As soon as beatermen came to know this, they liked the new way of beating. We had kept our methods and our thoughts simple; we came out with a simple result. That result, I will venture to say, is nevertheless so fundamental to the problem with which we started, that any investigator who may choose to neglect it, will, if he persists to the end, necessarily rediscover it. The comparatively short time required to arrive at this fundamental law, and the fact that the entire cost could be charged against a single by-product of our work and leave a profit of from 100 percent to 300 percent or more, according to the size of the mill, are due solely, in my judgment, to *simplicity in research.*

LESS PAPER MADE IN FEBRUARY

Monthly Statistical Summary Shows 3 Per Cent Decrease Report Says

PRODUCTION of paper by identical mills reporting to the American Paper and Pulp Association and cooperating organizations showed a decrease of 3 percent in February from the January production, according to the monthly statistical summary of the paper and pulp industry.

The tonnage summary is prepared by the American Paper and Pulp Association with the cooperation of the Binders Board Manufacturers Association, News Print Service Bureau, Tissue Paper Manufacturers Association, Wrapping Paper Manufacturers Service Bureau and Writing Paper Manufacturers Association. The figures for February are as follows:

Grade	Number of Mills	Production Net Tons	Shipments Net Tons	Stocks on Hand End of Month Net Tons
Newsprint	68	117,322	115,427	30,288
Book	51	68,298	72,183	33,592
Paperboard	108	110,110	109,556	35,072
Wrapping	89	50,537	51,762	57,761
Bag	26	9,346	9,617	5,829
Fine	83	25,595	25,674	38,644
Tissue	45	10,097	10,255	7,082
Hanging	9	4,451	3,961	2,444
Felts	18	9,763	9,880	1,154
Other Grades	62	17,970	20,266	14,134
Total—All Grades		423,489	428,581	226,000

The statistical table below gives the number of mills reporting to the American Paper and Pulp Association and the U. S. Pulp Producers Association, and the data as to production of the various grades of pulp in February.

Grade	Number of Mills	Production Net Tons	Shipments Net Tons	Stocks on Hand End of Month Net Tons
Groundwood pulp	102	93,415	4,869	88,617
Sulphite, News Grade..	38	40,901	3,276	18,107
Sulphite, Bleached	19	18,866	2,320	3,581
Sulphite, Easy Bleaching	6	5,866	732	1,511
Sulphite, Mitscherlich ..	6	5,287	301	1,115
Sulphate Pulp	12	12,978	2,427	6,642
Soda Pulp	11	13,928	4,156	2,595
Other than Woodpulp..	2	127	80	23
Total—All Grades		191,368	18,161	122,191

Fourth Annual Meeting

The Fourth Annual Meeting of the Woodlands Section of the American Paper and Pulp Association, will be held at the Waldorf-Astoria Hotel in New York on April 9th.

The program of this meeting is as follows:

MORNING SESSION

Chairman's Welcome to Members and Guests
C. W. Hurtubis, Hammermill Paper Co.
Secretary-Treasurer's Report
O. M. Porter, American Paper and Pulp Association.
The Northeastern Forest Experiment Station
S. T. Dana, Director.
Forest Organization for Fire Control
Major E. W. Kelley, U. S. Forest Service.
Pulpwood Supplies—Can a Paper Company Afford to Spend Money on its Timberlands to Insure Increased Production?
H. B. Shepard, Consulting Forester.

AFTERNOON SESSION

Joint Meeting with the Technical Association
Elimination of Waste and the Reduction of Logging Operation Costs
E. S. Bryant, Consulting Forester.
Pulpwood Decay
John Rue, U. S. Forest Products Laboratory.
John E. Alexander, Nekoosa-Edwards Paper Co.
Commercial Reforestation
Prof. S. N. Spring, Cornell University.
A film, "Bare Acres," New York State Conservation Commission.

* * *

Simplified Practice Recommendation

In accordance with the action of a general conference of representatives of manufacturers, distributors and users of paper, which met at the Bureau of Standards in Washington on June 19, 1923, the Department of Commerce recommends that the sizes of paper and their doubles, listed below, shall be recognized standards; and further, that all paper substance weights shall be stated in terms of the basic 25" x 40" size. This recommendation is to become effective July 1, 1924, and is to be subject to regular annual review by the industry with such yearly revision as may be shown to be desirable by experience and the investigation of the standing committee of the industry.

STOCK SIZES

General Printing and Publishing

26 x 29 inches—29 x 52 inches
25 x 38 " —38 x 50 "
32 x 44 " —44 x 64 "
35 x 45½ "
37 x 49 "

STOCK SIZES

Forms and Letterheads
(bonds, ledgers & writing papers)

17 x 22 inches—22 x 34 inches
17 x 28 " —28 x 34 "
19 x 24 " —24 x 38 "

Book Publishers

30½ x 41 inches—41 x 61 inches

Rapid Analysis of Paper

Factors That Influence Character of Paper in the Beating Process—Art of the Beaterman Gained by Long Experience and His Work Can Not ge Taylorized—How to Determine the Degree of Sizing in Paper—Tests for Rosin in Paper Fibers

This is the third installment of a series of articles translated from *Le Moniteur de la Papeterie Francaise* which aims to give paper manufacturers easily applied methods for determining the constituents of a paper sample for purposes of duplication. From a study of the articles, manufacturers will know what to expect from their mill chemists when they are called upon to analyze a paper sample so that the information may be supplied to the superintendent in order that he may be in a position to duplicate the paper in the mill. In the present installment, the technic of beating is considered, credit being given to the beaterman for a special knowledge of beating conditions and the perfection of the process, which can only come from long experience. It also takes up a study of sizing with regard to tests for efficiency and the qualitative determination of rosin in paper.

AT the start of this series of articles on the complete analysis of paper (see PAPER for Dec. 6, 1923), it was stated that in order to afford complete and useful information regarding the paper an analysis must be relative or comparative in character. In this determination, that is, of the degree of beating to which the pulp has been subjected, it will be demonstrated that this manner of procedure in paper analysis is an essential thing. The paper chemist has no other course to follow.

Beating Is an Art

There is an axiom current in the paper field which every mill superintendent is understood to follow. This reads, "Paper is made in the beater." Pulps of entirely different qualities and properties can be obtained from exactly the same raw materials which are worked up in the beater under different conditions. The expert beaterman is a worker who is much sought after, for his experience is wide and considerable. It is an error, however, to suppose that it is possible to Taylorize the functions of the beaterman, so as to deprive him of all initiative, as is sometimes attempted in paper mills.

The author is aware of the advantages of using certain characteristic and interesting figures to control the operation, but, as he says, the factors that are involved in the beating process are so complex and so numerous that this is not practical. Thus, in addition to the composition of the pulp, the heat allowed to be developed in the beating operation, degree of dilution of the pulp and similar conditions, it is also necessary to take into consideration the number and the structure of the beater roll bars as well as of the bedplate bars. Hence the matter is greatly complicated and it is highly impracticable if not altogether impossible to define the exact conditions for the production of one grade of pulp or another in figures. The whole matter rests with the operator who is in charge of the beater who by feeling and testing the pulp between his fingers as well as from its general appearance can tell whether or not it has reached the desired condition and can be discharged from the beater. The technic of the beaterman is empirical and a matter of experience.

To reduce the beaterman's art to mathematical figures would be like the layman trying to make a sauce by mixing the various ingredients together without possessing the requisite knowledge of a master chef. The sauce, just like the paper, would be of little value. The paper would break, the paper web would be too loose or too tight, and for all that it would have been made in accordance with exact theoretical conditions.

What the Papermaker Must Know

Hence as far as the papermaker is concerned, it is not of importance for him to know that Paper A is composed of fibers whose average length is a few tenths of a millimeter. This information does not afford the papermaker, who may know nothing about the average length of fibers in his papers and care less about it, any information on which he can compare the paper sample that he is asked to reproduce with the product he makes. On the other hand what is useful knowledge to him is to tell him, for example, that Paper A, which it is desired to reproduce, is the same for all practical purposes as Paper B; that the fibers are a little more cut up in the beating operation and that the pulp from which A is made is a little slower, which indicates that the beating has been prolonged for a somewhat longer period of time. The papermaker then knows just what beater can be employed to mke pulp which will give a paper like A and he advises the beaterman on the few simple modifications that he must carry out in the progress of the beating operation to obtain a pulp like the one from which paper sample A was made.

The study of the effect of beating on the quality of the paper is something that does not fall within the scope of analytical work. It is a more practical matter. Hence the author will simply limit himself to a short description of the influence of the degree of beating on the strength, the feel and the thickness of the paper.

The Effects of Degree of Beating

The different kinds of beating may be classified in the following manner.

1. Long fiber pulp, free
 fibers very slightly injured.
2. Short fiber pulp, free
 fibers cut, slightly injured.
3. Long fiber pulp, slow
 fibers slightly cut and well beaten.
4. Short fiber pulp, slow
 fibers very much cut up and hydrated.

From the didactic point of view this classification is complete, but it is not so from the practical standpoint. There are many grades of pulp which lie in between the four classes named above and many terms peculiar to the paper industry are required to distinguish between the different grades.

The papermaker is primarily concerned with the length of time that he will have to spend on beating process in order to be able to make a paper of desired qualities from the pulp that he obtained from the beaters. It is the opinion of the author that a photomicrograph may before and after the beating process is concluded enable the papermaker to see whether or not the process has been carried out under proper conditions. It affords him a check on the efficiency of the beaterroom and of the skill and attention which his beatermen are giving this important step in the papermaking process.

Determination of the Sizing in Paper

The author recalls to readers the statement made at the outset of this series of articles. At that time he stated that the series would not form an encyclopedic study of all methods of analysis and every detail of manipulation. This he would leave to the compilers of special works on the subject.

The author has approached the subject from a different point of view. He has worked along the lines of criticizing the various analytical methods that are in common use, so as to give the reader an idea of their value based on the experience which the author has had with them In working toward this end the author has been able to eliminate from use in his laboratories methods that are not considered sufficiently accurate or reliable for practical purposes.

The Degree of Sizing Quality

There have been many methods proposed for determining the degree of sizing or of the sizing quality of paper. Unfortunately these methods are governed by so many different conditions and factors that it is impossible to view them in any light but that of limited applicability and reliability. The interpretation of results to a great extent depends on the experimenter and analyst as well as on the materials used. From such a condition of affairs the expected result is a series of continuous and numerous contests beteween the manufacturers and purchasers of the sized paper as to whether a proper quality of paper was being sold to them.

One such method is mentioned here just for the mere purpose of bringing it to the attention of the reader. That method consists in drawing ink lines with a pen or some other suitable means on the paper and then observing the way in which the ink penetrates into the paper. The conclusions which are commonly drawn from this method are generally quite vague, and under any and all conditions they afford the manufacturer aboslutely no information at all regarding the proportion of sizing material that is incorporated with the paper.

The same is true of the method devised by Schluttig and Neumann. As is known this method consists of causing a chemical reaction between a solution of ferric chloride and a solution of tannin to take place through the paper. This method is of some value in controlling the sizing quality of a paper or different papers manufactured in one and the same mill. It makes it possible for the papermaker to tell whether or not the paper that he is making is being sized homogeneously.

Nature of the Ink Used in This Test Is Important

But all these tests are controlled to a greater or less extent by the character of the ink employed. They are also affected by the degree of gloss possessed by the paper surface and last but not least they depend on the personal equation of the experimenter and analyst. Nevertheless in order to make a rapid test of the sizing quality of a paper, to verify whether it has been sufficiently sized, the author prefers the pen and ink test.

It appears to us to be more interesting and more advisable for the papermaker to take as a basis the following definition:

The degree of sizing in a paper is a function of the nature and the quantity of the sizing materials that are contained in the paper, on the assumption that the conditions of good manufacturing practice have been faithfully carried out.

Determination of the Rosin Content of Paper

The first matter that demands attention under this general heading is the making of qualitative tests to determine the presence of rosin in the paper.

The first test employs ether and is carried out in the following manner: A drop of sulphuric ether is allowed to fall on a paper sample by means of a small pipette. The drop of ether is allowed to evaporate from the surface of the paper and another drop is permitted to fall on the same spot from which the first drop evaporated. If the paper has been sized with rosin a ring is formed around the spot which has been softened by the liquid.

If the quantity of rosin that has been precipitated on the paper fibers is very small, this test will not be sufficiently characteristic and one of the two following methods should be used in place of the ether test.

Phenol-Bromine Method

Two solutions are employed in this method.

The first solution is made by dissolving half a grain of phenol in two cubic centimeters of carbon tetrachloride. The second solution is made by dissolving one cubic centimeter of bromine in four centimeters of carbon tetrachloride.

A drop of the first solution is placed on the paper sample that is being tested. This is best done with the aid of an ordinary glass stirring rod. Then the paper with the drop of phenol solution on it is immediately exposed to the second solution which may be contained in an ordinary evaporating dish or crucible. If rosin is present in the paper sample a dull blue coloration will be developed at the point where the paper has been impregnated with the phenol. The color formed is quite fugitive and will disappear in a few minutes.

The Acetic Anhydride Method

The third method that may be employed to determine whether or not the paper has been sized with rosin is described below.

A sample of the paper that is being analyzed is torn into small pieces and introduced into a conical flask in which there has been placed a few cubic centimeters of carbon tetrachloride. The flask is placed on a hot air bath and brought to the boiling point. Then about two to three cubic centimeters of the liquor is decanted into a test-tube. Then half a cubic centimeter of acetic anhydride is added. Then concentrated sulphuric acid is allowed to run down the walls of the test-tube drop by drop until it comes in contact with the solution. When rosin has been used in sizing the paper, a beautiful reddish violet coloration will be produced on contact between the sulphuric acid and the liquid in the test-tube.

If the proportion of rosin employed in sizing the paper has been small, a rose colored ring will be formed at the surface of contact of the concentrated sulphuric acid and the liquid in the test-tube. In both cases the coloration that is produced, in the former case all throughout the solution, and in the latter case just as a ring at the surface of contact, soon disappears and in its place a greenish yellow shade develops.

The author has found this qualitative test for the presence of rosin as a sizing material in paper always to give him good results and it is particularly recommended to the reader.

* * *

Program of Woodlands Section

In announcing the Woodlands Section meeting, Secretary Baker points out that these meetings have always been well attended, because the programs have been both interesting and instructive. This year's program is to be no exception, as will be noted by the program. The following papers will be discussed:

1—Forest Organization for Fire Control, by Major E. W. Kelley, U. S. Forest Service.
Major Kelley will discuss practical methods of keeping out and putting out forest fires.

2—Forest Management for Pulpwood Production, by H. B. Shepard, consulting forester.
This is quite a different story from reforestation. *You* get the profit of your investment in fifteen or twenty years, not someone else in eighty or a hundred years. This is worth looking into.

3—Pulpwood Decay, by J. D. Rue, U. S. Forest Products Laboratory.
The facts as developed by a careful, scientific investigation, with the means of applying them in the woods to increase the output of pulp per acre and cut down operating expenses.

The morning session of the Woodlands Section meeting will be held in Room 115, Waldorf-Astoria, Wednesday, April 9. The afternoon session will be a joint meeting with the Technical Association in the Myrtle Room, Waldorf-Astoria.

Bleach Liquors From Liquid Chlorine

Importance of the Unit Principle in Their Preparation Pointed Out by Recognized Authority

By J. H. MacMAHON
*Technical Representative,
The Mathieson Alkali Works, Inc.*

THE rapid progress which liquid chlorine has made in the pulp and paper industry since it was first introduced into this important field some three or four years ago is attributable to the marked economy and the many advantages it has shown over bleaching powder.

During 1923 there has been a notable increase in the production of liquid chlorine in this country until it has now reached a figure approximating 34,000 tons a year, the equivalent of 100,000 tons of bleaching powder, of which quantity nearly 85 per cent. is consumed in the pulp and paper industry. The increased interest manifested in its use by all engaged in bleaching operations, would indicate that it will be but a short time before liquid chlorine will supplant bleaching powder, not alone in the paper industry, but in other industries where this old-time commodity has long been used.

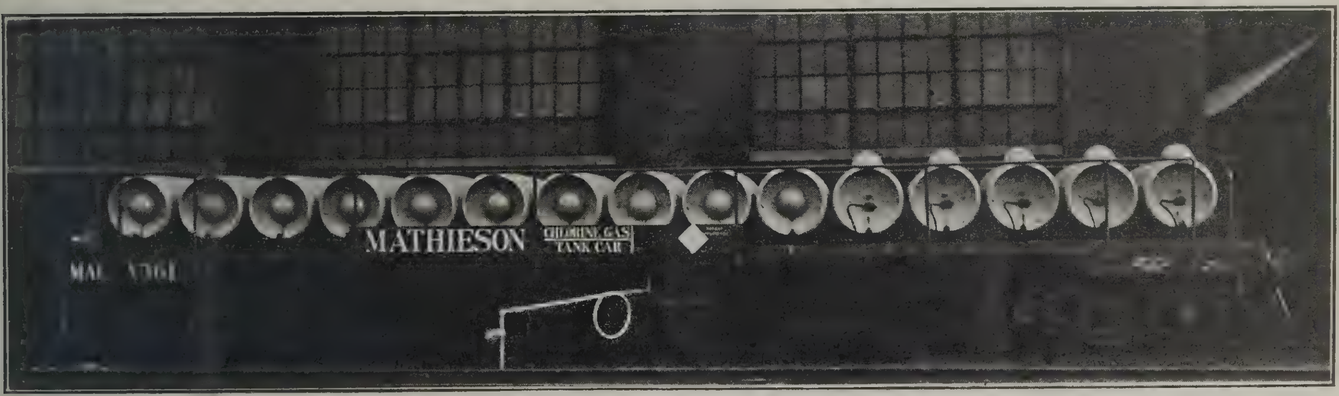


Figure 1

In keeping with this great increase in the consumption of liquid chlorine, progressive manufacturers of the commodity have made every effort to develop new and improved methods for the preparation of bleach liquors. Foremost among these is the Mathieson System, conceived and developed by the technical staff of the Mathieson Alkali Works, at the present time the largest producers of liquid chlorine in the world. Two important principles form the basis of the Mathieson System: (1) the use of predetermined quantities of all materials, weighed with absolute accuracy, and (2) the utilization of the latent heat of vaporization of the liquid chlorine to counteract the heat of reaction of the chlorine with the lime.

Preparing Bleach Liquor

In the preparation of bleach liquors from liquid chlorine it is essential that certain conditions be strictly observed if efficient and economical results are to be obtained. The avoidance of over-chlorination, or passing chlorine into the solution in excess of the amount required to combine with the lime, is an important consideration which is covered by the first of the foregoing principles. Over-chlorination produces an acid condition in the solution; its stability is affected and a rapid decomposition of the hypochlorite takes place. By passing a unit weight of chlorine into a unit volume of milk of lime, bleach liquors of uniform strength and of any desired concentration can be obtained and the possibility of over-chlorination is entirely eliminated.

The other important condition to be observed is careful control of the temperature of the liquor. The reaction of the chlorine with the base produces heat which raises the temperature of the solution in direct proportion to the amount of chlorine absorbed. Should a temperature of approximately 100° Fahrenheit be reached, decomposition of the hypochlorite begins, forming chlorates and resulting in an increasing loss in bleaching strength as the temperature rises above this point. The second principle of the Mathieson System mentioned above gives absolute control over this factor by keeping the temperature of the liquor within safe limits at all times. The liquid chlorine passes from the liquid to the gaseous state while passing through the lead coil (Fig. 3) which is immersed in the solution, so that the refrigerative effect of the vaporizing chlorine counteracts the heat of reaction in the liquor. The lead coil serves a twofold purpose, functioning as a vaporizer for the liquid chlorine and as a cooling medium for controlling the temperature of the liquor during its preparation.

Multi-Unit Tank Car

Let us take up the first of the above named principles and consider the means of fulfilling the required conditions. Obviously the liquid chlorine is the only reagent which offers difficulty in weighing with absolute accuracy, particularly when delivered to the consumer's plant in a single-unit tank car. This difficulty is completely overcome by the Mathieson Multi-Unit Tank Car, which carries fifteen one-ton containers of liquid chlorine. Each container has a net weight of exactly 2000 lb. and provides an accurately weighed unit for preparing uniform bleach liquors. Figure 1 shows the Multi-Unit Tank Car on a siding with five of the one-ton containers connected to a header with which the car is equipped.

It is only necessary to connect up at one time enough containers for the day's requirements. The contents of each container is exhausted independently, it being necessary only to remove the bonnet and make connection between the valve and header by means of a connector and flexible copper tube, as shown in Fig. 4.

In the case of a commodity of the nature of liquid chlorine it is of the utmost importance that every precaution be taken in the interest of public safety to minimize the hazard attending its transportation and handling at consumers' plants. It was with this end in view as well as to provide for greater economy and convenience in using liquid chlorine that Mathieson engineers developed the Multi-Unit Tank Car. The design of the car follows the standard steel underframe construction except that it is equipped with special cradles and clamps which secure the one-ton containers rigidly to the car frame without danger of shifting or accidental removal from the car.

When this car was placed in service by the Mathieson Alkali Works over two years ago, the transportation companies refused to allow it the same rates and privileges as other tank cars. Convinced that the continued service of the Multi-Unit Car was in the best interests of both the public and the chlorine-consuming industries, the Mathieson Company appealed to the Interstate Commerce Commission for removal of this discrimination and continued making shipments at greatly increased expense. During the past two years over two hundred thousand dollars was paid out in excess freight charges on shipments made in this car. A recent decision of the Interstate Commerce Commission approved the Multi-Unit Tank Car, giving it the same rates and privileges as other tank cars, and awarded full reparations with interest to the Mathieson Company.

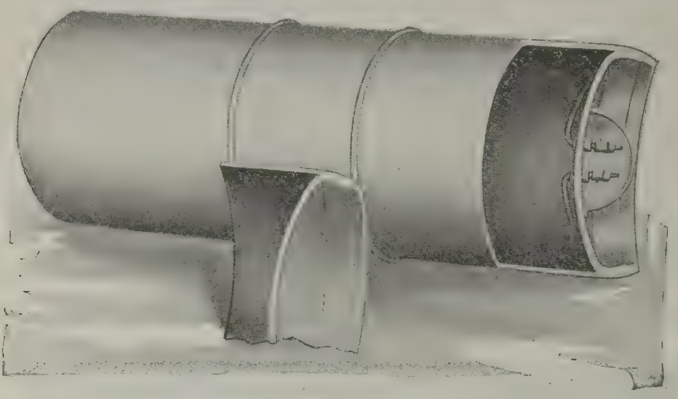


Figure 2

Having followed the case through to its logical conclusion, the Mathieson Alkali Works is now making arrangements whereby all consumers of liquid chlorine can secure the Multi-Unit Car from any manufacturer. It may be said without fear of contradiction that the development and official approval of the Multi-Unit Tank Car mark an epoch in the history of liquid chlorine.

One-Ton Containers

As the ton-container is the important unit for preparing bleach liquors in the paper industry, a few facts regarding it may be of interest. These containers are of forged steel with a wall thickness of three-eighths of an inch. The head of the drum is lap-welded to the body proper and has a thickness of three-fourths of an inch. An easily removable bonnet fits over the valves and protects them from injury. Each drum is equipped with six safety plugs, three screwed into each head, filled with fusible metal of fusing-point approximately 150° Fahrenheit. The purpose of these plugs is to relieve the contents in case of fire before a pressure is reached sufficient to rupture the drum. The containers are tested for an internal pressure of 500 pounds per square inch and comply with all regulations of the Bureau of Explosives and the Interstate Commerce Commission. The drum alone weighs approximately 1300 pounds and contains exactly 2000 pounds of liquid chlorine.

The construction of the Multi-Unit Tank Car permits the easy removal of the ton containers at the producer's plant for cleaning, inspection and absolutely accurate refilling. The Mathieson Company also ships liquid chlorine in single-unit tank cars and in steel cylinders containing even weights of 105 and 150 pounds. In some paper mills where the consumption of bleach liquor is small, one or more 150-pound cylinders may be used as the predetermined unit of liquid chlorine. When units are desired intermediate between the large cylinder and the ton container, it has been found satisfactory to place the latter on a floor scale and withdraw the required portion of the contents. The scale may be so equipped that an electrical circuit is closed when the weight arm rises, thus ringing a signal and notifying the operator that the predetermined weight has been withdrawn and the valve should be closed.

Converting Existing Equipment

By the proper control of several factors, the Mathieson System with the two basic principles previously mentioned may easily be adapted to any existing equipment using bleaching powder. Where individual tanks have not the required capacity to operate on the unit basis with one ton of liquid chlorine, two or more tanks can be connected together and the piping so arranged that the system operates as a unit. In such cases the lead coil shown in Fig. 3 is necessary in only one tank, though the liquor is circulated through all the tanks in the system. Usually this lead expansion coil is about the only additional equipment required and the change over to liquid chlorine can be made at comparatively little expense.

It may happen that only one tank is available and that it has not sufficient capacity to absorb one ton of chlorine unless the concentration of the bleach liquor produced is made greater than in ordinary practice. Provided the conditions are carefully controlled so that the temperature of the liquor at the close of the operation does not exceed 100° Fahrenheit, it is practical to prepare bleach solutions of as high a concentration as 80 grams per liter of available chlorine. Liquors of high concentration should be diluted, as soon as possible after being prepared, to the strength at which they will be used at the mill in order to insure stability and promote rapid settling.

In other words, the temperature of the bleach liquor at the end of the chlorination is the factor which determines at what concentration the system can be operated without danger of the formation of chlorates and decomposition of the hypochlorite. The maximum temperature of the finished liquor should not exceed 100° Fahrenheit. It is obvious, therefore, that the colder the water at the beginning of the operation, the greater the concentration that can be reached before the danger point of temperature is exceeded, since there is a definite rise of temperature in the liquor for each unit weight of chlorine absorbed.

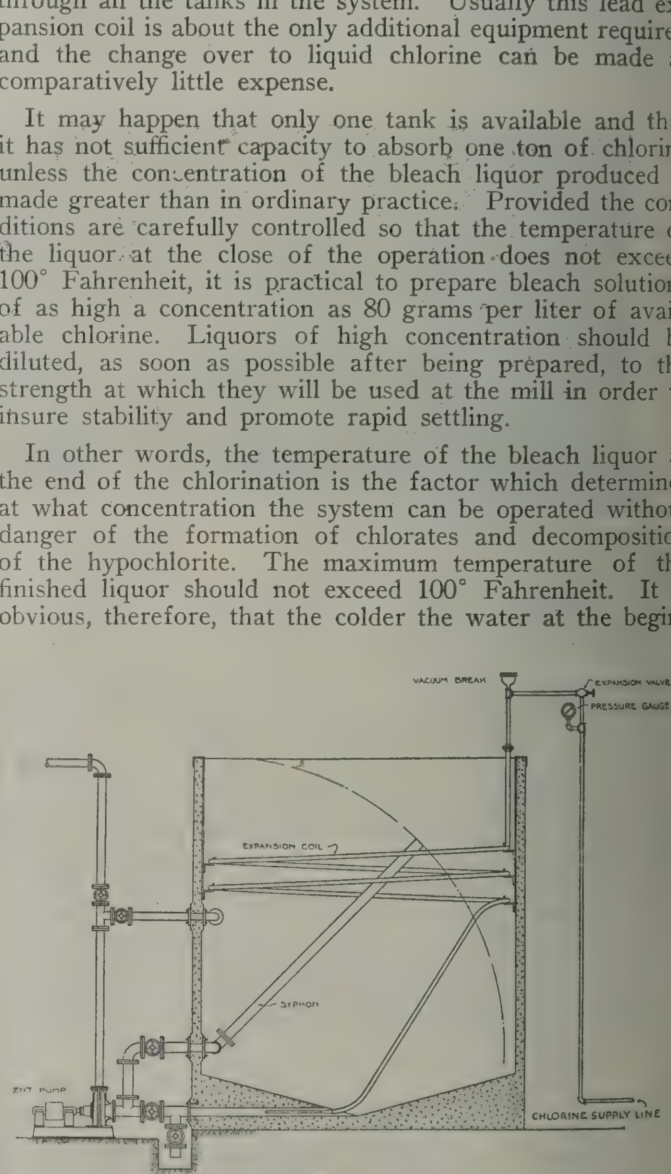


Figure 3

The following table is intended to show the possibilities under various conditions of operation, given a definite available tank capacity. In each case the liquid chlorine unit is one ton.

Tank Capacity for 1 ton Chlorine	Maximum Concentration	Initial Temperature
2400 gal.	80 g.p.l. cl.	50° F.
3200 gal.	75 g.p.l. cl.	55° F.
3600 gal.	67 g.p.l. cl.	60° F.
4200 gal.	58 g.p.l. cl.	65° F.
4800 gal.	50 g.p.l. cl.	70° F.
5700 gal.	42 g.p.l. cl.	75° F.
7000 gal.	34 g.p.l. cl.	80° F.
9600 gal.	25 g.p.l. cl.	85° F.

For example, with an available tank capacity of 4200 gallons and a chlorine unit of one ton, the strength of the resulting liquor will be 58 grams per liter of chlorine and the temperature at the beginning of the operation should be not more than 65° Fahrenheit.

The strength of bleach liquor most commonly used in paper mills and one which we recommend has a concentration of 30 grams per liter of chlorine, or about 6° Be. One ton of chlorine in 8000 gallons of liquor will produce this concentration. The maximum strength of liquor to be used for bleaching paper pulp can be considered as from 30 to 40 grams per liter of chlorine, or about 6° to 7° Be., while the minimum strength should be 20 grams per liter, or about 4° Be. One ton of chlorine in 12,000 gallons of solution will produce the latter concentration.

Details of Chlorinating Tank

The sectional view in Fig. 3 shows chlorinating tank of concrete construction. It is equipped with an expansion coil of 1½ inch extra heavy lead pipe about thirty feet long which is connected at one end to the liquid chlorine line. The other end terminates in the suction of the pump.

The centrifugal pump is of standard design and has a capacity of about 500 gallons per minute. The connections on the suction side are of five-inch pipe. The latter pipe enters the tank about four feet from the top and is placed at a tangent to it with valves and fittings as shown. The liquid chlorine pipe is one-inch extra heavy iron pipe connected at one end to the ton container by a flexible copper tube. The other end which is connected to the expansion coil is fitted with a pressure gauge and expansion valve. The five-inch drop syphon draws off the bleach liquor when settled.

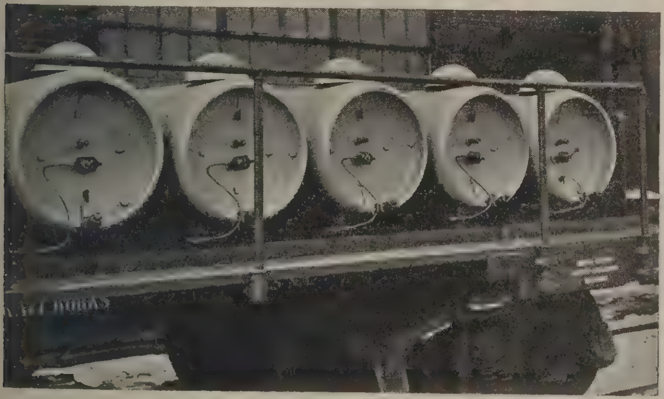


Figure 4

The tank has a total capacity of 10,000 gallons with an available capacity under operating conditions of 8,000 gallons, allowing sufficient margin for the settled lime sludge.

It is designed to hold a sufficient quantity of milk of lime to absorb 2,000 lb. of chlorine, the unit weight, and this weight of chlorine in a volume of 8,000 gallons will produce bleach liquor of a concentration of 30 grams per liter available chlorine or about 6¼° Baume.

A high calcium lime is used to absorb the chlorine and either quicklime or hydrated lime may be employed. When quicklime is used about one pound of lime per one pound of chlorine will be required; with hydrated lime about one and a quarter pounds depending on the quality of the lime. While quicklime is less expensive, hydrated lime is generally preferred, as the necessity of slacking and cooling the quicklime is dispensed with.

Operating the System

In carrying out the operation, approximately 8,000 gallons of water is run into the chlorinating tank, the circulating pump is started and about 2,300 lb. of hydrated lime added. A container holding 2,000 lb. of liquid chlorine is connected to the pipe leading to the expansion coil.

It will be seen from the photograph of ton container (Fig. 2) that it is provided with two eduction pipes which project radially from the centre of the head in opposite directions so that gaseous or liquid chlorine may be withdrawn. With the valves in a vertical line and the connection made to the lower valve liquid chlorine is withdrawn and the container can be completely emptied.

When the milk of lime is in good circulation the valve on the container is opened. The liquid chlorine flows under its own pressure through the eduction pipe to the expansion coil, the rate being regulated by the expansion valve. The liquid chlorine is vaporized in the coil and advantage is thus taken of the latent heat of vaporization of liquid chlorine to cool the liquor and prevent the temperature from rising to a point where chlorine compounds which are not available for bleaching are formed.

The chlorine gas on leaving the coil enters the suction line of the pump where it is absorbed by the milk of lime. The circulation of the liquor by the pump is continued until all of the chlorine is absorbed, which is indicated by the pressure gauge on the liquid chlorine pipe line. When the pointer on this gauge registers zero all chlorine will have been discharged from the container, which is then disconnected, the circulating pump stopped and the batch allowed to settle. When settled the clear liquor is drawn off the sludge by the drop syphon and pumped to storage tanks. The hydrometer strength of the liquor will be approximately 6° Baume and by maintaining the same volume of liquor with the same weight of chlorine for each batch bleach liquor of uniform strength is insured.

There will be a gradual accumulation of sludge in the chlorinating tank due chiefly to impurities in the lime. It will be found that several batches can be run before it becomes necessary to wash the sludge. The wash liquor is pumped to a separate tank to be used as make up liquor for succeeding batches and the sludge allowed to run to waste.

The loss from this source should not exceed 1 percent of chlorine.

A batch of bleach liquor containing 2000 lb. of chlorine can be prepared, settled and pumped to storage tanks in less than six hours. Assuming the sludge is washed after each four batches run, the tank will have a capacity for at least three tons liquid chlorine, or the equivalent of about 10 tons of bleaching powder, per 24 hour day.

Mills Using the System

The following paper mills have installed the Mathieson System and are now operating it:

Hammermill Paper Company, Erie, Pa.

Riordon Pulp Corporation, Hawkesbury, Ont., Canada

Hammersley Mfg. Company, Garfield, N. J.

Consolidated Water Power & Paper Company, Appleton, Wisconsin.

Mead Fibre Company, Kingsport, Tenn.

Champion Fibre Company, Canton, N. C.

Provincial Paper Mills, Port Arthur, Ont.

Port Huron Sulphite & Paper Company, Port Huron, Michigan.

Crystal Tissue Company, Middletown, Ohio.
S. George Paper Company, Wellsburg, W. Va.
Sweet Bros. Mfg. Company, Inc., Phoenix, N. Y.
Dill & Collins Company, Philadelphia, Pa.
District of Columbia Paper Mfg. Co., Washington, D. C.
Nekoosa-Edwards Paper Company, Port Edwards, Wis.
E. B. Eddy Company, Hull, Quebec, Canada.

Paper mills where the Mathieson System has been installed but is not yet ready for operating, are:

Kalamazoo Vegetable Parchment Paper Co., Kalamazoo, Mich.
Paterson Parchment Paper Co., Passaic, N. J.
International Paper Co., Piercefield, N. Y.

There are also a number of mills which are contemplating installing this System and for which plans are being prepared.

Summary

It will be seen that the Mathieson System embodies novel features which offer many advantages in the preparation of bleach liquor from liquid chlorine. The method employed for vaporizing the liquid chlorine by passing it through a coil immersed in the bleach liquor insures a rapid and steady flow of gas and dispenses with the use of evaporating devices which require to be steam heated and the cooling effect on the bleach liquor by the vaporization of the liquid chlorine will be found to be of special advantage, particularly during the summer months when difficulty is experienced in keeping the temperature of the liquor down to avoid losses of available chlorine through overheating.

By the introduction of the unit principle the operation is carried out with practically automatic control and skilled labor is not required. The lime can be so finely adjusted that the alkalinity of the liquor is greatly reduced with a corresponding increase in its bleaching velocity. Bleach liquors of this characteristic combined with a uniform concentration of the chlorine content enables the bleaching of the stock to be carried out with greater efficiency and economy.

The Multi-Unit Car with its individually-weighed containers of exactly two thousand pounds net provides an accurate unit measure for preparing uniform bleach liquor. In checking and stocktaking there is never any uncertainty as to the quantity of liquid chlorine received or on hand.

The services of the Mathieson technical staff, who have had long experience in bleach operations, are always available to give advice and direction when required. All installations are started under their personal supervision to see that the most efficient results are obtained from the Mathieson System.

Puts Out New Vibration Screen

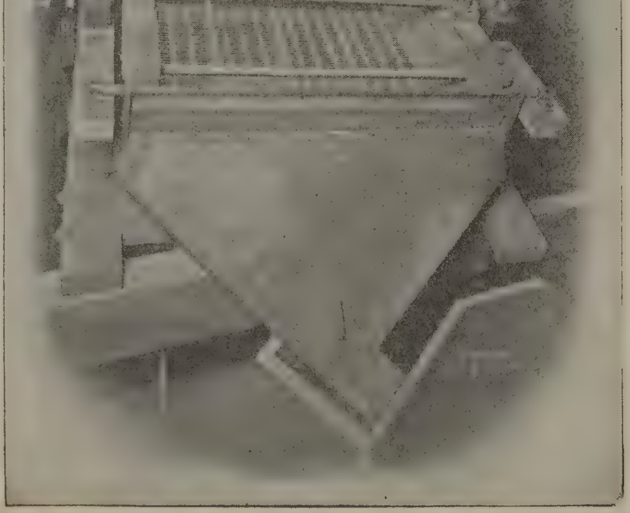
There has recently been put on the market by the Link-Belt Company of Philadelphia a screen for fine separation that is absolutely novel in principle.

The necessity for effective and thorough screening of many fine materials has long been recognized and this screen, which is known as the Link-Belt Vibrating Screen has been developed to meet these rigid requirements.

Heretofore agitation of the screen surface has been obtained by a rapid series of rigidly imparted blows, in some cases through mechanical, but preferably electrical devices. It is obvious that this results in lack of uniformity over the screening surface, the vibrations being more intense on those portions of the screen nearest the points of impact of the agitators.

Vibrations of the Link-Belt Screen are produced by the action of an unbalanced pulley supported on the screening frame and rotated at high speed. Every portion of the screen surface is vibrated uniformly, with the result that the entire surface is utilized for its most effective work.

The Link-Belt Vibrating Screen is the invention of Prof. G. A. Overstrom, a brilliant and widely-known mining engineer. Prof. Overstrom was for many years Dean of the Utah College of Mining, and there was brought into intimate contact with the problems of fine ore concentration.



This device is finding an extensive use in the screening of by-products, coke, gypsum, cement, fertilizers, coals, pigments, chemical products,—in a wide range of industries in fact. It effects thorough screening through the finest mesh of any product that can be screened.

Not infrequently it has happened that some of the cleverest inventions and most effective devices have been marked by extreme simplicity, and this is strikingly true of the Link-Belt Vibrating Screen. This, no less that its singularly effective action, at once impress the observer.

* * *

OFFERS MORTGAGE BONDS ON SALE IN WEST

THE Lumbermen's Trust Company and the Freeman, Smith & Camp Company are offering for sale a $350,000 issue of first closed mortgage 6½ per cent bonds of the California-Oregon Paper Mills.

The bonds mature from January 1925, to 1935, and are being offered to yield 6½ to 6¾ per cent dependable on time of maturity. The issue is callable at 101.

This new bond issue represents the total funded debt of the company, whose capitalization includes in addition $209,500 of cumulative 8 per cent preferred stock and $821,200 of common stock.

Besides being secured by mortgage on the equipment of the company the trust indenture provides for the deposit of $450,000 par value stock of the Columbia River Paper Mills owned by the company; also that current assets be kept equal to 150 per cent of the funded debt, including this deposit stock. The company promises whenever a dividend is paid on common stock an equal amount be used to retire bonds of the present issue, which is made to retire current indebtedness and defray the cost of installing additional paper machinery and for making other additions and changes in the plants of the company.

The California-Oregon Paper Mills Company operates a mill of 40,000 pounds daily capacity at Los Angles and owns a 54-acre site adjoining the Crown-Williamette Paper Company plant at Camas, Washington, together with 50,000,000 feet of timber and logging equipment. It also owns 37 per cent of the capital stock in the Columbus River Paper Mills of Vancouver.

Plants and properties of the company are carried at a book value of $1,039,991.97, replacement value of its Los Angeles plant alone, however, being appraised at $978,253.40 and depreciating value at $760,967.71, giving net assets of 327 per cent of the funded debt Earnings of the company applicable to interest charges since 1920 have averaged $94,250 annually. Net sales for the same period have aggregated $575,000.

Mr. F. W. Leadbetter, who is president of the company, is one of the pioneer paper men of the Pacific coast. He is also president of the Oregon Pulp & Paper Company of Salem, Oregon; a director and one of the principal owners in the Crown-Williamette Paper Company; organizer, official and heavy stockholder in the Columbia River Paper Mills at Vancouver, Washington; and owns a half interest in the Spaulding Logging Co.

Through the Paper Mills of Europe

R. S. Johnston Visits Many Pulp and Paper Mills in Northern Europe and Finds Great Interest Taken in American High Speed Production Methods—Notes on the Character of Machinery Used and Grades of Paper Made in Finland, Norway, Sweden, Denmark, Belgium and France

WHAT is said to be the first trip to be taken by a representative of American paper manufacurers through Northern Europe since he war is described in interesting fashon in Pusey & Jones' *Super-Calender* y R. S. Johnston, general sales agent f The Pusey & Jones Company. Mr. ohnston visited mills in Norway, weden, Finland, Denmark, Belgium, rance and England found an increasg interest among European manufacurers in high-speed production methods paper manufacture. In Finland, Mr. ohnston took an order from Kymmene ktiebolag of Kuusankoski, for a 154-ch, new modern, high speed paper achine of the latest Pusey-Jones deign and construction. The Kymmene ompany is the largest independent paer manufacturing concern in Finland, stablished many years.

It stands to Mr. Johnston's credit hat in taking the contract for this mahine he could answer the many quesons of the firm's corps of engineers nd experts. He could give definite inormation by sitting down at a drawg table with his coat off, and making lans to scale to fit their mill condions. He did a good deal to cement he friendship and good feeling which egan in 1896, when the Pusey-Jones ompany built for the Kymmene Aktieolag, a paper machine having a width of 112 inches, suitable for a wire 110 inches wide. The writing right on the spot of a long technical specification covering thirty-one typewritten pages, is another part of his successful negotiations.

R. S. JOHNSTON
General Sales Agent, P. & J. Co.

R. S. JOHNSTON
on the Esplanadgatan, Helsingfors

Meets Petter Larsen

In speaking of his trip to Europe, Mr. Johnston tells of meeting in Stockholm his old friend Petter Larsen, sales engineer of Lorentzen & Wettre, who visited the United States in 1920. We shall now let him tell the story of his experiences in his own way. First, he notes that Petter has traveled through Scandinavia, Finland and Russia for upwards of thirty years, and knows intimately the officials of every pulp and paper mill worthy of the name. In his numerous trips to America he has also made many acquaintances, and his cheery smile and hearty handshake is an "open sesame" everywhere.

Greetings had hardly been disposed of when Petter said: "We must hurry to Kymmene, they will install a new paper machine, and we must smack while the iron is warm." However, a few days grace was granted, thus giving opportunity to take in the sights of Helsingfors, and become more or less acquainted with the people and customs of this most northern world capital.

The Sights of Helsingfors

Esplanadgatan (the principal street) during noon hour was crowded with people as well dressed and good looking as those at home, with noticeably rosy cheeks and all of a hardy and athletic appearance. The street traffic is made up of all sorts of vehicles, with the Russian type "drosky" predominant and a few automobiles. The streets are immaculately clean. The city has many fine stores, banks and other establishments, the buildings being usually of granite, four or five stories high, of beautiful architecture and striking appearance. Many American goods are on display in the shops. A particularly handsome railroad station was conveniently located opposite the fine new hotel "Societeteshuset."

Both Swedish and Finnish are spoken in the street, and all signs, timetables and even the movies are in both languages, although Swedish is used almost exclusively by the business and higher classes.

On the Way to Kymmene Bruk

Our first objective, Kymmene Bruk, was reached after a short journey by rail to Kouvola, thence by motor car. A fine opportunity was afforded from the latter of seeing the large barracks and commissars erected and used by the Russians when they were in power, now either abandoned or used by the Finnish Military. The mills of the Kymmene company with adjoining towns are ideally and beautifully situated, re-

PETTER OFF DUTY
"My if you knew how good dat tastes."

R. R. Station, Helsingfors

Laskela

minding one very much of the newest, up-to-date, progressive American industrial towns.

Between conferences at Kymmene and following them visits were made to other pulp and paper mills in Finland, as follows:

Laskela Bruks Aktiebolag, Laskela

Located a pleasant two hours' ride by automobile from Sordavala, a picturesque town on Lake Ladoga, the largest lake in Europe, and which separates Russia from Finland. Here a Pusey-Jones machine was operating on newsprint paper in a very efficient manner.

A. Ahlstrom Warkaus

From Wiborg with its quaint old buildings and typical Russian aspect by sleeper via Huotokoski to Warkaus. A well laid out plant, the paper mill being comparatively new, housing a large news machine furnished by a German builder, with space available for a second machine. The managing director, Baron Edward Cedarcreutz, very much interested in American and Canadian high-speed installations. Here occurred an unexpected but pleasant meeting with Mr. Kutter, technical manager of their several mills, a brother of the well-known and popular secretary of the Black-Clawson Company, of Hamilton, Ohio.

Kemi Cellulosefabrik, Karihaara

The most northern pulp mill in the world, producing 75 tons of fine easy bleaching sulphite, the greater part of which is exported to the States, was reached after traversing over two-thirds the length of Finland north and south, through the finest farming and industrial sections, including the large city of Tammerfors, known as the Manchester of Finland.

Captain Tinne, managing director, proved not only to be a fine executive and manufacturer, but is credited with several heroic exploits during the revolution in 1917, and one of which would make a story in itself.

Aanekoski Aktiebolag, Aanekoski

A Pusey-Jones machine was running here on magazine paper for Munseys. A second American machine of cylinder type over thirty years old, running on an all ground-wood board, used by a manufacturer in New York City for making paper plates. Bruno Ungern, managing director and a very entertaining host, is very proud of their new and handsome office recently erected.

G. A. Serlachius Aktiebolag, Mantta

Interesting experiments being carried out by their technical manager, Mr. Alfthan, in connection with utilizing red pine for sulphite pulp. Their pulp and paper mill is being rebuilt along modern lines.

Tornator Aktiebolaget, Imatra

Located close to the beautiful Falls of the Imatra (known as the Niagara Falls of Finland). Here an immense hydro-electric development is under way to supply power to the Finnish State Railways, which are to be electrified. Our P. M. 164 and P. M. 113 are in operation, the first named producing brown wrapping paper fron boiled groundwood, principally used i Russia, and the latter producing a ver fine grade of greaseproof.

Enso Aktiebolag, Enso

Largest sulphite mill in Europe, onl two years old, producing 125 long ton per day. Considered by many to be on of the best laid out sulphite mills in th world, many of the new and origina ideas used being the product of Mr Tamminen, managing director.

Resting Up for the Swedish Tour

Everything must have an ending an after a sojourn of five weeks in Finland, our faces were westward turned and the three days' return journey mad to Kristiania. Petter must needs rest bit at his comfortable home on Bygd Island, from the ardors of his nin weeks' trip in Finland, and several day opportunity was thus afforded of leisurely enjoying the beauties of the Norwegian capitol, nestling like a gem i its natural setting at the head of th fjord and surrounded by towering evergreen-covered hills. H. M. S. S. *Hood* *Repulse* and other visiting British wa vessels lay anchored along the fjor presenting a wonderful spectacle by both night and day.

Drammenselvens Papperbruk

Following conferences with Mr Christensen and Mr. Skjenneberg, man-

(At left), Petter Larsen, Sales Engineer, L & W.—(Center), C. G. W. Ramsay, Technical Manager, Kymmene A. B.—(At right), Gunner Bonsdorff, Technical Director, Kymmene A. B.

A. AHLSTROM, HARKAUS

Kunsankoski and Kymmene Fine Paper Mills

ing director and technical manager, spectively of the Union Company, and so with Mr. Rosholm and Mr. Kio- erud, president and director respec- ely, of Follum Wood Pulp Company, visit was made to Drammenselvens pperbruk at Geithus, where our P. M. 6 is installed. A pleasurable meet- g with Mr. Johannsen, managing di- ctor, who has been connected with the ll for almost thirty years, and has any interesting recollections of earlier sociation with Mr. Savery and others our pioneers.

Invades Sweden

After a fitting celebration of the urth of July as a guest of the senior ember of Lorentzen & Wettre, the in- sion of Sweden commenced. The mmer season presented the fullest op- rtunity of enjoying the trip, even ough somewhat hurried, through the autiful and prosperous agricultural ction of Southern Sweden, and the re industrial center section and the inity of Stockholm.

Visits were made to the following p and paper mills:

Stora Kopparbergs, Domnarfvets

One of the largest manufacturers of per in Sweden, as well as one of the est corporations in the world, their ganization dating back to A. D. 1225. ite a thrilling sight to behold, upon pping into the machine room of the per mill, seven machines with their ters, Jordans and other accessory chinery all under the one roof, but greater still that six of the machines bear our P. M. Nos. 190, 191, 235, 241, 248 and 249 of 107", 127", two 147", 137" and 158" widths respectively, all producing very efficiently on newsprint.

Mr. Bywall, technical manager; Mr. Lindell, paper mill manager; and Mr. Moe, engineer, are very proud of the production maintained and the manner in which the machines exceed their contract speeds. Mr. Lindell was formerly with Great Northern Paper Company, Millinocket, Me., and it was apparent that the experience gained there was being used to advantage.

Of further interest and a story of itself was the early connection between the company and the Swedish Colonists who settled in Wilmington—the first minister to the settlement in the new world, after later returning and becoming Bishop of Falun, (where their copper and silver mines are located), sent a silver communion service in early 1700 to the Church at Wilmington, still used for worship and known as Old Swedes Church.

Holmensbruks, Norrkoping

Three hours' ride by railroad south from Stockholm. Quite a large city with many industries, including a number of other paper mills. Mr. Grewin, technical manager, recently visited the States and Canada, and was well versed in high-speed production methods. Their machines of small size and moderate speed produce various printing papers.

Holmensbruks, Halstavik

Almost a three hours' journey by automobile north from Stockholm. A comparatively new and modern mill with two German machines each trimming 190", at present the widest running in Europe. One recently rebuilt similar to American and Canadian high-speed machines, even being equipped with Pope reel and air appliances also rolling out fourdrinier employing a unique tractor device. The rebuilt machine was running slightly over 700 feet, for reasons not apparent on the surface. Both machines, as elsewhere built by German manufacturers, are equipped with parallel belt drives in the basement, where ropes would operate to better advantage.

Mr. Wahren, mill manager, and son of the president of the company, called attention to a ship loading at their docks with newsprint for San Francisco.

Billeruds, A. B., Saffle

Probably one of the latest and most complete paper mills for the exclusive manufacture of "greaseproof," equipped with one machine of German manufacture, with space for a second, which will be installed in the near future. Mr. Mattas, technical manager, was at one time employed by Wayagamack and Southern Paper Company, and employs several American practices in the operation of their sulphite and paper mills. Dr. Arthur Klein, contributing editor of PAPER was, for several years, technical manager at Billeruds.

G. A. Serlachios, A. B., Tammerfors

Aannekoski A. B., Aannekoski

Wargons, A. B., Vanersborg

A rather old but efficiently operated mill manufacturing news and tissue paper. A very interesting feature was the news machine running at about 725 feet, completely equipped with ball bearings. Mr. Mahgren, managing director, is very broad in his views regarding ball-bearing applications on paper machines, and was keenly interested in the experiences with similar recent installations in the States.

This mill has what is believed to be the widest Yankee machine in the world, trimming 140" and running at 400 ft. on a 12-pound sheet.

Klippan Finappersbruk, Klippan

A two hours' rail journey from Malmo, most southern port and a large manufacturing and shipbuilding center. A very old mill with four machines producing very fine papers mostly for government use, and under more or less secretive process.

Tornatov A. B., Imatra

Billeruds A. B., Saffle

From Saffle to Malmo

The journey from Saffle down the west coast to Malmo was mostly through fine farming sections, with many American-made tractors and agricultural machinery in evidence. Opportunity was had of stopping off en route at Goteborg, to visit the large factory and main office of the S. K. F. Company, and meeting such prominent members of the organization as Mr. Pritz, executive director; Mr. Forsberg, production director; Mr. Gabrielson, sales director, and Mr. Dahlberg, advertising director.

Back to Kristiania

Once more back to Kristiania for a conclusion of all Scandinavian business; good-bye to Petter and the many other friends, tempered with Petter's promise that he would be with us in the States before the year was out, as he must again visit his many American friends, and take up the many conferences with manufacturers whose equipment he handles.

On the Stormy North Sea

The trip down the North Sea was one long to be remembered, not from a pleasurable viewpoint but from one of discomfort, the Atlantic having nothing on the North Sea when it comes to high winds and seas; but all was pleasant again when Antwerp was reached, and the journey made by rail to Paris, through Brussels and Northern France, where it was still possible to see evidence of the war ruins and the havoc created by the German invasion and occupation.

At the Papeterie de la Seine

Incidental to viewing the many wonders of Paris and environs—a visit was made to Papeterie de la Seine, at Nanterre, a short distance from Paris, one of the largest newsprint producing mills in France, making paper for *Le Petit Parisien*, one of the largest daily papers.

A pleasant welcome from our old friend Mr. Bedat, who visited the States in 1921. In the mill four paper machines, including three of American build—producing 150 tons a day, from sulphite and groundwood pulp, all imported from Scandinavia, and a new shredding and mixing system recently installed which was of considerable interest. The building for an additional machine was erected just before the war, and perhaps some day a modern, high-speed American machine may be installed.

Sittingbourne Mill of Edward Lloyd, Ltd.

Good-bye to Paris, then to Engla
via the Channel Ports, and on to L
don. A hurried visit to Edward Llo
Ltd., at Sittingbourne, Kent, where
P. M.'s 207, 210, 1140 and 1141 are
stalled. One of these machines, be
170" in width, was for several years
widest in Europe. An interesting
terview with their chief engineer,
Richards, a visitor to the States in 19
who enthusiastically referred to the
mill being constructed for two th
roll news machines.

Pulp from Grinder to Paper Mach

It was of particular interest to le
that one machine will be supplied
slush groundwood direct from grind
following the practice in the mod
American and Canadian mills, the ot
with stock from imported bale and
pulp shredded and mixed in beater
line with present practice. Ano
interesting feature will be specially
signed and constructed engine for d
ing the beaters, to operate under
lb. steam pressure, exhausing direc
the engine driving the paper mach
at 205 lb. pressure, which will exha
in turn, to the dryers at 10 pounds.

The return journey was made by
White Star Liner "Olympia" to
York, arriving exactly three mo
and five days from departure.

Of the many new and interes
conditions observed during the
perhaps the two most impressive
the conservation of the forests u
strict Government supervision, and
interest shown in American high-sp
production methods, indicating
modernizing of the majority of the
and paper mills as soon as Europ
conditions are stabilized.

Hervey J. Skinner ***Says:***

Chemists and Engineers
729 Stuart Street Boston, Mass.

DEAR MR. KEENAN:

I have noticed recently a very decided improvemen
the character of the reading matter in PAPER and I wan
congratulate you on it as I assume that you are responsible fo

Yours very truly,
SKINNER, SHERMAN & ESSELEN, INC.
H. J. Skinn
Presid

Notes of New York Trade

AT the annual meeting of the Paper Association of New York recently, Kit S. Walker, of the John F. Searle Company, was elected president for the ensuing year, succeeding J. C. Mallalieu, who had completed two terms as president of the organization. Other officers elected were George W. T. Skinner, of Skinner & Company, first vice president; William H. Holden, of Holden & Hawley, Inc., second vice president; B. T. Blake, of Marquardt, Blake & Decker Inc., secretary, and A. C. Damon, of Paul E. Vernon & Company, treasurer. Messrs. Holden, Blake and Damon were also elected directors of the association to serve three years. Assistant Secretary William C. Ridgeway reported that the membership of the association was 68, and that during this last year the Credit Clearance Bureau showed 1,619 clearances. The association's membership consists of practically all of the large paper jobbing concerns in New York City.

* * *

The Keith Products Company, paper dealers of 417 Layfayette street, New York, has filed notice of an increase in capital from $10,000 to $50,000.

* * *

The H. J. Grey Company, paper jobbers handling a general line of coarse papers, has removed from 163 Greene street to larger quarters at 228 East Forty-fourth street, New York.

* * *

Karl A. Lefren, formerly chief engineer of the Robert Gair Company, paper board and products manufacturers, has opened a consulting engineering office at 171 Madison avenue, New York, where he will engage in the practice of engineering in connection with power, paper mill and general mill construction.

* * *

Rocco de Fina & Sons, large dealers in cotton cuttings for paper mills, of 53 Mercer street, New York, have incorporated under New York State laws with a capital of $5,000.

* * *

Eric V. Bowater, of the Bowater Paper Company, 342 Madison avenue, New York, is due to return on the steamer Aquitania April 11 from an extended trip to Europe

* * *

The Gotham Tissue Corporation, of 925 Courtlandt avenue, New York, has filed notice of an increase in its capitalization from $25,000 to $30,000.

* * *

The Gowanus Waste Material Company, Inc., is the name of a new concern just organized in Brooklyn to pack paper supplies, and will specialize in rag stock. The company has a plant at 42-50 Second avenue, Brooklyn, which is equipped with up-to-date machinery.

* * *

Martin Cantine, president of the Martin Cantine Paper Company and chairman of the committee representing the coated paper manufacturers on the import duty on casein before the Tariff Commission, and Harry L. Derby, president of the Kalbfleisch Corporation, casein dealers and importers of 200 Fifth avenue, New York, are on a pleasure and business trip to Argentina, one of the principal sources of supply of casein. They have spent some time in Buenos Aires, and will visit elsewhere in South America.

WISCONSIN PLANS FIRE PREVENTION DRIVE

Danger Zones to Be Divided Into Districts and Fire Fighters Organized for Protection

A STATE-WIDE, conceted drive for forest fire prevention in Wisconsin will be undertaken this spring by the organization special fire prevention districts, according to announcement today by the state conservation commission. The entire forest section of the state which is subject to fire hazards will be grouped according to districts and fire fighters organized to protect each division, C. L. Harrington state superintendent of forests states.

The state department's plan of fire prevention is outlined in letters sent to all town chairmen in the state, enlisting their aid and support in carrying out the plan. The fire districts have not yet been fixed but will be designated within a short time, it is said. This will be the first time that the state has undertaken fire prevention by the district plan, according to officials.

The fire prevention campaign will be inaugurated during the Forest Protection Week, April 21 to 26th, which has been designed by President Coolidge. Governor Baline also will be asked to issue a proclamation enlisting the aid of cities and towns and various organizations in the state. The Federal government is expected to co-operate with the state department in its campaign.

"The conservation commission is going to make a special drive this year to reduce uncontrolled land fires in Wisconsin," declares the letter addressed to town chairmen by Conservation Commissioner Elmer S. Hall. "As study of the reports of town chairmen shows that 528,299 acres were burned over during 1923. It is safe to say that not less than a million acres were actually burned over Damage of over $200,000 resulted, not considering the loss of millions of young trees, thousands of birds, serious destruction of natural scenery, serious disturbances to game of all kinds, impairment of water flow—a loss which would run into millions of dollars if it could be tabulated.

"Town chairmen have a particular responsibility in connection with these fires. By law they are town fire wardens and are duty bound to do all within their power to prevent fire and to suppress fires should they start. They should make this fire questions one of the major items in their town affairs. The state this year will make a special effort to prevent fires in areas subjected to unusual risks, through organization of special fire protection districts. In this work the Federal government will participate. The President of the United States has seen fit to emphasize the importance of this question by officially designating the week of April 21st as Forest Protection Week. If there is a conservation warden in your county he is authorized to represent this commission in forest fire affairs."

* * *

Paper from Hemp

After a series of experiments, a successful process for the manufacture of paper from hemp has been devised and hemp will be manufactured this year at the St. Charles Paper Mill in Illinois. Four hundred acres of hemp was grown in the vicinity of St. Charles last year at a very good profit and plans are to increase the acreage this year considerably.

James R. Glass, Blenda L. Odman and Ray L. Odman have organized as Odman Bros., Inc. Place of business, 144 W. Kinzie St., Chicago. Capital, $25,000. Will manufacture and deal in paper, twine, etc.

Wisconsin Mill Notes

A severe sleet storm which passed over Wisconsin the last few days of March interferred with operations of mills, some being forced to close down entirely. Many power wires were brought down by the weight of sleet.

* * *

S. M. Carseen and Joseph Francour, Peshtigo logging contractors, have completed their contract near Republic, Mich., and returned to their homes with their equipment after a successful season.

* * *

J. H. Delbridge, president of the Marinette and Menominee Paper Company entertained members of the Marinette Rotary club at lunch at the Park Mills plant. Rotarians were served in the dining room in the office building by young women of the mill force. After a talk by Mr. Delbridge visitors were shown through the mill. Souvenirs of wrapping and tissue paper made in the mill were given each visitor.

* * *

The Peshtigo Paper Company sulphite plant will have its water supply increased with the completion of a new well being driven to a great depth to obtain a supply of pure cold water.

* * *

The Nekoosa mill of the Nekoosa-Edwards Paper Company completed the month of March without an accident, making a total of 55 days the company's mill at this point has operated without accident. The Wisconsin Rapids Tribune has agreed to print the record daily, showing the number of days since the last accident.

* * *

Timber is Damaged

A million acres of high quality yellow pine timber located in Klamath and Lake counties in Oregon was found to be seriously injured from the ravages of the western pine beetle. Government experts discovered that in ten years this beetle had killed not less than one billion board feet of yellow pine in this area. Steps were taken in 1922 to check the activity of the beetle in the ten billion feet of valuable yellow pine in the infested zone. Approximately half of this area is national forest and Indian reservation lands and the remainder is privately owned property.

Working in co-operation to stamp out this forest menace are the local representatives of the private owners, the state of Oregon, the forest service, and the Indian service. All are working under the technical advice of the federal bureau of entomology. The steps begun in 1922 to wipe out this meance are expected by the close of 1924 to have secured satisfactory results.

The control methods used consist of felling infested trees and burning them before the beetles emerge. By the close of 1924 it is expected that above $250,000 will have been expended in eradicating the pine beetles from the infested area. In order to prevent a recurrence of th betle plague a careful watch will be maintained. Surrounding this beetle-infested timber are three million acres of pine timber in Klamath Lake counties which are now comparatively free from a heavy beetle loss. This large area will receive careful attention that the beetles do not become a dangerous menace in this timber land.

CONDENSED PROGRAM FOR THE WEEK

American Paper and Pulp Association

Waldorf-Astoria, New York City

TUESDAY, APRIL 8, 1924

Forenoon

10:00	Technical Association of the Pulp and Paper Industry	Myrtle Room
10:30	Converting Paper Mills Association	Room 151
10:30	Salesmen's Association of the Paper Industry	East Room
10:30	Tissue Paper Manufacturers Association	Room 110
10:30	Waxed Paper Manufacturers	Room 109
11:00	Simplification Committee	Room 100

Afternoon

1:00	Cost Association of the Paper Industry	Room 115
1:00	U. S. Pulp Producers Association	Room 112
2:00	Gummed Paper Manufacturers Association	Room 109
2:00	Technical Association of the Pulp and Paper Industry	Myrtle Room
2:30	Cover Paper Manufacturers Association	Room 110

Evening—Dinners

7:00	Salesmen's Association of the Paper Industry Dinner and Smoker	Roof Garden
7:00	Tissue Paper Manufacturers Association	Hotel Astor
7:00	Technical Association Banquet	Hotel Commodore

WEDNESDAY, APRIL 9, 1924

Forenoon

9:00	Bristol Board Manufacturers Association	Room 114
10:00	Technical Association of the Pulp and Paper Industry	Room 110, 151, Myrtle Room
10:30	Cardboard Manufacturers Association	Room 109
10:30	Woodlands Section of A. P. & P. A.	Room 115
10:30	Wrapping Paper Manufacturers Service Bureau	Tea Lounge
10:30	Writing Paper Manufacturers Association	East Room

Afternoon

12:30	Papermakers Advertisers Club	Room 112
1:00	Waterproof Wrapping Paper Manufacturers	Room 100
2:00	Glazed and Fancy Paper Manufacturers Association	Room 109
2:00	Technical Association of the Pulp and Paper Industry	Room 110, 115, 151, Myrtle Room
2:00	Woodlands Section of A. P. & P. A. (Joint Program with the Technical Association)	Myrtle Room
2:30	Writing Association—Fine Paper Division	Room 114
2:30	Writing Association—Sulphite Bond Division	East Room

THURSDAY, APRIL 10, 1924

Forenoon

10:00	American Paper and Pulp Association, General Business Meeting	Astor Gallery

Afternoon

1:00	Binders Board Manufacturers Association	Room 112

The Editorial Page

Events of the Week

THE Paper Industries Exposition, or Paper Show, as it is called for short, is likely to be a fixed feature of the week of Annual Conventions. PAPER has kept in intimate touch with the developments and is aware that it is a cause of chagrin that our great American paper industry has not rallied more closely to the support of the Exposition. The Technical Association of the Pulp and Paper Industry has arranged for an afternoon session at the exposition at which the representatives of manufacturers and others who supply material to the mills will have an opportunity of demonstrating new inventions and processes, even if the particular manufacturer has not taken space in the exposition.

This must be taken as an evidence of the desire of the technical men in the industry to support the exposition. The exposition management have taken pains to provide suitable accommodations for the meeting and to advertise it fully. What most people look for, however, is stronger evidences of cooperation on the part of the individual members of the American Paper and Pulp Association, or of the association as a whole. We can imagine the joy with which a proposal on the part of the American Paper and Pulp Association to make collective exhibits of papermaking processes for its members would be received by the exposition management. But nothing of this kind is to be done and it will be left to certain individual exhibitors to illustrate by exhibits and otherwise the progress of papermaking in its technical aspects.

Just as last year, there will be a dearth of purely papermaking exhibits. Apart from displays of paper of special make like the plain and embossed glassine of the Westfield River Paper Corporation, in conjunction with their selling agents in New York; exhibits of paper bags, tissues, napkins, etc., by the Continental Paper & Bag Corporation; varied displays of Hammermill Paper Company productions showing the well known lines of bond papers and cover papers for which the company is famed, and an educational display by the Union Bag and Paper Corporation, which will include specimens of the wrapping paper, paper sacks and bags made by this firm, the greater part of the space in the exposition will be devoted to machinery equipment and mill supplies. The converters of paper appear to be taking more interest in the exposition than mill owners though, as in the case of the Hammermill Paper Company and the other firms named, there will be some noteworthy displays of fine papers for business and social purposes, as well as of wrapping papers and manufactured papers, like sacks and bags.

The tendency on the part of the larger pulp and paper manufacturers to let the machinery and mill equipment and supplies people dominate the Paper Industries Exposition is a matter of regret to all concerned in the success of the Annual Exposition, which should stand as a demonstration of the extent and importance of pulp and paper manufacturing among the basic industries of the country. Some thing should be done before the time comes around for another exposition to develop a closer contact on the part of the larger mills with the advisory committee of the exposition so that provisions may be made for their representation, with adequate exhibits at next year's Paper Industries Exposition.

Concerning the things that are to come up for consideration at the annual meeting of the American Paper and Pulp Association during Paper Week a good deal was said in last week's issue of PAPER. Likewise particulars were given of some of the important technical developments that are to be discussed during the sessions of the Technical Association. In addition to the subjects touched upon in last week's review, mention should be made of some important improvements in methods of drying paper which will be treated in a valuable article contributed by the inventor of the vacuum paper machine dryer. The importance of drying paper in a vacuum at low temperature hardly needs to be emphasized—every papermaker knows how the sheet is affected by excessive heat. It is no exaggeration to say that any successful method of drying paper in a vacuum on the ordinary fourdrinier machine will take rank as a discovery equal to that of Fourdrinier's invention of the continuous wire. The possibilities opened up by the application of the vacuum principle to the drying of paper are endless, chiefly, of course, with regard to paper made on the fourdrinier machine. There are other methods of drying fine papers and coated papers which have been introduced within a recent period that are likely to replace older systems. Developments in other industries, particularly the powdered milk industry, have pointed the way to the use of systems of drying for paper manufacturers that may revolutionize the drying systems now in use.

An impressive array of papers on technical subjects has been provided for the meeting of the Technical Association to be held at the Paper Industries Exposition on Thursday afternoon, April 10. Some fifteen papers are listed, ranging from the treatment of felts to the reeling and winding of paper. Most of the papers and discussions are of engineering importance but a talk will be given on the opportunities that exist in some of the southern States for the development of papermaking there. One of the things that a Scandinavian papermaker finds it difficult to understand in the operation of the American pulp and paper plants is the apparent general neglect of ball-bearing attachments and roller bearings on running equipment. For eight or nine years past at nearly all meetings of the technical association of this country and Canada papers have been presented which have treated of the effects of ball and roller bearings in speeding up production and we notice that another paper on the subject will be given at the T. A. P. P. I. meeting in the Paper Show.

NEW DEVELOPMENTS IN PAPERMAKING

Calender Bearings

In calendar rolls and similar apparatus, such as papermaking rolls in which the rolls are subjected to considerable pressure, the bearing at each end for either of both of the rolls is mounted in a housing D, as shown in the accompanying diagram which illustrates a method recently patented by the Hoffman Manufacturing Company in Great Britain. The housing D is supported upon a pair of oppositely disposed trunnions C, C_1 which turn in a bracket B. This bracket is rotatable about a vertical axis B^1 lying in the central vertical plane of the roll bearing. The brackets B for the top roll are carried by the cross-bars A which are fixed to vertical pillars P, and the bottom roll brackets are mounted on similar cross-bars, which are slidable on the pillars and are supported on hydraulic plungers. The projecting ends of the trunnions C_1 may be screw threaded to receive hand wheels, whereby the relative inclination of the axes of the rolls may be varied; or alternatively, simultaneous adjustment of both ends of the roll may be effected by rotating a worm L meshing with the worm wheels K engaging opposite threads on the trunnions C_1. Anti-friction bearings may be provided. The ends E' of the rollers E are reduced and tapered to receive sleeves F, having tapered bores. An inner race G is mounted on each sleeve F, and an outer race G' within the bracket D. An addition ball race J may be provided to take the end thrust caused by the relative inclination of the rollers

FIG. 1.

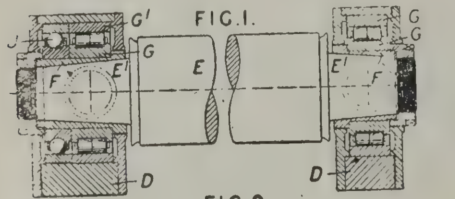
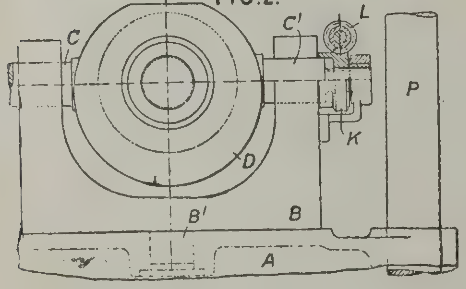


FIG. 2.



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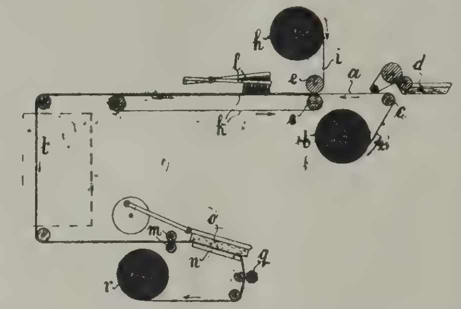
Velvet Finish Paper

A process for giving the surface of paper a velvet-like finish is patented in German Patent No. 364,568. The apparatus that is used in this process is seen in the accompanying diagram.

The paper web *a* is unrolled from the roll *b* and passes over the guide roller *c*. The arrangement of roll at *d* gives the top surface of the web a coating of adhesive. The paper web then passes along and comes in contact next with the guide rollers *e* where the adhesive-coated surface of the web is covered with a paper coating *i*. This paper unwinds from the roll *h*. The paper web which is now composed of two parts and which contains a top film of paper *i* then passes to an endless carrying belt *k* whereon the two sides of the paper, *a* and *i*, are intimately combined together by means of the movable brushes *l*, which travel back and forth over the surface of the paper. The combined paper layers then pass through a drying device shown at *t* and through the guide rollers *m* on the plate *n*. While passing over the plate *n*, the surface of the paper is subjected to the action of a sandstone *o*, which is worked by a cam arrangement and serves to roughen up the surface of the paper so that it attains the feel and appearance of velvet. Then the paper passes between the brush roller *q* and the finished paper is finally wound up on the roll *r*.



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Transparent Paper

British Patent No. 208,410 is concerned with a process for the manufacture of transparent paper. In order to increase the transparency of purpose of a paer blank pressure is applied at the areas to be made transparent so as to consolidate the fibers. The medium for rendering these parts are then applied. Owing to enhanced receptivity less of the medium is required and a greater degree of transparency will be secured. Moreover the time required for drying will be shortened.

* * *

Guard Board for Papermaking Machine

The guard board that is used on a papermaking machine, which is patented in British Patent No. 201,895 is made in the following manner. It comprises a rigid back board which has a vertical movable jacket on it which is pressed against the surface of the roll. The board is employed for cleaning felt-jacketed couch rolls. The thickness of the blade is equal to the width of the bearing edge which will co-operate most efficiently with the felt jacket of the couch roll, so that as the blade wears away a uniform and efficient width of bearing edge is maintained in co-operative engagement with the felt jacket.

Waterproof Paper and Cardboard

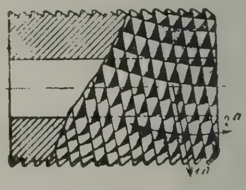
In German Patent No. 388,063 there is described a process of waterproofing paper and cardboard in which crude benzol, creosote oil and other solvents in which pitch has been dissolved are employed. Then the paper is subjected to a high temperature, about 120° C, for a prolonged period of time so that the pitchy mass dissolved in the solvent is spread over the paper fibers which are impregnated with it, the solvents and oils being evaporated. The product is hard but not brittle and moreover it is odorless so that it may be employed in packing any kind of material.

* * *

Disintegrator for Woodpulp

The new machine which is patented in German Patent No. 364,266 and which is seen in the accompanying diagram is designed for the purpose of preparing a woodpulp in which it is possible to fix the length of the fibers at any desired point. The apparatus allows the attainment of fibers of any length and fineness. Owing to the manner in which the teeth of the grinding apparatus are formed they cannot be clogged up with material,

The device consists of a cylinder on which a system of grinding teeth is built as may be seen from the figure. The teeth are trapezoidal in form which is evident from figure 2. The cutting surfaces of the teeth shown in figure 2 is limited by the line 1-2, 2-5, 5-6 and 6-1. The length of the fibers in the ground wood pulp will depend on the length of the cutting edge 1-2.



Abb

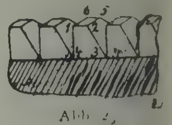


Abb. 2

* * *

Error Acknowledged

Through the inadvertence of the printer, the article headed "Shipping-Rolls of Paperboard" was accredited to the pen of B. T. McBain in last week's issue. While Mr. McBain is indeed a prolific writer he did not write that article, it being the product of James A. Cameron.

* * *

New Firm of Paper Dealers

The Eastern Specialties Company, Holyoke, Mass., recently organized under the laws of the State of Massachusetts to deal in all kinds of paper, is capitalized for $5,000. The officers of the company are, president, Charles E. Desmarais; vice-president, John N. L. Carriers; treasurer, Paul N. Desmarais.

* * *

A true philosopher can laugh at anything except monotony.

Measuring Water Squeezed from Paper Stock

An Invention for Measuring the Water Extracted by Press Rollsand Felt From Stock Running on the Fourdrinier Part Before the Web Reaches the Dryers

SOME new and useful improvements in papermaking machines are provided by devices patented by E. J. Wilson and Edwin A. Reese, who have assigned their interests in the invention to F. C. Huyck & Sons, of Rensselaer, N. Y. The following particulars are gleaned from the specifications of Patent No. 1,483,961, of February 19, 1924.

After describing the formation of stock on the Fourdrinier wire at the delivery end where couch roll removes a part of the water and presses the stock into compact web form, and the operation of the press rolls, each of which in turn removes a part of the water remaining in the web before it passes under the drying cylinders, the inventors of the new device, shown in the accompanying sketch, emphasize the necessity for removing the maximum amount of water by press rolls and felts.

Experience has shown, the inventors say, that the cost of removing moisture from the paper stock by the dryers is some thirty times the cost of removing the same amount of moisture from the stock by pressure applied by the couch rolls or by the rolls and felts of the presses. It is important, therefore, that the devices for removing water from the stock before it reaches the dryers and particularly the presses be maintained in proper condition most efficiently to remove the maximum amount of water, or that amount which experience shows will secure the most efficient and economical cooperation between the moisture removing mechanisms of the machine.

The present invention is said to enable any or all of the water-removing devices of the paper machine to be maintained in condition for the most efficient operation, and this result is secured by the provision of means for measuring the water being extracted by the water removing devices at any given point or at each of a plurality of points in the travel of the wet paper stock through the machine.

The provision of means for measuring the water being extracted by the pressure rolls and felt of a given press not only enables the press to be maintained in condition for most efficient operation but also enables the user of a machine to determine the efficient life of the felts, and also the character of felt which may be most economically used in the manufacture of a given product.

In case there is a material and maintained decrease in the amount of water being removed, which will occur when the felt is no longer operating at maximum or economical efficiency, the means for measuring the amount of water being removed will indicate this fact to the operator so that the continued and uneconomical use of a worn-out felt may be avoided. By comparison of the amounts of water removed by felts of different character when operating at maximum efficiency in connection with a comparison of the life of the felts the user may determine what character of felt is most economical, for instance, whether it is more economical to use a comparatively light or a comparatively heavy felt, or a felt of one design as compared with another. In other words, the invention enables the user of the machine to determine the condition and equipment of the water removing devices requisite for uniformly economical operation and to maintain approximately such condition and equipment.

Any suitable means for measuring the water being removed from the wet stock by the water removing devices may be utilized although it is preferred to thus measure this water by causing it to pass through a flow nozzle, which is connected to operate a recording flow meter, since this means may be readily installed in applying the invention to existing machines and when installed will measure accurately and record the water being extracted from the paper stock by any given mechanism.

The invention will be readily understood from the accompanying drawings which illustrate diagrammatically the application of the preferred form of the invention to two of the presses of a Fourdrinier paper machine.

In the drawing the Fourdrinier wire upon which the wet paper stock is formed into a web is indicated at 2, the lower couch roll about which the wire passes is indicated at 4 and the upper felt jacketed couch roll which removes a part of the water from the stock and presses it into compact web form is indicated at 6. The continuous web of wet paper stock formed on the wire passes from the couch rolls onto the endless 8 of the first press by which it is carried between the upper and lower press rolls 10 and 12, where it is squeezed between the upper roll and the felt and a further part of the water is removed therefrom. From the first press the paper stock passes onto the felt 14 of the second press, by which it is carried between the upper and lower press rolls 16 and 18 where a still further part of the water is removed by compression of the stock between the felt and upper press roll. In like manner the web passes successively through whatever series of presses may be incorporated in the machine and from the last press passes to the heated drying and calendering rolls of the dryer.

In applying the present invention to a machine such as above indicated means is provided for measuring the water being removed by any one or more of the mechanisms which remove successive portions of the water from the wet stock in its travel to the heated cylinders of the dryer.

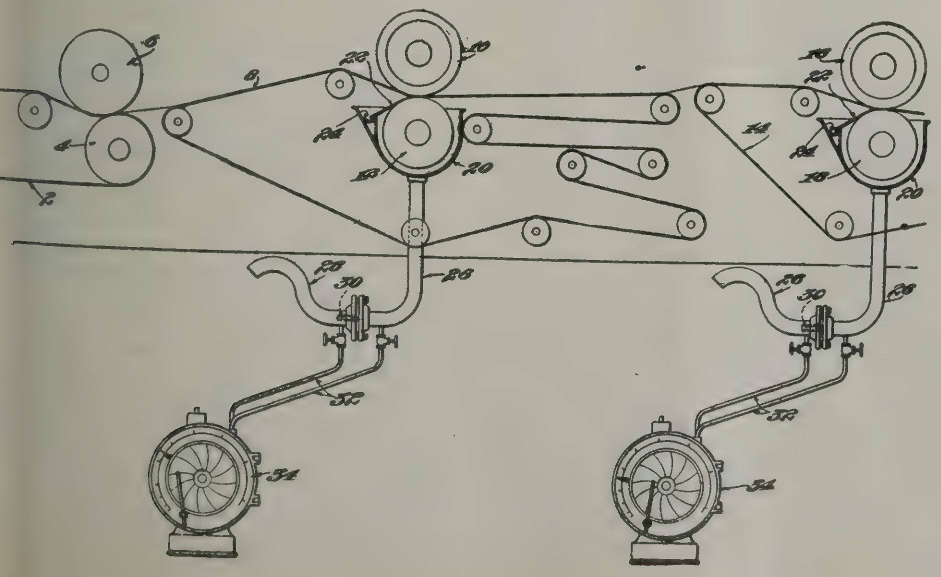
In the construction indicated in the drawings means is shown for measuring the water removed by the first and for measuring the water removed by the second of the presses, it being understood that similar means may be utilized in connection with the other presses, with the couch roll, or with other mechanisms which remove water from the wet stock during its passage through the machine.

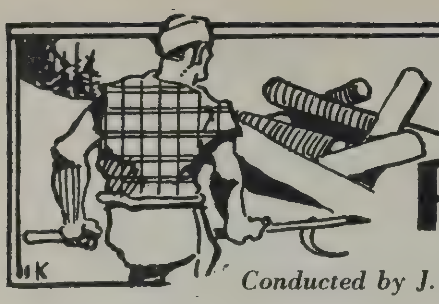
In the construction illustrated the water removed from the paper stock by the felt and pressure rolls of the first press is collected in a trough 20 underlying the lower roll and provided with a doctor blade 22 engaging the lower roll 12 near the bight of the rolls and delivering the water removed at this point into an auxiliary inclined trough 24 from which it passes into the trough 20. The water collected in the trough 20 passes down through a pipe 26 leading from one end of the trough and this pipe is provided below the bottom of the trough with a horizontal portion 28 within which a flow nozzle 30 is located.

The end of the pipe beyond the flow nozzle is bent upward and has its discharge end arranged above the horizontal portion so that a head of water is maintained in the pipe and a flow of water through the nozzle dependent upon the amount being removed from the wet paper stock by the cooperation of the felt and press rolls.

The flow nozzle is connected by pipes 32 with a flow meter 34 of usual construction which is operated by the flow of water through the flow nozzle and indicates and records the rate of flow and consequently the amount of water being removed by the press. The amount of water being removed by the second press is measured and recorded by a mechanism which is the same as that applied to the first press.

During the operation of the machine the amount of water being removed by each press will be indicated and recorded on the time chart of the corresponding meter and will inform the operator whether each press is operating uniformly to remove the amount of water requisite for its most efficient operation and whether the amount of water being removed by each press bears that relation to the amount of water being removed by the other presses which continued use of the invention may have demonstrated will secure the most economical results. The meters will also indicate to the operator when a felt becomes so worn that it can no longer be retained economically in the press so that continued use of the felt after it has ceased to operate efficiently may be avoided.





FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

THE MEAD COMPANY'S PRACTICAL EXPERIMENT

Hardwood Seedlings and Cuttings Planted in 1909 Yield Definite Information To Company

THE story of how one paper company has experimented in the practical practice of forestry in growing hard woods has been told by a report by Karl A. Swenning, forester of the Mead Pulp & Paper Company, on cottonwood and silver maple on river bottom lands. His review of the work that has been done since 1909 tells how three types of planting stock have been used—straight cuttings, rooted cuttings and seedlings of cottonwood; straight cuttings of willow; and one-year-old silver maple seedlings. If soil conditions are very favorable and planting is followed within a very few days by rain, straight cottonwood cuttings give very satisfactory results. "We have secured a 90 percent catch with these optimum conditions," he says. "When such conditions do not exist, however, the results are most unsatisfactory."

When the soil is a good sand loam mixture and where the fertile top soil has not been entirely washed away, seedlings can be successfully used. One-year-old stock 12-18 inches tall, costing about $3.50 per M, can be planted at a cost of $5.10 per M. The average is 85% on the soils just described.

On poorer soils, those that have been badly washed and either the top soil entirely removed or else covered with a thick layer of sand and gravel, seedlings do not give good results. On such sites rooted cuttings must be used. The cost of growing these is high, approximately $12.00 per M, and the planting cost is much in excess of any other, averaging $8.65 per M. Results, however, justify the cost, for an average catch of 90% can be secured. Willow cuttings and silver maple seedlings can be planted at approximately the same cost as can those types of cottonwood stock. Maple seedlings can be raised for $1.65 per M.

A summary of the total costs of the various types of planting is as follows:

With straight cuttings	$5.40 per M
With rooted cuttings...........	$20.65 per M
With seedlings (1 yr.)	$8.60 per M

In planting straight cuttings of willow or cottonwood, the ground is usually in such shape that the sticks can be forced into the ground without any preparatory hole being made for them. For cottonwood and silver maple seedlings a hole is made either with a spud or mattock, depending upon the looseness of the soil. Where the spud is used one man sets the trees for two spud men; where the mattock is used one man both digs the hole and sets the stock. Rooted cuttings, because of the extent of their root system, require the plowing of a furrough the length of the row to be set. The digging of separate holes for each plant is too long and too expensive a proposition.

The operations in cottonwood have been based on a twenty-year rotation, as it is believed that at the end of twenty years the trees will have reached their maximum growth and that from then on the number of trees lost each year will balance the accruing growth. The growth peak may be reached before that time and other unforseen factors may enter the problem, but only by following through what we have already begun can we say definitely this or that is our best rotation.

Working on a twenty-year rotation, this company has used two principles of thinning. With one method it thins once when the trees are ten years old—with the other twice, at six and at twelve years. On one area that was thinned at twelve years there has been established a sample plot with an unthinned check plot close at hand.

The two plots which four years ago had a difference of thirty-nine trees, the larger number being on the unthinned plot, now differ but seven trees. In the matter of growth the thinned plot does not show any marked gain over the other. The actual loss in stumpage on the unthinned plot has been very high and on the thinned area this loss has been utilized.

The results of the tests seem to indicate that a 33% thinning has an advantage over a 50% thinning and a very decided advantage over a plot that was not thinned at all. Both diameter and height growth have been accelerated on the moderately thinned plot to a degree far beyond that of the other two. The real test of the efficiency of the two methods will show to much better effect when the time comes for the second thinning.

Under the present plan of management it is proposed to try to produce two crops of timber from the same acre of land that before produced but one. On the typical cottonwood lands of the Mississippi River two conditions exist; first, a stand of pure cottonwood; and second, a cottonwood and silver maple mixture. In the former stands the crown density is approximately 0.55. Under such conditions weeds grow in profusion and the ground cover is a tangled mass of grass, horse weeds and burrs of various sorts. This is typical of the condition that exists in the plantations. In the second type of stands, where the cottonwood and maple are in mixture, the cottonwood is the dominant tree with the maple forming a solid second story below. Under such stands the ground is practically clear of weeds, all available light space is utilized for wood production and the cord wood yield per acre is increased by more than a third. The effort now is to copy that natural mixture.

A brief resume of the essential facts given may be of interest, says Mr. Swenning:

"1. Cottonwood seedlings, maple seedlings and rooted cottonwood cuttings have proven to be the most satisfactory planting stock.

"2. The rotation basis for cottonwood for pulpwood purposes has been empirically placed at twenty years.

"3. The under-planting of cottonwood with silver maple shows evidence of good future possibilities.

"4. Planted stands of cottonwood compare favorably in growth with natural stands.

"5. Two methods of thinning are being tried, with one showing decided advantages over the other.

"6. In fair stands of twelve year old cottonwood we have secured a yield of 1.36 cords per acre per year.

"7. In average stands of planted cottonwood we anticipate a yield of 1.5 cords per acre per year."

* * *

Legislation in New York

A bill mentioned in PAPER last week, providing for a nine-headed commission to investigate and report in 1925 on a forestry policy for the state of New York, and limiting the investigation and report to privately-owned land, has appeared as Senate Bill 1788 by Mr. Rabenold.

The revised bill reduces the number of commissioners to seven by dropping off the Chairman of Conservation of the Senate and the Chairman of Conservation of the Assembly. The groups represented would include: The New York State College of Forestry, The New York Section of the Society of American Foresters, The Department of Forestry of the State College of Agriculture at Cornell, The New York State Forestry Association, The Association For Protection of the Adirondacks, The Empire State Forest Products Association, and the Conservation Commission.

A forest taxation bill, based on the Massachusetts law, is under preparation. This bill would undertake to encourage the practice of forestry on privately-owned land by exempting the owner from burdensome taxation while the trees were growing. The yield tax advocates in New York are not yet discouraged, although this represents at least the sixth honest effort to get relief from taxation on growing timber.

* * *

Nursery Practice

Paper and pulp companies starting their own nurseries can be depended upon to take the necessary precautions in regard to location, species and general management. Too much emphasis, however, can not be placed upon the care of the young seedlings during the "damping off" age, and this care begins with the selection of the nursery site. The nursery should be placed on well-drained land and never on moist hot land, else at the age of two or three weeks the seedlings will be attacked by a disease which affects the lower portion of the stem and causes death by the whole seed bed at a time.

A small amount of damping-off is apparent in most nurseries, even the best. There are several treatments and preventatives, one of the best being dry sand sifted lightly over the beds in moist hot weather. The acid treatment which often becomes necessary appears to have a beneficial effect on the chemical reaction of the soil for the growth of western yellow pine and jack pine, according to a recent Forest Service announcement.

New Data On Tree Spacing

Last fall PAPER published the results of an investigation on the growth of planted forests, mentioning the twelve or more oldest forest plantations in the United States. When that investigation was first made, a plantation of six acres in the southern part of Massachusetts was calipered and the figures saved for future reference, the age of the plantation being such that it could not be included in the study at that time.

In a personal letter to this column the Chief Forester of Massachusetts gives additional data on the plantation, based on an investigation made less than one month ago. The figures are of value to the paper industry chiefly from the standpoint of the spacing of trees in reforestation work, and seem to add weight to the general rule of 1000 trees to the acre (or a spacing of approximately 6 feet by 6 feet).

Quoting from the letter, "It is quite evident from the appearance of this plantation that the spacing 10′ x 10′ is too wide. The trees are short and scrubby (33 feet high) and even at the present age, about thirty years, there are comparatively few trees that can be removed for thinning." The following is a record of the measurement:

Area, 6 acres		
Class I trees:		
1721	58,340 ft.	118 caliper cds.
Class II trees:		
274	5,080 ft.	7½ " "
1996 trees	63,420 ft.	125 caliper cds.

* * *

New Wood for Papermaking

Samba (*Triplochiton Scleroxylon*), occurring in Guinea, the Ivory Coast, Dahomey and the Cameroons has been investigated for use in papermaking. The wood contains 60 percent of cellulose and 39 percent of lignone, but only 33 percent of cellulose was obtained in the technical tests, the paper produced being of common type. When bleached, the pulp was a dull white, slightly rough to the touch and fairly supple. Resistance to tearing, rubbing and other tests was mediocre. Very thin sheets can be obtained, the felting power being 0.015. With energetic treatment the lignone is easily eliminated, and the wood seems well suited for papermaking.

* * *

Conservation Week in East

April 5th closed the special observance of Conservation Week in some of the Eastern states, where proclamations were issued calling attention to the need for greater effort in public education and in reforestation. Thirteen inches of snow blocked many reforestation projects that were under way, but the work of public education went on unhampered. Two facts of importance are brought out by the week's observances, namely, that there are not enough state trees to go around, and that some of the industries, recognizing this, are learning to shift for themselves in the matter of idle land reclamation. At the rate we are going the proclamations in 1925 will call for enlargement of our nurseries to keep pace with the "plant more trees" program.

* * *

Yield of National Forests

The eight National Forests of the state of Washington yielded 142,153,000 board feet of lumber during 1923, the value of which was $257,796. There were actually sold from these forests during that period 252,657,000 board feet, much of which had previously been cut under Government contracts.

* * *

As a nation we are taking better care of our arms and legs. The production of artificial limbs decreased 25.7 per cent in the United States from 1919 to 1922, says a governmental report.

NATIONAL FORESTRY BILL IS BEFORE CONGRESS

Bill Is Reported Out by the Committee on Agriculture

THROUGH a series of steady advances the Clarke-McNary Bill has now come out of the House Committee on Agriculture, still potent, and bearing no serious marks of battle. It has the distinction of being the first forestry policy bill ever to reach the floor of Congress. Hearings in the House on March 25th and 26th were followed by two days of hearings by the Senate Committee on the McNary Bill, companion of the Clarke measure. The McNary end of the legislation will undoubtedly be reported promptly in the upper house.

Only minor changes were made by the House Committee in the original bill, such changes as were made being intended to help the farmer in the practice of forestry on his woodlots. The favorable reporting of the bill is a notable accomplishment for the whole forestry movement in the United States.

On March 28th, Chief Forester Greeley told the Senate Committee on Agriculture and Forestry that the work of the Senate Select Committee on reforestation, which resulted in the McNary-Clarke forestry policy bill, was the most exhaustive investigation that had ever been made of the subject. The committee visited every principal forest region of the United States and held twenty-five hearings in as many different places. Colonel Greeley explained that the bill deals with approximately one-fourth of the land area of this country, and has two main purposes: First, the extension of public ownership, both federal and state, of forest lands and lands suitable for forest growth, and the broadening of the forms of public administration; Second, to encourage reforestation of lands in private ownership. He then took up the bill section by section, discussing it from an administrative standpoint.

Governor Gifford Pinchot of Pennsylvania was present and Colonel Greeley yielded his time so that the Governor could express his views to the Committee. The Governor explained that he did not want to say anything that could be construed as antagonistic to the McNary Bill. He favored it in a broad way but insisted that it did not go far enough. After brief reference to the McNary Bill Governor Pinchot launched into a critical analysis of the Capper Bill, which is also before the Committee on Agriculture and Forestry. Colonel Greeley continued his testimony on the following morning, and as this article is being written the people of the country, and particularly the industries, are awaiting with expectation the announcement that the McNary measure has been reported out of committee and has come before the Senate.

* * *

To Cut New Crop

Reforestation on a commercial basis has been started in several sections of the country, the Senate Agriculture Committee was told today by W. B. Greeley, chief of the forest service. The committee is holding hearings on the McNary reforestation measure.

Southern pine producers in the South expect to cut a crop for wood pulp in twenty-five years, Mr. Greeley said, and to have ordinary building lumber within forty years. Producers of redwood on the Pacific Coast look for a first crop in forty years to be used largely for railroad ties. Sixty years, said the forest head, will be required to produce higher grades of redwood timber.

* * *

A lot of people never realize how cold or warm they are until they take a look at the thermometer.

* * *

One thing is certain, few of us have overworked consciences.

A Column of Fun

NOT WANTED

Visitor: "We're getting up a raffle for a poor old man. Won't you buy a ticket, my dear?"

Sweet Thing: "Mercy, no! What would I do with him if I won him?"—**Judge.**

* * *

WHY, CERTAINLY NOT

The Boss: "Is it true that you leave your typewriter and go when the clock strikes five, even if you are in the middle of a word?"

The Stenog: "Certainly not! When it gets as near five as that I never begin a word at all."

* * *

ROUNDING OUT A GIFT

"Sir," said the beggar plaintively, "the good Lord gave me a stomach."

"Well, what of that?" demanded the passer-by sourly.

"Wouldn't you like to round out his gift?"

* * *

THE REASON FOR HIS ABSENCE

Parent: "Is my boy precocious, do you think?"

School Principal: "Very, he told the teacher he had been sitting up with a sick friend."—**Puck.**

* * *

No Alarm Clock Needed

Mrs. Blake—So this is your little angel. Doesn't a baby liven up a household wonderfully?

Mrs. Drake—Yes, indeed. We ain't had a wink of sleep since the little darling arrived.

* * *

SHARP STUFF

Hoyle—What? A bachelor yet?

Doyle—Yes. I'm looking for a girl who can love, honor and obey.

* * *

Reason in All Things

Johnny—Mamma, do they sell babies by the pound?

Mother—Yes, precious.

Johnny—I suppose that is why people buy 'em when they're little.

* * *

It begins to look as though the people involved in the latest movie scandal didn't belong to the slow-motion picture type of stars.

* * *

Mistress—Mary Ann, you're expecting company, aren't you?

Servant—How can ye till, mum?

Mistress—You've cooked an appetizing dinner.

* * *

A neurotic is an electric motor which has tried to turn around and look into the dynamo.

* * *

Any one who has the ability to become bored has the ability to create.

* * *

Do not get too close to romance or it will become reality.

* * *

A man went into Cohen's Book Store and asked: "Have you a copy of 'Who's Who' and 'What's What' by James K. Jerome?"

Cohen replied, "No, sir, but we got 'Who's He' and 'Vat's He Got,' by Bradstreet."

NEWS FROM CANADA

CANADA ALMOST EQUALS U. S. PRODUCTION

Newsprint Mills Now Reach a Record Figure That Closely Approaches United States

THE latest figures published by the Canadian Pulp and Paper Association show that the output of Canadian newsprint mills is now very nearly equal to that of the United States. Their output had doubled since 1917, while during the same time that of American mills has increased by only 14.2 percent.

The rapid development of the Canadian pulp and paper industry, especially that part of it which has to do with the production of newsprint, is directly due to the equally remarkable demand from the United States. This is being brought home to the Canadian industry by the falling off of the export trade generallv (outside of the United States) especially during the last year. Exports of paper products to Australia have fallen away to a very low ebb, and those to Great Britain are also much less than formerly.

In a recent Canadian publication attention was drawn to the fact that ten years ago American mills were able to meet all but a small percentage of the domestic requirements for newsprint; but during the last decade the output has been steadily falling behind the demand. While the use of newsprint has increased, the depletion of the pulpwood supplies of the Eastern and Lake States has permitted only a moderate increase in American production.

It is a noteworthy fact that the value of Canada's exports of newsprint have increased from less than $4,000,000 in 1912, to over $80,000,000 last year. It is not very long ago that Canada's pulpwood resources were considered of very indifferent value; but with the demand for paper from the United States, combined with the inroad made by fire and insects, all this has been changed. Now Canada's forests are considered to be one of her valuable assets.

The increasing part played by pulp and paper in increasing the commercial importance of Canada may be seen in the fact that today paper stands second only to wheat in order of importance among her exports. Ten years ago her exports of paper were valued at less than $7,000,000, or about one-third the value of cheese alone. This year all the butter and cheese exported from Canada's 3,000 dairy factories, plus all the apples and all the fruits from the famous orchards of Ontario, British Columbia and the Annapolis Valley in Nova Scotia, plus all the cattle and fish exported are scarcely equivalent in value to the exports of Canada's paper products. The pulp and paper industry is now one of the pillars of Canada's industry, and is doing more than anything else to keep her exports where they are.

* * *

Lieut.-Col. Thomas Gibson, Toronto, vice-president of the Spanish River Pulp and Paper Mills, Limited, who has been away from his office owing to illness for some weeks, has gone to Bermuda to recuperate.

START EXCAVATION FOR NEW MILLS

Sites Selected for Humber Bay Plants in Newfoundland

THE pulp and paper mills to be built at Humber Bay in Newfoundland will be among the most important pulp and paper manufacturing plants in the British Empire. The sites for the mills have already been chosen. These are located at a center known as Corner Brook. A start has been made in the excavation work for the new mills, the anticipation being that work will be rushed so that the mills will be available for operation early in 1925, either partly or wholly.

In addition to constructing the pulp and paper mills, about 1,000 houses will be built for workmen. A hundred of these houses are now being built, and indications are that the entire number will be ready for occupancy next year. These houses will be built in a regular town site, which has been approved by the town planning authorities of Newfoundland. In addition to the houses, a hotel will be built for the use of company employes. This hotel will contain 100 rooms in addition to a swimming pool, bowling alley, billiard hall and gymnasium.

Newfoundland and Canada Back Enterprise

At Corner Brook also considerable reclamation work has been effected. Corner Brook is really an inlet from the Bay of Islands. Much of this inlet has been filled in. Piers will be built and a railroad constructed on the reclaimed territory. A start has already been made in building the piers and the railway. All of the shipping will be done from these Corner Brook piers, which will be situated in a natural harbor, on the coast. Shipping to Great Britain and the United States and Canada will be greatly facilitated by the choice of Corner Brook as the shipping as well as manufacturing center. The British and Newfoundland interests who are interested in this project, probably the most important ever proposed for the island, expect to employ about 5,000 to 6,000 men, when manufacturing operations start. That the year 1925 will witness the opening of such operations is the general feeling. The Newfoundland government and the British government are financially interested in the gigantic scheme, together with private interests. But for the support offered by the Newfoundland government, the big industry would not have gone to Newfoundland, but would likely have been located in eastern Canada.

* * *

Booklet On Industry

An interesting and instructive booklet on the newsprint industry of Canada has just been issued by Nesbitt, Thomson & Co., Limited, a Toronto financial house. The booklet describes briefly the methods of production of groundwood, sulphate and sulphite pulps, and their use in papermaking and it goes on to indicate the rapid growth of this basic industry, showing the natural advantages for economical production possessed by the Dominion.

INTERNATIONAL AND THE PREMIER IN DISPUTE

Correspondence Now Being Published Between Manufacturer and Premier Veniet

PHILIP T. DODGE, president of the International Paper Company, and P. J. Veniet, premier of New Brunswick province have been exchanging some letters in regard to the proposed hydro-electric development work at Grand Falls on the upper St. John River. The International Paper Company controlled the water power rights at Grand Falls for some years by agreement with the New Brunswick government. However, these rights were revoked on the ground of inaction. The government announced that it would undertake the development of the water power on its own initiative. Veneit has now offered some of the letters for publication. He states that in one of his letters, the president of the International Paper Company wrote in part: "There are reasons why the provincial government could not make the development in the face of opposition from us without international complications. There will be no opposition on our part to the transfer of the properties to the province or its development by the province unless we are treated unfairly."

Veniet states he replied that he hoped this was not given as a threat and asked Mr. Dodge to be more specific. In another letter, Mr. Dodge wrote. "I have refrained from giving the correspondence to the press for publication." In reply to this Veniet wrote, "I am only too glad to have the correspondence published, so that the public might see the way the game is played."

Veniet states in his last letter to the International head, he asked the latter to state the claim of the company against the province in detail. He says Mr. Dodge did not give this statement, merely alluding to the company's leases and options on the Maine side of the St. John River near Grand Falls. That the International will file a claim because of the loss of the Grand Falls rights is believed to be assured. It is believed also that some of the property leased to the company must be taken over by the province of New Brunswick in proceeding with the hydro-electric development, and the company will seek compensation for such transfers. The entire matter will be threshed out in the New Brunswick assembly, to which the definite claim of the International may be presented later.

* * *

Enforced Idleness

A number of the pulp and paper companies in Ontario and Quebec will have an enforced idleness of about ten days beginning April 1. The Dominion Government has notified the mills of cleaning and repair operations to be carried on in the Lachine and Welland Canals which will necessitate the closing down of several mills in the Niagara district as well as the Mille Roche mill of the Provincial Paper Mills Company. The mills will take advantage of the shut-down to make the necessary repairs and renovations.

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Safety Association Meets

The annual meeting of the Ontario Pulp and Paper Makers' Safety Association was held in Toronto last week when reports of the year's work were presented and officers elected. An interesting feature of the meeting was the warding of places in Classes A and B, in connection with the annual accident prevention competition. The winners in Class A, which includes mills employing 200 people or more, are the Riordon Company, Limited, Hawkesbury, Ont., with a record of 60 non-fatal accidents, involving lost time of 481 days, which is equal to 1.1 days lost time per full time employed. The winners in Class B are the Miller Brothers Company, Limited, of Glenmiller, Ont., with a record of one non-fatal accident, involving lost time of 12 days, which is equal to .27 days lost time per full time employed. At a meeting of the directors H. F. E. Kent, of Toronto, ex-president of the Canadian Pulp and Paper Association, was elected president and L. R. Wilson, of the Abitibi Power and Paper Company, Limited, vice-president. A. P. Costigan was reappointed secretary-engineer.

* * *

What Will He Do?

The arrival of Lord Rothermere in Canada is being awaited with interest in pulp and paper circles, for it is thought that it may have a bearing on developments in the Chicoutimi pulp group. It is known that Sir William Price, one of the biggest figures in the Canadian industry, has been in London for some time, and rumor connects his presence there with Chicoutimi matters. In some quarters it is thought that the Rothermere and Price interests may combine to take over Chicoutimi. On the other hand there is opposition to the proposed merging of all the Lake St. John, Chicoutimi and Saguenay pulp and paper interests into one giant corporation, and it is believed that those holding this view have strong financial support. In the meantime it is understood from the liquidators of the Bay Sulphite Company, the fate of which is closely linked with that of Chicoutimi, that the mills of the former at Chandler, which have been closed for some time, will reopen shortly. The receivers will operate the mills, but only in a temporary way.

* * *

Cut Down Production

Although the normal production of kraft pulp at the Dryden Paper Company's plant at Dryden, Ont., is about 65 tons a day, since the receivership the company has cut down this production to about thirty tons of pulp. They are now making sufficient pulp for their own requirements only and are selling practically no pulp in the United States markets. The company is manufacturing a complete line of machine-finished kraft, dry and water finished manilas, machine-glazed pure kraft and machine-glazed No. 2 kraft, as well as a considerable amount of sheathing papers. Naturally the cutting down of operations in the pulp mill has cut the company's wood consumption in half. The company states that there was considerable competition in the Dryden district this year in the purchase of wood from American mills, but it is understood that the settlers have not sold all of the wood produced.

* * *

Mill Making Progress

Good progress is being made in the construction of the new pulp mill for the Great Lakes Pulp and Paper Company at Fort William. It is expected that by April 16, the power line from the Bare Point station to the Great Lakes plant will be ready for the transmission of current.

PAPER EXPORTS NEAR PAR

Slightly Less in February than January but Larger than in February Last Year

EXPORTS of paper from the United States during February amounted to $2,045,961, a decrease of $5,623 compared with the previous month, but an increase of $86,370 compared with February, 1923. The chief gains were made in exports of paperboard and strawboard, which increased in value 21 percent compared with January and 57 percent compared with February, 1923, and in exports of hanging paper, which increased 46 percent compared with last month, and 82 percent compared with a year ago. Shipments of carbon paper, envelopes, wrapping papers (other than kraft), and toilet paper during February also show considerable gains over both the previous month and last year, while exports of greaseproof and waterproof papers, newsprint, towels and napkins, and sheathing and building papers, although somewhat under those for January still show a substantial increase compared with February of last year.

Big Gain in Canadian Exports

According to the report issued by the Canadian Pulp and Paper Association, the exports of pulp and paper from Canada in February were valued at $10,947,199, an increase of $47,149 over the total for January. Comparison with the returns for February, 1923, show a very considerable increase in the value of the pulp and paper exports for last month, the value this year exceeding that for 1923 by $963,531.

The gains were chiefly made in shipments of newsprint, which amounted to 99,621 tons, valued at $7,359,535, last month compared with 84,395 tons, valued at $6,360,140, during February, 1923, and in shipments of sulphate (kraft) pulp, which show an increase of from 9,525 tons to 12,298 tons in quantity and $618,342 to $725,926 in value. Exports of book, bond and writing, and kraft wrapping paper, and of unbleached sulphite and mechanical ground wood pulps fell off to some extent last month, both in quantity and value, and exports of bleached sulphite declined somewhat in value, although the quantity shipped, 14,713 tons, was 17 per cent above that for February, 1923.

* * *

To Build Homes

The Continental Wood Products Company, of Elsas, Ont., state that they are preparing to build a number of new cottages in addition to those they built last summer for the housing of their employees and those engaged in the erection of the new kraft mill. Work on the new power dam had to be discontinued on account of the ice in the river but will be resumed as soon as the ice goes out and they are able to use boats. The mill cut this season will be about double that of last season which is accounted for by the fact that the company will be cutting much heavier lumber and timber for use in the construction of the new plant. The kraft mill, when completed, is expected to be one of the best equipped on the continent.

* * *

Have Attractive Showroom

Warwick Bros. & Rutter, manufacturing stationers and paper box makers, Toronto, have fitted up a very attractive showroom in their plant on King Street for the display of their 1924 lines of De Lux papetéries. The display is a very artistic one, including as it does many new and novel designs in the line of fancy stationery boxes.

Hayward Promoted

Promotion of R. A. Hayward to the general superintendency of the Kalamazoo Vegetable Parchment Company plant to succeed Jacob Kindleberger is the most important executive shift in the Kalamazoo Valley paper mills this year. The change became effective April 1. Mr. Kindleberger, who built the plant up from a small concern to a plant worth several millions, will retire as general manager, but will retain the presidency of the company.

The change, announced by Mr. Kindleberger, is made to relieve the latter of all detail matters, leaving him free to devote his time to matters of broad policy. Mr. Hayward has been connected with the mill as a consulting engineer during the last year. He formerly was a member of the faculty of the University of Michigan department of engineering, teaching papermaking engineering. His family will move to this city some time during April.

* * *

Coughlin With Franklin

Edward T. A. Coughlin of Kalamazoo, vice-president of the American Pulp and Paper Mill Superintendents' Association, has accepted the general managership of the Franklin Coated Paper Company, of Franklin, O. Mr. Coughlin will leave in a few days to assume his new duties. He has been associated for ten years with the Monarch Paper Company, now a part of the Allied Paper Mills, Inc., both as superintendent of the coated paper department and in the technical division. He is a graduate of the University of Maine. He has been active in Michigan papermaking circles and a leader in the movement for the formation of divisions the Pulp and Paper Mill Superintendents' Association.

* * *

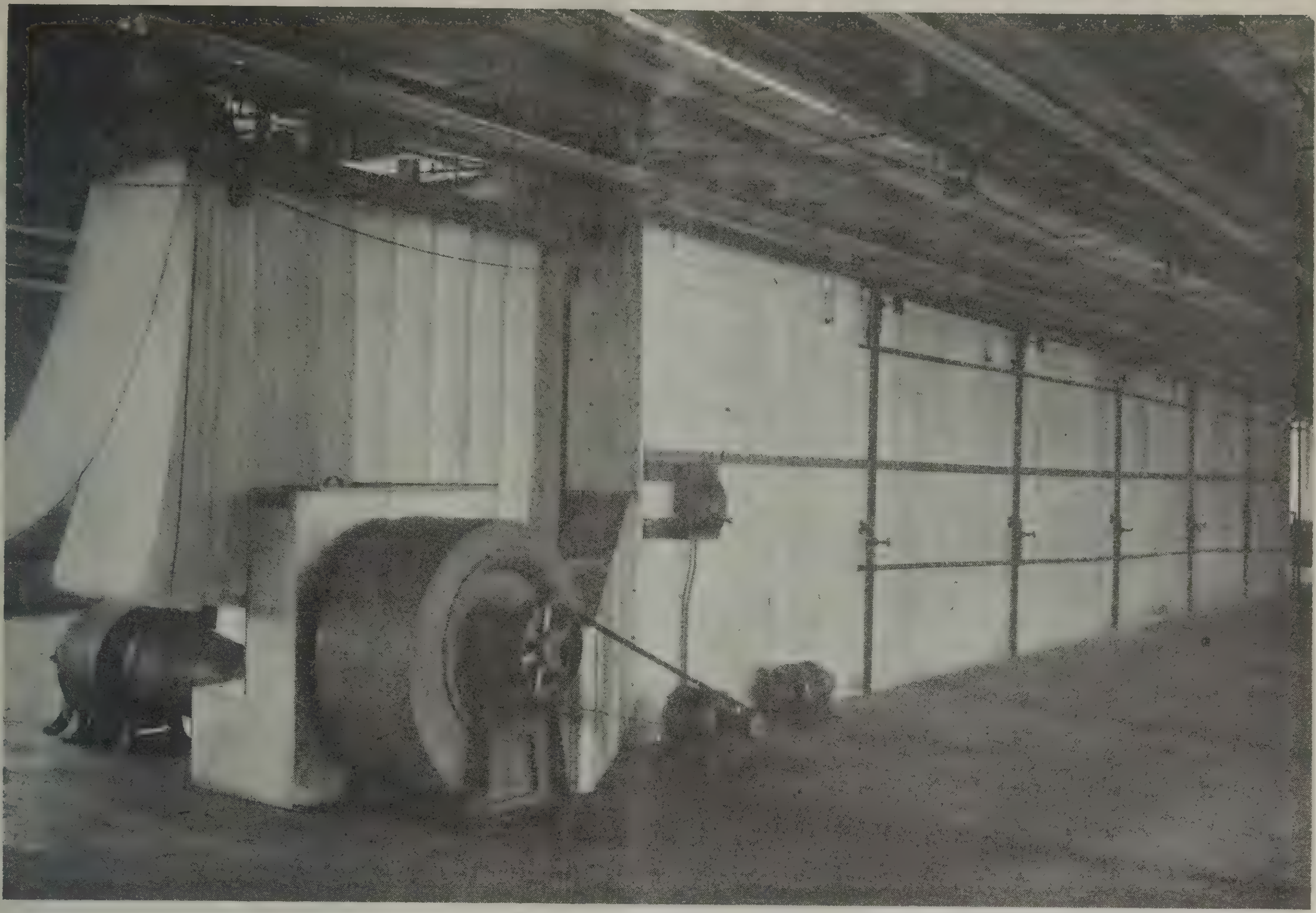
New Issue Out

The Howard Smith Paper Mills, of Montreal, are out with an issue of $1,471,000 of bonds. The issue is part of the present authorized issue of first mortgage sinking fund bonds paying 7 percent and maturing in 1941. Up to the present, 1924 earnings show a satisfactory increase over those for 1923. The mills are at present working at about 80 percent of capacity. Export business to all countries save Mexico and India shows an increase. German and Scandinavian competition is, however, especially keen. Domestic trade is satisfactory and shows an increase over 1923. Prices are holding steadily, and raw materials such as rags, etc., show a tendency to advance, which may raise the price of paper.

* * *

Gets Pulpwood Holdings

The Brompton Pulp & Paper Company, Limited, has acquired new pulpwood holdings. Under the arrangements the company will have available for use an area of approximately 45,000 acres of land comprising approximately 500,000 cords of pulpwood, 65,000,000 feet of pine lumber as well as other woods, and an up-to-date and efficient mill and plant together with contingent equipment, sidings, etc. The area has been purchased at a price that is considered exceedingly reasonable and will be paid for by an issue of $850,000 6 percent bonds of the McCrea Wilson Lumber Company. The Brompton Pulp & Paper Company will own the capital stock of the McCrea Wilson Company. The new limits, 24,000 acres of which are in Canada and 21,000 acres in the state of Maine, are adjacent to the Brompton mills which means a low transportation bill.



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Detection of Crime by Paper

French Paper Expert and Lawyer Treats of Paper Analysis as Applied to the Detection of Crime

IN a recent issue of PAPER an article was published under the heading "Forensic Paper Chemistry," which was erroneously credited to A. Papineau-Couture, who happened to be only the translator of the article. The article originally appeared in *La Papeterie* and was reproduced in the *Pulp and Paper Magazine;* it dealt with the detection of possible forgeries or other tampering with documents. Owing to one of those unaccountable slips in the print shop, part of another article on "Slime Formers for Pulp" was tacked on to the article. The irrelevancy of the added matter was apparent at a glance and readers could readily make the proper connection.

French Courts Depend on Paper Analysis

The subject of crime detection by the analysis of paper or documents submitted as evidence in criminal cases appears to attract much greater attention in the French courts than in our own. Monsieur Jean Lhermitte, a well known Paris paper expert and avocat or lawyer, relates in *Le Papier* one or two cases of crime detected and mysteries solved by a careful physical and chemical analysis of the paper appearing as evidence. A summary of the article is contained in a recent number of the *Paper Makers' Monthly Journal.*

Physical and Chemical Means Used

A very little thought will suggest that ordinary paper, as distinct from banknotes, even common letter paper may well be the means of confounding the holder. One can imagine that a piece of paper found at the place where the crime was committed, and a paper found at the house of a suspected person might be submitted to minute analysis for a comparison of quality, texture, fiber, color, loading and size. M. Bayle, chief of the laboratory at the Pasteur Institute has elaborated the idea of differentiating or identifying two samples by a careful physical and chemical analysis. It is not to be supposed that such analysis shall determine the life of an individual solely on the evidence of quality, but clearly the investigation must prove of great value.

Defect in Watermark Established Guilt

One case is that of the anonymous letters of Tulle. The police suspected a certain Angele Laval by reason of handwriting. The evidence was supported by comparing the paper used for the letters with writing paper found at the house of the suspected person. A defect in the watermark was identical in both cases, as shown by an enlarged photograph of the watermarks in different sheets. It was a case of assuming that two dandy rolls could hardly exist in which the same defect would occur in the same place.

The presence of a thick wire in one position, or the existence of a thin place elsewhere would easily account for a corresponding defect in the paper watermark. The same arguments would apply to the wire mark of a machine wire, the defects or peculiarities of which would impress themselves on the paper.

Micrographs of Fibers as Identification

In a similar manner the micrographs of paper fibers afford valuable evidence of difference or identity, allowing the authorities to find further proofs of complicity. The importance of this is supported by a story quoted. A crime had been committed near Lyon, a rich peasant being murdered by means of a hatchet, with which the victim's skull was broken. At the spot where the murder took place the magistrate's officer had found a piece of paper stained with blood, it having been used to clean the hatchet. Later on a hatchet stained with blood was found at the house of a neighbor, who was arrested. He protested his innocence. Further investigation showed traces of paper fiber attached to the surface of the weapon and a microscopic examination of the original piece of paper showed that while it consisted entirely of woodpulp the fibers on the hatchet were solely cotton giving the usual wine-red color when stained with solution of chloro-zinc-iodine. The true culprit was afterwards found in a hovel in Lyons, where his equivocal statements and extravagant expenditure had already created suspicion.

Fibers of Cloth Afford Evidence

The burglary of the Post Office of Vauvenargues is another case in point. A screen had been used to protect the light of an oxy-acetylene lamp used to burn open the door of the safe.

The screen, which it appeared later, belonged to the burglar, had been altered and disguised by the use of fresh material tacked on to the framework. But the original nails still retained fragments of the old material. The bulk of the latter was discovered hidden away in the house of an old servant of the accused person. A microscopic examination of the fibers, a chemical examination of the cloth sufficed to give all the necessary confirmatory evidence.

Cases of forgery, and imitation postage stamps may also be quoted as interesting examples of this kind. The examination of the paper and its constituent elements is a subject of fascinating interest.

Rubber Latex for Paper Board

Frederick Kaye, who introduced the process for making rubber-latex paper, has invented a new use for rubber latex in the manufacture of boards, leather and linoleum substitutes. The amount of latex required in making boards, etc., varied from 30 to 40 percent of rubber content (more than is used in making rubber latex paper), the quantity depending on the nature of the fiber and the purpose and quality of the final product. The increase in tensile strength was greater with low-grade materials.

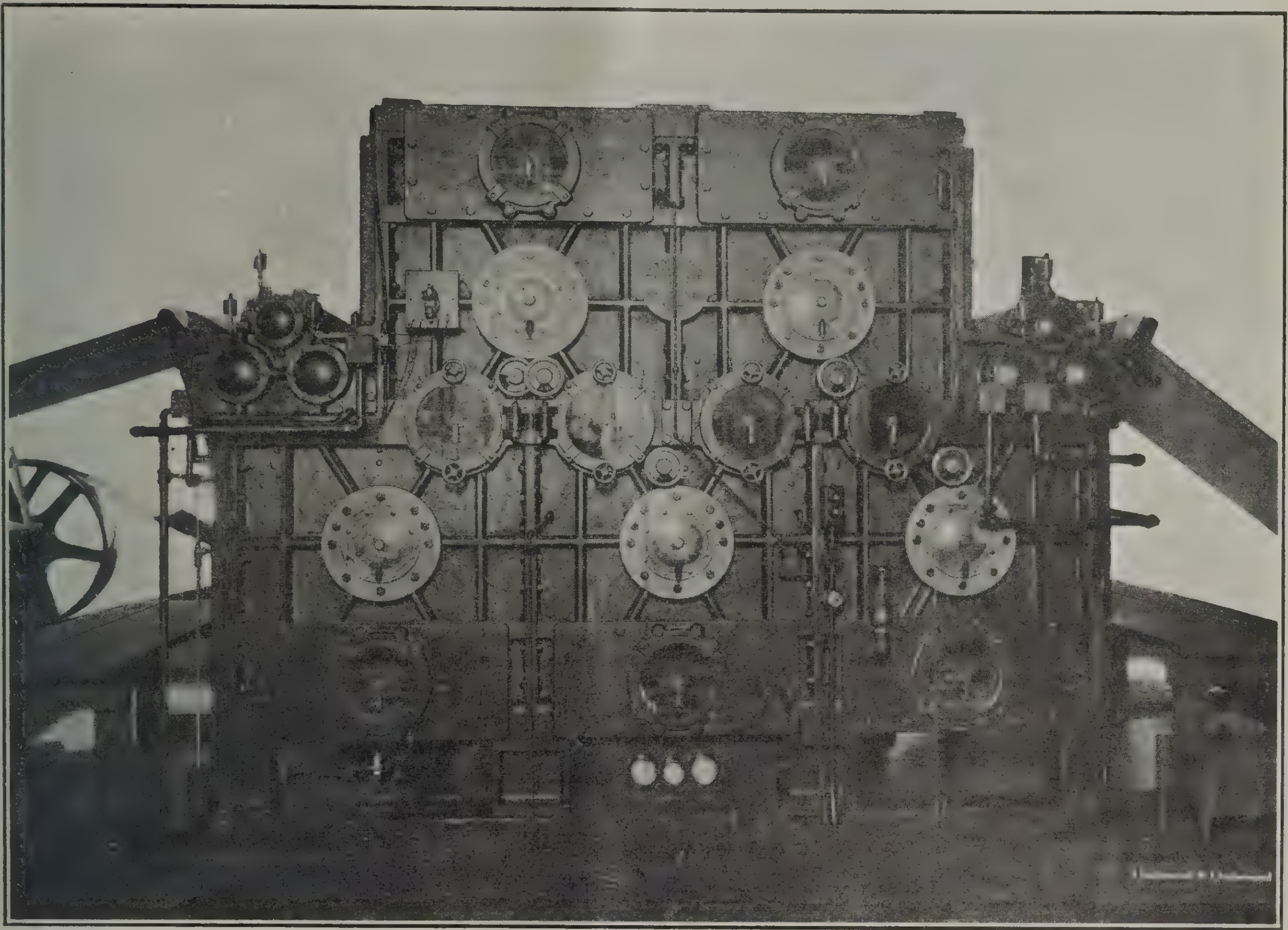
The development of the manufacture of latex boards should lead to a big range of new products made by papermaking and board machines, *e.g.,* floorcloth, leather boards, asbestos boards, mill boards and containers. Latex boards are easy to color and could be used in the electrical industry. As latex boards are well suited for embossed effects, they could find use in bookbinding, paneling, etc. The boards can, it is said, be self vulcanized during manufacture at very small cost.

* * *

Guttapercha Substitute from Paper

According to the patent specifications of a process for the manufacture of imitation guttapercha and leather issued in England to Hydroloid, Ltd., raw paper is passed through a bath of sizing material, *e.g.,* glue, casein, or albumin, of 5 to 15% concentration at 35° to 40°, and pressing between rolls during or immediately after immersion. After several hours, hardening materials, such as alum, chromium salts, or formaldehyde, are applied. The material is then softened by treatment with glycerin, or alternatively, soap or castor oil may be included in the sizing bath. The sheets are finally coated with a transparent varnish. The addition of sodium hydroxide, up to 2%, or of lactic acid up to 30% on the weight of the dry sizing material, facilitates impregnation in the sizing bath. For combining several layers of treated paper a stronger solution, *e.g.,* of 25 to 35% concentration, of the sizing material is employed.

Minton Vacuum Paper Machine Dryer



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Strength and quality of paper improved
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Reduced broke
Drying not affected by weather
Better control and more uniformity of product
Drying unit occupies less floor space
First cost no higher

This machine will be demonstrated on the 10th and 11th of April (Convention Week), or at any other time by appointment, at the plant of the Norwalk Iron Works, South Norwalk, Conn. South Norwalk is on the N. Y., N. H. & H. R. R., one hour ride from New York City. ***INQUIRIES SOLICITED***

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Tests for Paper Dyes

Simple Methods for Determining Money Values in Dyes for Paper—Comparisons of Tints and How They May be Made

By LEONARD MANN

Frequently it is necessary in practical papermaking to make a quick comparative estimate of the tinting value of different dyestuffs. In the accompanying article reproduced by courtesy of the National Aniline & Chemical Company from Dyestuffs, *the author makes a number of practical suggestions which can be easily applied to obtain definite results.*

EVERY user of dyes for paper, especially aniline dyes, is frequently put to the necessity of deciding which one of two or more products offered to him for a certain shade is the best money value for his purpose. The points to be considered in such a test are primarily strength, shade, and solubility in their relation to the price asked. The actual money value of pound against pound can only be determined by means of careful tests, some of which are discussed in this article.

The degree of solubility of a dye is found more or less readily by dissolving equal quantities of the samples of dyestuffs to be compared, under the same conditions. This means that equal amounts of water of the same temperature are used, also equal quantities of acetic acid, (when used to correct hard water in connection with basic dyes) or soda ash (when the products are direct dyes). The facility with which a perfect solution is obtained or the amount of insoluble matter or residue left over, are carefully noted and compared.

By pouring the solutions so obtained on filter or tissue paper, a preliminary comparison of the shade is possible, but this should not be taken as final unless it is a case of dipping or calender staining colors. This method is more dependable than a comparison of solutions in glass beakers or graduated stand glasses only, though an approximate estimate as to the strength can be obtained by this latter method.

To arrive at the actual coloring value of dyes used in beater-dyeing, the two dye samples to be tested should be applied to the stock for which they are intended under identical conditions, and the actual mill process duplicated as closely as possible.

The most reliable way to test dyes, of course, is to make an actual mill run with each dye on an identical furnish including equal amounts of size, alum, and fillers and under the same beating and dyeing conditions. Where this method does not for some reason recommend itself as an initial test, the dyeing should be done on a small scale and if care is taken to have the above mentioned conditions as to furnish, etc., equal, thoroughly dependable results will be obtained.

For such a test, the stock is either prepared in a small experimental beater, or where such a beater is not available, stock is taken from one of the mill beaters after being beaten sufficiently to permit forming a sheet on a hand mould, but before the addition of size and alum. Such stock is then weighed out in equal quantities into several beakers, preferably of enamel ware, due precaution being taken that the amount of moisture and dry contents of each quantity of stock are equal.

Standard solutions of the dyes to be compared are then made up, and equal amounts of these solutions added to the stock in two of the prepared beakers. Size and alum are added in equal quantities to correspond with the amounts used in actual mill practice and then the contents of these two beakers are agitated either by hand or preferably by some mechanical device for an equal length of time.

Glass bottles are sometimes used in place of enameled beakers or pots, the mouth of the bottles being closed by a stopper and the agitation of the stock being done by means of vigorous shaking by hand, although mechanical devices for shaking and agitating will produce more accurate results.

After the stock in each of the beakers has been agitated for an equal and sufficient length of time a hand sheet can be formed and dried in a convenient way, either in the air or on an electric hot plate or on a paper-machine dryer. After drying, the sample sheets are compared, and if there is a noticeable difference in strength, new sheets are made of the weaker sample in the same strength as before and of the stronger sample with a reduction of the amount of color solution to approximate the weaker sample. A trustworthy basis for comparison of strength in percent is thus arrived at, and with prices known, the money value of each sample is readily determined.

* * *

To Build Addition

The Chagnon Huggard Company, Montville, Conn., manufacturers of paper tubes and cores, has completed private plans for an addition to their mill. Figures are now being obtained.

SAFETY WORK IN NEKOOSA-EDWARDS MILL

Much Interest Aroused in Contest: Old Safety Record Is Broken By Nekoosa Employees

THE Nekoosa mill is holding the lead in the safety contest which has been in progress between the Port Edwards and Nekoosa Mills of theNekoosa-Edwards Paper Company of Port Edwards, Wisconsin, since the first of the year, and a few days ago broke the Nepco record of 41 days without an accident, which was hung up at Nekoosa in 1920. The Nekoosa Mill has now gone 46 days without an accident and superintendents and men alike are confident of continuing the good record indefinitely.

Seek 25 Per Cent Cut

The Safety contest was decided by the Safety department of the Nepso mills, of which F. H. Rosebush is the head, in an effort to bring about a 25 per cent reduction in the number of accidents during 1924. There had been steady decline in accidents during the previous years, but the opinion was held that better results were possible, and the results of the safety contest thus far have confirmed this belief.

During the month of January the Nekoosa mill went through without a single accident. Port Edwards went twenty days and then had an accident, which proved to be the only one for the month.

Port Edwards had two accidents during February, while Nekoosa finished that month with only one, which occurred February 4th. Since that date there have been no accidents at the Nekoosa mill.

Men Are Interested

Much interest in the campaign is being shown by the employees at the Nekoosa Mill, and they are working to maintain a record of no accidents for as long as possible. If both mills go for any one month without an accident the safety department has guaranteed to supply candy and cigars.

Under rules of the contest an accident is counted when a man who is injured is unable to return to his regular job on his regular shift. Minor injuries count as much as a broken leg in the safety record, and men at the Nekoosa mill are not taking any time off for bruised fingers or similar hurts.

The slogan adopted for the contest is: "Educate the careless Man. If you can't educate him, eliminate him."

* * *

Out For Safety Record

The Kimberly mills of the Kimberly-Clark Company are out to win the world's safety record. To do this they will be obliged to operate until May 5 without accident. If this is done the Kimberly mills will surpass the record of the Kimberly-Clark mill at Niagara which went 97,800 man-days without an accident. The Kimberly mill already has 67,000 man-days to its credit, free from mishap.

These facts were brought out by Stanley Lowe during a safety meeting of the Yellow division when he urged employes to cultivate a safety spirit that would result in a world's record

The clubhouse was filled with employees of the papermill at the meeting, the entertainment consisting of a miniature circus with many freak performances in which the workers took part.

W

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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

West Sacramento, Cal.—Officials of the United States Fiber & Products Corporation are perfecting plans for a reorganization of the company, with capital of $300,000. Plans include the remodeling and improving of the present mill, used for the manufacture of cardboard, etc., with the installation of additional equipment and a new pulp mill. J. M. Henderson, jr., and C. A. Davis heads the company.

Waterbury, Conn.—In connection with its new plant addition, to be one-story, 25x50 ft., the Waterbury Paper Box Company, Leonard street, plans for enlargements in the present works, including an additional story, 82x188 ft. Additional equipment will be installed. A general contract for the work has been awarded to the Clark Construction Company, 168 Grand street. T. B. Peck, Waterbury, is architect.

York, Pa.—The Continental Paper & Bag Mills Corporation, 16 East Fortieth street, New York, recently formed under Delaware laws, has taken title to the mill and property of the York Haven Paper Company, York Haven, and will operate the plant in the future. It is said that extensions and betterments are under consideration. The Continental company recently took over a mill of the International Paper Company, at Rumford, Me.

Cap de la Madeleine, Que.—The St. Maurice Paper Company, has started work on its proposed new plant addition, to be used primarily as a machine works. It is estimated to cost close to $450,000, including equipment. It is said that orders for necessary machinery will be placed at an early date, in addition to contracts already awarded.

Reading, Pa.—The local plant of the Doly & Scrimgeour Company, 319 River street, has been acquired at a receiver's sale by Clinton E. Wood, Philadelphia, Pa., and associates, for a consideration stated at $50,358. The new owners are said to be perfecting plans for the resumption of operations at the plant, including necessary improvements.

Harpers Ferry, W. Va.—The Harpers Ferry Paper Company, has tentative plans under way for expansion in its mills, to include the installation of equipment, and the acquisition of additional properties. A meeting of stockholders has been called on April 18, to arrange a fund of about $250,000, for the development.

Kenora, Ont.—The Backus-Brooks Company, has work in progress on the installation of machinery and operating equipment at its new local mill, to be used for the production of newsprint, and plans to have the unit ready for service at an early date. It will be developed to maximum output shortly thereafter. The company is running full at its pulp mill, and proposes to maintain at this rate for an indefinite period.

New Companies

Los Angeles, Cal.—The Schumacher Wall Board Corporation has been incorporated under Delaware laws with capital of $2,000,000, to manufacture wall board products. The company will take over and expand the organization of the same name, with plant at Fifty-eighth and San Pedro streets.

Newark, N. J.—The Paper Mills & Cord Company, Inc., has been incorporated with a capital of $50,000, to manufacture and deal in woodpulp, etc. The incorporators are H. M. Livingston, George W. R. Fallon, and Percy W. Baker, 13 River street, Newark. The last named is representative.

Central Falls, R. I.—The Alfred Frost Paper Box Company, 448 High street, has filed notice of organization to manufacture paper boxes and containers. Joseph Stenhouse and Charles L. Hawes head the company.

Wilmington, Del.—The Whikan Corporation, care of the American Guaranty & Trust Company, 1600 Delaware avenue, representative, has been incorporated with a capital of $15,000, to manufacture and deal in paper products.

New York, N. Y.—The Scandinavian Export Paper Company, has been incorporated with a capital of $30,000, to deal in paper products. The incorporators are F. Lockwood and H. Svenson. The company is represented by G. M. Spencer, 120 Broadway, N. Y.

Chicago, Ill.—Whiting & Cook, Inc., 215 West Randolph street, has been incorporated with a capital of $5,000, nominal, to manufacture and deal in paper specialties. The incorporators are A. L. Rittenberg, Abraham Greenspahn and William R. Swissler.

Pawtucket, R. I.—The Service Paper Company, 21 High street, has filed notice of organization to deal in paper products. The company is headed by Frank E. Reardon, 217 East avenue.

New York, N. Y.—The Standard Paper Box Machinery Company, has been incorporated with a capital of $15,000, to manufacture equipment for the production of paper boxes and containers. The incorporators are L. and F. Schulman, and J. Adams. The company is represented by Abraham Rosenbluth, 233 Broadway, New York.

New York, N. Y.—John J. Eschenbrenner, Inc., has been incorporated with a capital of $10,000, to manufacture and deal in paper products. The incorporators are J. J. and N. J. Eschenbrenner. The company is represented by Brennan, Flaman & Simpson, 44 Court street, Brooklyn.

St. Paul, Minn.—The B-K Mfg. Company, has been incorporated with a capital of $50,000, to manufacture paper bag specialties, etc. The incorporators are L. A. Bonue, Gaylord, Minn.; and J. M. Korta, St. Paul.

New York, N. Y.—The Locktite Fibre Boxes, Ltd., has been incorporated with a capital of $25,000, to manufacture boxes, containers, etc. The incorporators are A. C. Kahn and W. J. Fallon. The company is represented by Bandler, Haas & Collins, 2 Rector street, New York.

Buffalo, N. Y.—Harris Smith, Inc., has been incorporated with a capital of $10,000, to manufacture and deal in paper products. The incorporators are P. and R. Harris, and C. A. Smith. The company is represented by M. Weimar, attorney, Buffalo.

Financial

Wilmington, Del.—The Wilmington Paper Box Company, Market and D streets, has filed notice of increase in capital from $20,000 to $100,000, for general expansion.

New York, N. Y.—The Eastern Folding Box Company, 405 East Fourth street, has arranged for an increase in capital from $20,000 to $30,000, for increased operations.

Windsor, Conn.—The Rainbow Paper Corporation has filed schedules in bankruptcy, showing liabilities of $138,332, and assets of $10,535. A meeting of creditors was held at Hartford, Conn., on March 25.

New York, N. Y.—The Gotham Tissue Corporation, 925 Courtlandt avenue, has filed notice of increase in capital to $30,000.

* * *

New Issue Out

The St. Lawrence Paper Mills, Limited, are out with an issue of $2,500,000 of 20-year 6½ per cent sinking fund gold bonds. The company's assets are valued at $5,381,467, of which $1,234,656 is represented by property, $3,404,965 by a newsprint mill, less depreciation, and $741,846 net working capital. The company has placed in operation a modern newsprint mill of 150 tons daily capacity, and has acquired sufficient timber liimts to assure a supply of wood for forty years, and in addition has entered into a contract with a responsible firm of pulpwood producers for a further twenty years' supply. This means that the company will have a sixty years' supply of wood ahead. The newsprint mill at Three Rivers has two paper machines in operation with a daily production capacity of 150 tons, or at the rate of 45,000 tons a year. Some see in this financing a renewal of the efforts to bring about a merger of the St. Lawrence and St. Maurice companies.

The economic problem of securing an adequate supply of paper

THE book is of special interest to everyone connected with the pulp and paper industry and equally so to all users of print paper. It points out clearly what must be done to develop sufficiently our supply of pulpwoods. It shows the steps necessary in forest conservation and discusses the subject from the practical viewpoint of industrial needs.

Pulpwood and Wood Pulp in North America

By Royal S. Kellogg

Author of *Lumber and Its Uses, The Cost of Growing Timber, The Timber Supply of the United States, etc.*

270 pages, 6x9, 87 illustrations, $4.00 (*English price 20s.*) *net, postpaid*

The book describes the pulpwood industry, the processes of making paper pulp from wood, the timber supply of North America, the need for increased timber production and the future possibilities of the pulp and paper industry. Detailed statistics of production and consumption since the establishment of the industry are given in the appendix and shown in the text by means of graphic charts of unusual effectiveness. The book also carries many illustrations typical of mill operations and forest scenes.

Do You Know

That 100 million cords of pulpwood have gone into paper in the United States and 30 million cords in Canada?

That paper-making is a billion-and-a-half-dollar industry in North America?

That a permanently self-contained operation for the manufacture of 100 tons of news print paper daily may require the equivalent of an investment of $10,000,000?

That the United States and Canada produce and use as much paper as all the rest of the world combined?

That the per capita consumption of paper in the United States is 150 lb. yearly?

How much pulp may be made from a cord of wood?

How much pulpwood and wood pulp has been exported from Canada?

How much pulpwood and wood pulp has been imported into the United States?

What are the pulping properties of 70 species of American woods?

What are Forest Regions of North America?

How much and what kinds of timber there are yet left in the various regions of the United States and Canada?

How much forest land in North America is publicly owned and how much privately?

What regulations apply to timber cutting in the public forests?

What are the essentials of a forest "Working Plan"?

That forestry is the application of definite scientific principles to the growing and using of timber crops?

What it costs to grow timber?

Who is responsible for the maintenance of the timber supply of the United States and Canada?

What are the essentials of a National Forestry policy?

That without forestry there is no adequate, permanent supply of paper and other wood products in America?

That there is no sense in delaying the effort to maintain the American timber supply on the false assumption that we can turn to any other part of the world for any considerable part of the wood products essential to our well being?

Read This List of Chapter Headings

Part One
WOOD PULP
1.—Recording Materials
2.—Processes
3.—Consumption of Wood Pulp in North America

Part Two
PULPWOODS
4.—Logging
5.—The Unit of Measurement
6.—Pulpwood Grades
7.—Pulpwood Used in North America
8.—Properties of American Pulpwood

Part Three
TIMBER SUPPLY
9.—Forest Regions
10.—What We Have
11.—Forest Ownership

Part Four
TIMBER PRODUCTION
12.—The Need for Forestry
13.—The Chance for Forestry
14.—The Methods of Forestry
15.—The Hazards of Forestry
16.—The Cost of Forestry
17.—The Responsibility for Forestry
18.—What Should Be Done

Part Five
A PERMANENT PULP AND PAPER INDUSTRY
19.—To Grow More Wood

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New York City

Through the Middle West

MARINETTE MILL NOW PRODUCING 100 TONS OF PAPER EACH DAY

A. B. Hansen, Executive of Company, Gives Interesting Address On Production of Plant

THE Marinette and Menominee Paper Company is now producing 100 tons of paper a day, it was brought out by A. B. Hansen, an executive of the company speaking before the last meeting of the Rotary club of Marinette on "The Manufacture of Pulp and Paper at the Marinette and Menominee Paper Company." It was an illuminating and exhaustive discussion of these mill's activities, and while much of it had to do with the routine operation, Mr. Hansen brought out some facts of general interest to the trade.

The company is now manufacturing, according to Mr. Hansen, probably twenty-five or thirty grades of paper of many different colors and weights. There are only three different types of finish produced at Marinette, however. One is the dry finish, one is machine glazed, and the other is water finished.

It was announced by Mr. Hansen that the company had just completed drilling a well 800 feet deep in order to get good cold water for the purpose of getting a higher absorption of the sulphur dioxide used in the manufacture of sulphite pulp.

The Marinette and Menominee mills use nothing but wood, most of which comes from northern Wisconsin and upper Michigan. A small amount of spruce from Canada also is used. The Continental, of which the M. and M. mills are a part, owns 1,400 square miles of timber lands in Canada, Mr. Hansen said. Both chemical and mechanical pulp are made by the mills.

The Marinette and Menominee Paper Company was organized in 1882. At that time the property consisted of a small pulp mill in Menominee on the site now occupied by the Menominee mill. The new company immediately proceeded to build paper mills on both sides of the river. This was in 1883. The next development was made on the Wisconsin side of the river at what is known as Park Mills. This development was in 1891. It consisted of the erection of a ground wood pulp mill and an addition to the paper mill. In 1894 a sulphite pulp mill was added to the Park Mills plant. Up to the latter part of 1919 the majority of stock in the mills was owned by local interests. These men sold their stock interest to the Continental Paper and Bag Mills of New York City and that company assumed control of the business on January 2, 1920. The new owners immediately began to rebuild and improve the plants.

The Continental is the largest producer of wrapping paper and paper bags in the world, turns out each day the equivalent of five carloads of finished paper, 55 tons of sulphite pulp and 35 tons of ground wood. More than 500 men are now employed at the Marinette and Menominee mills.

Superintendents of Three States To Meet

The committee in charge of the convention of the Northwest Division of the Pulp and Paper Mill Superintendents' Association to be held in Marinette, Wis., May 2-3, 1924, report satisfactory progress on program and other arrangements to make this gathering a memorable one in every respect.

There will be papers on every subject of importance now up before the industry and they are to be of such nature that the discussions brought out will be of great value to all the membership.

The paper to be prepared and read by Joseph H. Slater on the manufacture of groundwood will, in itself, be of enough value and importance to Wisconsin pulp mill men to send all representatives, hundreds of mills to get the benefit of his long experience and successful operation of such plants.

L. E. Smith, of Nekoosa-Edwards Paper Company, is chairman of the Northwest Superintendents' Association and A. G. Stone, of Marinette & Menominee Paper Company of Marinette, and Paul Smith, of Combined Locks Paper Company, Combined Locks, are vice-chairmen.

* * *

Monehan Resigns

Frank Monehan, who went to Kalamazoo from Watertown, N. Y., to accept the general superintendency of the new mill at the Kalamazoo Vegetable Parchment Company's plant, has resigned. His successor has not yet been appointed.

Industrial Changes in Ohio

First changes in the lineup of Miami Valley paper industries in several months occurred this week in Middletown and Miamisburg.

The Lawrence Bag Company, of Miamisburg, has purchased the plant of the defunct Miami Cycle Company in Middletown for $40,000 and will move its equipment there in the near future. The Lawrence Bag Company is controlled by the Raymond Bag Company of Middletown, and has been employing about thirty men in the Miamisburg plant.

Shortly after this deal was closed came the announcement that the Sabin Robbins Paper Company will move its warehouses from Middletown to Cincinnati, disposing of its present holdings on Marietta Avenue in Middletown.

A survey has shown that paper mills along the Miami River in Dayton, Miamisburg, Franklin and Middletown escaped damage during the recent flood season. High water forced the temporary suspension of two Miamisburg industries but loss to the plant and equipment was small.

* * *

There was a young lady from Gotham
Who lisped, "Winter Winds, I lotham,
My legs really ain't
Like Coles Phillips can paint
And I hate for the wind to expotham"

* * *

Luck may live with you for years or it may desert you today. Don't count on it.

LIME SLUDGE DONATED BY MILLS TO FARMERS

At Nekoosa Mill Arrangements Have Much Awaiting Wood County Farmers

LIME Sludge in large quantities is now available free of charge to the farmers of Wood and neighboring counties at the Nekoosa mill of the Nekoosa-Edwards Paper Company, it has been announced, and arrangements have been made with the Company to have the material made available.

A conveyor to load the lime sludge as it comes from the mills onto freight cars has been installed and a large pile of the material has already been dumped at the north end of the wood yard, where the farmers are at liberty to drive in and help themselves. No charge is made by the company to those who load and haul the material for their own use. About 20 tons per day of the lime in dry form is used at the Nekoosa mill.

The county agent visited the Nekoosa mill and examined the sludge. He says it is highly satisfactory for agricultural purposes in spite of the fact that it is dam and praised the Nekoosa-Edwards Company for its cooperation in going to considerable trouble and expense to make the material available.

At the Stevens Point plant of the Stevens Point Pulp and Paper Company there is also a large amount of lime sludge available for the farmers. As at the Nepco mills it is understood that there is no charge for this lime, and that the lime is distributed over a considerable area of that Company's land piled three or four feet deep, the farmers drive in and load this material, taking it to nearby farms.

At the plant of the Wausau Sulphate Fibre Company there is also a large quantity of this material on hand. This Company has, however, had conveyors installed for some time and considerable quantities of this have been shipped by carload to different parts of Wisconsin. No charge is made at this company for those who come and load their own lime, but a charge of $10.00 per ton is made to those who have a car loaded.

About three tons per acre of the sludge should be used to secure the best results, according to the county agent. He points out that quicker results are secured with the mill sludge than with ground limestone. Lime in the soil is important not only to counteract acidity but to supply plant food, and is particularly valuable in the growing of legume crops such as soy beans, clover and alfalfa.

There are many hundreds of sulphate mills throughout the United States and this may be a way that many of those who are now dumping this valuable material into the river may have a way of disposing of same and at the same time give valuable aid to the farmer.

* * *

Bell Resigns

Charles Bell, general manager of the Eddy Paper Corporation, has resigned, and will leave at once for Pinehurst, N. C., where he will try to regain his health.

As a token of their esteem, his associates and employees presented him with a gold watch. He was granted a leave of absence a few months ago, and later returned greatly improved in health, but was unable to continue.

KARL A. LEFREN

Consulting Engineer

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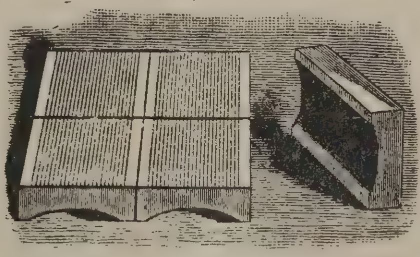

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News From New England

Names Receiver

Acting under authority of a Deed of Trust given by the Fibreboard Company, securing an issue of its second mortgage notes which are in default, the Beacon Trust Company applied to the Court for a Receiver to hold all the property covered by the second mortgage. The Court has appointed George W. Perry, 150 Congress Street, Boston, Massachusetts, Receiver, for the purpose of conserving all the assets covered by the second mortgage.

The company is endeavoring to make some arrangement with the Receiver in order that the business may be continued and a reorganization of some kind effected. This can only be done with the co-operation of all the creditors. The following committee, representing over 80% of the unsecured claims, have agreed to act:

Charles E. Stanwood, Chairman
Galt F. Parsons, Secretary
Alfred N. Miner, Jr.

The committee will make an effort either to reorganize the old company or to form a new company, so that the business can be continued with the hopes of ultimately working the proposition out in a manner satisfactory to all creditors. It is apparent that if the business stops there will be nothing available for the unsecured creditors.

* * *

Brooks with the I. P. Co.

William S. Brooks, chief papermaker with the American Writing Paper Company, Holyoke, Mass., until he resigned a short time ago, has taken up his new duties with the International Paper Company, Niagara Falls, New York.

* * *

Gummed Paper Activity

The McLaurin-Jones Company, Brookfield, Mass., makers of gummed papers, has started operating their plant on a double shift. A large increase in the order balance during the past month has made the change imperative.

Ready for Spring Log Drive

The Bellows Falls Boom Company, Bellows Falls, Vt., has completed repair work on the piers and booms along the Connecticut River, in anticipation of the early spring log drive, which starts at once. The largest amount of timber in years has been rolled into the White River for the first leg of its journey to Bellows Falls, where it will be made into paper and pulp. It is expected this year's drive will reach 15,000,000 feet of timber.

* * *

Box Company Enlarges Plant

The permit has been issued for the additions to the plant of the Waterbury Paper Box Company, Leonard Street, Waterbury, Conn. The completed plans call for the raising of the present factory building and constructing a new first story, 82 x 187 feet. There will be a new addition 25 x 50 feet, of brick. The general contract has been awarded to the Clark Construction Company, 168 Grand Street, Waterbury. Theodore B. Peck is the architect.

* * *

Fire Destroys Box Plant

The S. G. Redshaw Paper Box Company, Ansonia, Conn., was practically destroyed by fire March 28. Mr. Redshaw stated the loss would be about $30,000, which amount is partly covered by insurance, and further stated the plant would be rebuilt at once. From the start there was little hope of saving the frame constructed factory and efforts were devoted in preventing a spread of the flames to nearby buildings.

* * *

Strikers Return to Work

At Humber Valley, near St. Johns, N. F., 1,200 workers employed in constructing a large paper mill returned to work, when they agreed to accept the mediation of Premier Warren. A strike was declared for more wages and better working conditions.

Mr. Frost Is Now Sales Manager

The National Paper Products Company, Carthage Division, Carthage, N. Y., announces the promotion of John A. Frost, who has been Traffic Manager of the company, to the position of Sales Manager, succeeding J. J. C. Downey, who has resigned.

* * *

Resigns Position

Eugene J. Sullivan, who for 40 years has been a prominent figure in the paper industry of the country, and for the past 12 years a superintendent of Maine paper mills, has resigned his position with the Orono Pulp & Paper Company, Bangor, Me.

* * *

Change of Address

Tileston & Hollingsworth Company, formerly at 49 Federal Street, Boston, Mass., has taken the sixth floor of the building at 211 Congress Street. The company is one of the oldest paper manufacturers in the country, having started in business more than 100 years ago.

* * *

Annual Balance Sheet

The annual balance sheet of the American Reinforced Paper Co., of Attleboro, Mass., shows a total of $157,484 of which $80,247 is represented by machinery, $18,782 by merchandise, $2,016 by cash, $13,026 accounts receivable, $41,392 license account. The company has outstanding capital of $89,000.

Every Page Of
PAPER
Has Something
Of Interest

Waste in the Pulp and Paper Industry

Wanted: A Waste Expert

By B. T. McBAIN

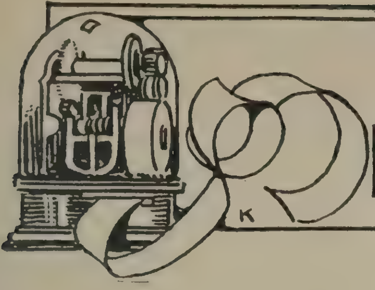
FOR three years now I have been writing stories about Waste in the Pulp and Paper Industry, and I have been receiving letters from all over the country asking about the various points brought up. Some have suggested that the matter was of enough importance for a man like myself to make a Specialty of Waste, open an office and aid the various mills of the country to get their plants on to an efficient basis. This would be nice if I were so inclined, if enough clients would apply, if I liked to travel all over the country and did not like home life, and to be known as "Waste Expert" would be interesting to say the least, but what is an expert but, to us the language of the street, a regular guy away from home? It does not take an expert to find waste. It is on the surface. It is everywhere in many plants and somewhere in every plant.

Every time I go around my own bailiwick I see waste and make a fuss about it, to be sure, but after three years of effort, I do not find that I am much nearer correcting the faults of my brother papermakers, for they are as many evidently as the sands of the seashore, and no sooner is one corrected than another crops up.

To be sure I could suggest to those in charge of most any mill means of correction of various evils, but my experience proves it is necessary after the Doctor has prescribed, in most cases at least, to have a nurse continuously to see that the medicine is taken as prescribed.

Waste is expensive, waste is causing many mills to be in the red many times when they might show a profit; waste is worse than that; waste is a crime. Anyone knowingly wasting the property of his employer with knowledge of how to prevent it, is the same as taking the value of that waste in gold out of his employer's cash box, for waste costs money, much more money very often than they pay to many doctors and nurses to prescribe and assure those paying the bill that the medicine has been taken.

Wanted—A Waste Expert.



LATEST MARKET REVIEW

BASIC MARKET QUOTATIONS

FINE			
Bond	8.00	@	40.00
NEWS			
Contract Basis	3.75	@	
BOOK			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Coated and Enameled	8.00	@	12.00
TISSUE			
White	.80	@	.90
Manila No. 1	.70	@	.80
WRAPPING			
No. 1 Domestic Kraft	6.25	@	6.75
No. 1 Jute	8.25	@	8.75
No. 1 Wood	4.75	@	5.25
Butchers	4.00	@	4.25
BOARD			
News	45.00	@	50.00
Chip	40.00	@	45.00

Paper and Board

New York, April 8—Most of the paper mill men in New York attending the convention of the American Paper and Pulp Association report rather optimistically on the market situation in the various parts of the county. It is true that few mills have business enough to warrant maximum production, but a great majority of paper manufactories are managing to operate at a fair rate of capacity, and mill executives in general assert that demand for most kinds of paper is gradually expanding.

In the New York market, business has been somewhat slowed down by the convention. This is a customary occurrence since jobbers, dealers, salesmen and others connected with the paper trade are devoting a good deal of their time and much of their attention to the convention and to the numerous meetings on the convention program. There is therefore less drumming up of business, and the market momentarily is left very much in the hands of consumers, who are coming into evidence as their requirements arise and cause them to enter the market to augment their supplies.

The movement of paper in the local trade is quite routine in character. There has been little or no change in the market layout in the last few days. Buyers are operating on a fair scale yet there is little disposition shown to order other than immediately needed amounts of paper. Jobbers are still given to complain of the rather small volume of individual orders though they admit that in the aggregate business is not so poor, and that there is sufficient activity in the market to keep them well engaged.

This is the season when newsprint consumption is close to the maximum. In fact, the probabilities are more print paper is being used at this time than during any other period of the year. Publishers are constantly adding pages to their issues to carry the additional advertisements apropos of the pre-Easter shopping season. Newspapers in New York are printing larger issues than in some months, certainly larger than at any time since the last pre-Christmas retailing period. Furthermore, circulation of daily newspapers in New York is growing. As an illustration, the largest circulated afternoon paper in this city stated in its semi-annual Government report on April 3 that its circulation during the six months ended April 1 averaged 641,192 copies daily, showing a net gain of 39,355 copies per day over the preceding six months, and that the average

McMahon Patent Friction Clutches

Our Style B patent friction clutch has been adopted as standard by many of the paper and pulp mills, and many of the mills have equipped their old machines with our clutches.

Specify McMahon "Style B" Friction Clutches

When ordering new machinery and provide against future clutch troubles, loss of production, and subsequent expensive changes. We guarantee our clutches to give satisfaction on calender and dryer drives of fast running machines and all other places.

Write Us for Catalog and Full Information

MANUFACTURED BY

McMAHON & CO., Worcester, Mass., U. S. A.

GREEN-BAY WIRE WORKS

Use
Green Bay
Wires
FOR
Larger Tonnage

With over 20 years of practical experience in the wire business, we started our present plant six years ago and in spite of the adverse conditions of the paper industry, we have brought our production up to over half million sq. ft. per year. We are constantly adding to our list of satisfied customers. We are making special weaves, seams and edges for all paper making purposes.

Write us for prices and samples

GREEN BAY
WIRE WORKS
GREEN BAY
WISCONSIN

net paid circulation per day for the month of March, 1924, was 688,107 copies, showing a further increase.

Under such circumstances, newsprint demand is active. Publishers are frequently placing orders for extra tonnage, and transient buyers are increasing the volume of their buying. Prices are very firm, and it is said transient buyers are finding it necessary to pay premiums for prompt deliveries, reflecting the sold up position of mills.

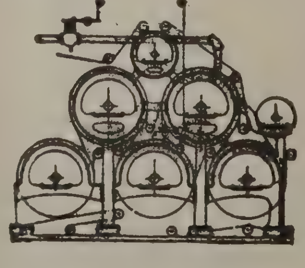
Book paper is in steadily increasing demand, and prices exhibit a stiffening tendency. Fine papers are easily holding their own in price, while manufacturers are revising quotations on some lines upward, due in large part to the higher cost of new material, notably rag stock. There is a better movement of course papers. Kraft wrappings are finding a broader outlet among direct consumers, with converters also buying in a steady manner. Tissue also is fairly active, the market for fine tissue showing considerable improvement over that of a few weeks ago.

Box board prices are hardening. In fact, some manufacturers have advanced quotations on chip and news board, mills in the East generally quoting $42.50 to $45 a ton f. o. b. New York on plain chip and $45 to $50 on news board. An advance of $2.50 a ton on straw board to $57.50 per ton New York has been put into effect. Business in boards is none too brisk but there is nevertheless a fairly consistent demand of moderately broad dimensions.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.25	@	6.75
No. 2 Domestic	5.25	@	5.75
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.80	@	.90
Manila No. 1	.70	@	.80
White No. 2	.70	@	.80
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	5.50	@	6.00
No. 2 Fiber	4.50	@	5.00
Card Middles	3.75	@	4.00
Common Bogus	2.00	@	2.50
Boards, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	40.00	@	45.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Baco Dependable Dyes for Paper
INDANTHRENE BLUE R S TRIPLE POWDER
—used for tinting and bleaching high grade Bond and Blue white papers.
A complete line of Imported and Domestic Dyes for Paper carried in stock for immediate delivery. Send for our monthly Bulletin listing all offerings of colors.
VISIT OUR BOOTH NO. 40 at the INTERNATIONAL PAPER EXPOSITION
Grand Central Palace, New York City, week of April 7th.
BACHMEIER & COMPANY, Inc.
438 West 37th Street, New York, N. Y.
BOSTON PHILA. BUFFALO CHICAGO
ATLANTA TORONTO

The Pickles Drying Regulator
Reasons why you should have it on your machine are: First, it regulates the drying of paper automatically, irregularities are eliminated; second, higher machine finished papers are attainable, because it is possible to maintain the proper quantity of moisture in sheet, as it passes to calenders; third, mills having tried it on one machine have ordered it for all their machines. Full particulars upon application to

W. F. PICKLES - Buckland, Conn.

Mechanical Pulp

There is not much change in the mechanical pulp market. In some quarters a tendency is noted to ask slightly higher prices, which sellers contend are warranted by the fairly large movement of supplies into consuming channels, yet it is apparent there is ample pulp to go around and buyers seem to be filling their wants at previous prices. Domestic producers quote around $33 or $34 a ton f. o. b. grinding mills for prime spruce groundwood for prompt shipment, with prices differing in accordance with the freight rate from pulp to consuming plants. Imported ground wood is quoted at approximately the same prices ex dock New York as domestic but sales at lower levels are frequently reported. This is the time of the year when grinding is near to a maximum, and therefore, in spite of the fairly good demand, prices are given little opportunity to strengthen because supplies are sufficient to cover requirements.

Foreign and Domestic Chemical Pulp

Not much change is to be noted in chemical pulp prices, but most reports tell of buyers manifesting increased interest and of business undergoing some expansion. It is stated that buying of foreign sulphite and kraft for forward shipment from abroad has been of rather heavy volume recently, and that this has further strengthened the statistical position of the market in Scandinavia, where manufacturers are holding pretty firmly to certain prices and are not hesitating to refuse to sell on counter offers below their ideas of ruling values.

Foreign unbleached sulphite of No. 1 grade is quoted from 2.50 cents to 2.75 cents, and foreign No. 1 bleached sulphite at from 3.75 cents upward ex dock New York. Swedish kraft is steady at 2.50 cents, with some sales a little above this price reported, and foreign easy bleaching sulphite is quoted 2.85 to 3 cents on the dock at New York. Domestic pulps display a steadier price tone and are reported meeting with at least a little better demand. Quotations ex dock New York and f. o. b. pulp mills are:

Sulphite foreign—				Sulphite, domestic—			
Bleached No. 1	3.75	@	4.25	Easy Bleaching	3.00	@	3.25
Unbleached No. 1 ...	2.50	@	2.75	Mitscherlich, unbleached	3.00	@	3.25
Unbleached No. 2 ...	2.40	@	2.60	Soda, domestic, bleached	3.50	@	3.75
Easy Bleaching	2.85	@	3.00	Kraft, foreign	2.50	@	2.75
Unbleached news				Kraft, domestic	2.60	@	2.90
Bleached No. 1	4.00	@	4.50	Sulphite screenings, refined	1.50	@	1.75
Unbleached No. 1 ..	2.60	@	3.00				
grade	2.50	@	2.75				

Domestic Rags

Demand for papermaking rags is somewhat irregular. Certain descriptions are wanted in a steady way and in fairly large amounts whereas other grades are more or less neglected by buyers. New cuttings of most kinds are moving to mills freely. No. 1 white shirt cuttings are quoted at 14 cents a pound and higher f. o. b. New York, and appear to be easily fetching this price. Fancy shirt cuttings are quoted at 7 to 7.25 cents New York, unbleached muslins at 12 cents, blue overall cuttings at 9 cents, light silesias at 9 cents, and washables at 5.75 cents. On the other hand, some of the grades of old rags are in less demand. Roofing stock is moving to certain mills at prices ranging around 2.30 cents a pound f. o. b. New York for No. 1 grade, and 2.15 cents for No. 2 stock, but there is not the concerted demand for this class of rags that prevailed a short while ago. Old blues are steady in price, while white rags are quoted at unchanged levels with some of the finer packings tending to advance. Quotations f. o. b. New York are as follows:

New Shirt Cuttings,				Overall Cuttings, Blue	9.00	@	9.25
No. 1	14.00	@	14.50	Washables	5.50	@	5.75
No. 2	6.50	@	6.75	New Black Mixed	5.00	@	5.25
Fancy Shirt Cuttings ..	7.00	@	7.25	Soiled Whites, house..	4.00	@	4.25
No. 1 Whites, repacked	7.50	@	8.50	Soiled Whites, street..	3.75	@	4.00
No. 2 Whites, repacked	4.50	@	5.00	Thirds & Blues, repacked	3.50	@	4.00
White Lawns	11.50	@	11.75	Thirds & Blues, misc..	3.00	@	3.25
New Muslins, unbleached	12.00	@	12.25	Black Cotton Stockings	4.00	@	4.25
Light Silesias	9.00	@	9.25	Roofing Rags, No. 1 ..	2.25	@	2.35
Black Silesias	5.50	@	5.75	Roofing Rags, No. 2 ..	2.15	@	2.25

Imported Rags

There has been a slowing down of demand for foreign rags. Particularly are consumers showing less interest in the low grades, such as are used by roofing paper mills, and prices of dark colored cottons have dropped to 2 cents a pound ex dock New York. Old blue cottons display an easy tendency. Linen rags are relatively quiet and rather uncertain in price. Ex dock New York quotations are:

Lins., White, No. 1 ..	15.00	@	16.00	German Linen, blue ...	5.00	@	5.25
Ger. Blue Cottons	3.75	@	4.00	German Linen, grey ...	6.50	@	7.00
French Light Blues ..	4.00	@	4.50	German S. P. F.'s ...	6.00	@	9.00
New Light Prints ...	7.00	@	7.50	German Light Prints ..	4.00	@	4.50
New Unbleached	10.50	@	11.00	Dk. Colored Cottons ..	2.00	@	2.15

Bagging, Rope, Etc.

Demand for old rope continues fairly good and prices of this article are firm. There is, however, some disparity in the quotations named, which is probably due to differences in quality of the material concerned. Domestic manila rope is reported bringing 7 cents and higher f. o. b. New York in sales to paper mills, and foreign rope from 6.50 to 7 cents ex dock at this port. There is not much activity in bagging and prices are easy. No. 1 scrap is quoted at 1.40 cents a pound New York, roofing bagging at 1.15 cents, and No. 1 domestic gunny at 1.50 to 1.60 cents. F. o. b. New York quotations follow:

Gunny No. 1	1.50	@	1.60	For. Manila Rope	6.50	@	7.00
Foreign	1.40	@	1.50	Domestic Rope	6.75	@	7.25
Wool Tares, light	1.40	@	1.50	Mixed Strings	1.25	@	1.50
Roofing Bagging	1.15	@	1.25	Scrap Bagging, No. 1 .	1.40	@	1.50
Wool Tares, heavy	1.50	@	1.60				

Old Paper

The old paper market is still in the doldrums. There is little demand for any grade that can be called important, and prices of most classes of waste have recorded a further decline. In fact, the price tone is exceedingly weak notwithstanding the contention of dealers that available supplies are low, and that collections have been appreciably curtailed by the low prices prevailing. Shavings are quoted at 3.75 cents a pound f. o. b. New York for No. 1 hard white, and 3 cents for No. 1 soft white, and it is probable purchases have been made at less than these rates. Old magazines are especially easy, and are quoted at 1.25 cents a pound New York for No. 1 flat magazines and 1.10 cents for No. 1 crumpled stock. Folded newspapers are selling at 75 cents a hundred pounds New York, and No. 1 mixed papers at 60 cents. Old kraft is relatively steady at 2.10 cents a pound New York for No. 1 packing. Prices f. o. b. New York follow:

No. 1 Hard White Shavings	3.65	@	3.85	Ledger Stock	1.65	@	1.80
				Kraft, No. 1	2.00	@	2.15
No. 2 Hard White Shavings	3.00	@	3.25	New Manila Cuttings .	2.00	@	2.25
No. 1 Soft White Shavings	2.85	@	3.10	New Manila Env. Cuttings	2.75	@	3.00
				Bogus & Mill Wrappers	.75	@	.85
Box Board Chips	.70	@	.75	News, strictly overissue	.95	@	1.00
No. 1 Colored Shavings	1.40	@	1.60	Folded News	.75	@	.80
Magazine flat stock ..	1.25	@	1.35	No. 1 Mixed Papers ..	.60	@	.65
No. 1 Crumpled	1.10	@	1.20	White Blank News ...	1.75	@	1.85
Solid Ledger Books ..	1.80	@	2.00	Common Paper	.50	@	.55

SCANDINAVIAN PULP
AGENCY, INC.

342 Madison Avenue
New York, N. Y.

WOOD PULP

of every description

FOREIGN and DOMESTIC

PLUGS
for Papermakers

any shape or style. The largest plug factory in this country. Prompt delivery—low prices—shipped to any place in the United States or Canada. Also manufacturers of all kinds of turned wood specialties.

Write for prices and particulars

Athens Implement &
Manufacturing Co.
ATHENS, Wis.

Twines

Twines are enjoying a routine demand only, with consumers seemingly interested merely in covering their immediate needs. At the same time quoted prices are maintained but this seems due more to the strong position of raw material than to any factor on the selling side of the market. Quotations are as follows:

Sisal Hay, pure	14.25	@	15.25
Manila Hay, pure	16.25	@	17.25
Sisal Lath yarn	13.25	@	14.25
Manila Rope, pure, ¾ inch diameter	16.25	@	17.25
Hardware Rope	14.25	@	15.25
Jute rope, ¼ diam. and over, coils	13.00	@	15.00
Sail twine, A grade	20.00	@	
Jute Wrapping twine, A grade	20.00	@	
Papermakers Twine	11.50	@	
B. C. Hemp, 18	.39	@	.40
B. C. Hemp, 24	.38	@	.39
B. C. Hemp, 36	.37	@	.38
America Light India—No. 6	14.50	@	
No. 7	13.50	@	

Chemicals

A sagging of quotations on casein has brought market levels on this commodity down to between 11 and 12 cents a pound, duty paid on the foreign product. On the other hand, bleaching powder is firmer in price at 2.10 to 2.25 cents a pound in domestic drums. Caustic soda is quotably steady, as is soda ash.

IMPORTS AT NEW YORK

Week of March 31-April 5

Paper

Str. Berengaria, Southampton—Whiting-Patterson Company, 8 cs. hanging; A. C. Dodman Jr. & Co., 6 bls. hanging; F. J. Emmerich & Co., 6 bls. hanging.

Str. Missouri, Havre—National City Bank, 5 cs. cigarette; F. J. Emmerich & Co., 26 bls. hanging; P. J. Schweitzer, 25 cs. cigarette.

Str. Paris, Havre—P. J. Schweitzer, 50 cs. cigarette; Biddle Purchasing Company, 4 cs; Japan Paper Company, 11 cs. writing; Dupon Cellophane Company, 41 cs; Morrison Machine Company, 11 cs.; Order, 3 cs. writing.

Str. Conte Rosso, Genoa—J. R. Livermore, Inc., 16 cs.

Str. Middleham, San Felieu de Guixols—Order, 57 cs. cardboard.

Str. Maryland, London—W. H. S. Lloyd & Co., 63 cs. hanging; H. Reeve Angel & Co., 5 cs. filter.

Str. Frederik VIII, Christiania—United Fruit Company, 30 bls.; Order, 109 bls.

Str. Lancastria, Liverpool—A. C. Dodman Jr. & Co., 17 bls. hanging.

Str. Celtic, Liverpool—B. F. Drakenfeld & Co., 23 cs. printing; F. C. Strype, 6 cs. tissue; A. C. Dodman Jr. & Co., 3 bls. hanging; F. J. Emmerich & Co., 3 bls. hanging.

Str. Poland, Antwerp—A. C. Dodman Jr. & Co., 12 cs. hanging; C. W. Williams & Co., 7 cs.; Gevaert Company of America, 22 cs. photo.

Str. Waukegan, Havre—Standard Products Corporation, 40 cs. cigarette.

Str. Syria, Marseilles—E. Waters, 5 cs. cigarette; J. J. Schweitzer, 25 cs. cigarette.

Wood Pulp

Str. Bornholm, Liverpool, N. S.—Tidewater Paper Mills Company, 12,325 bls. ground wood.

Str. Frederik VIII, Copenhagen—Johaneson, Wales & Sparre, 500 bls. sulphite; E. M. Sergeant Company, 508 bls. sulphite.

Old Rope

Str. Missouri, Havre—New York Trust Company, 51 bls.

Str. Frederik VIII, Christiania—Brown Bros. & Co., 42 coils.

Str. Siboney, Havana—N. E. Berzen, 11 bls.

Str. Poland, Antwerp—Brown Bros. & Co., 172 coils and 53 bls.

Old Bagging

Str. Missouri, Havre—Kidder-Peabody Acceptance Corporation, 32 bls.; Mechanics & Metals National Bank, 77 bls.

Str. Middleham, Barcelona—Bank of New York & Trust Company, 83 bls.

Rags

Str. Missouri, Havre—Goldman, Sachs & Co., 972 bls.; Guaranty Trust Company, 495 bls.; Equitable Trust Company, 51 bls.

Str. Archimedes, Manchester—Anglo-South American Trust Company, 20 bls.; New York Trust Company, 85 bls.; Guaranty Trust Company, 297 bls.; Equitable Trust Company, 49 bls.; Order, 108 bls.

Str. Caucasier, Antwerp—Brown Bros. & Co., 559 bls.; Guaranty Trust Company, 246 bls.; National City Bank, 45 bls.; First National Bank of Boston, 25 bls.; International Acceptance Bank, 144 bls.; Equitable Trust Company, 442 bls.; Castle & Overton, 67 bls.; Order, 251 bls.

Str. Middleham, Barcelona—Equitable Trust Company, 699 bls.

Str. Maryland, London—International Acceptance Bank, 81 bls.; National City Bank, 12 bls.

Str. Frederik VIII, Copenhagen—National City Bank, 133 bls.; Goldman, Sachs & Co., 393 bls.

INTERNATIONAL
Wire Works

"The Fourdrinier that took the Ire out of Wire"

INTERNATIONAL WIRE WORKS
MENASHA, WISCONSIN

Str. Celtic, Liverpool—Anglo-South American Trust Company, 24 bls.; Stone Bros. & Victor Galaup Company, 22 bls.; Order, 42 bls.

Str. Jessmore, Belfast—E. Butterworth & Co., 78 bls.

Str. Ala, Antwerp—A. W. Fenton, Inc., 68 bls.

Str. Segundo, Naples—Guaranty Trust Company, 105 bls.; from Leghorn—Philadelphia National Bank, 413 bls.; State Bank, 108 bls.

Str. Syria, Marseilles—Coal & Iron National Bank, 139 bls.; Goldman, Sachs & Co., 90 bls.

Paper Stock

Str. Caucasier, Antwerp—E. J. Keller Company, 19 bls.; Equitable Trust Company, 210 bls.; Order, 40 bls.

Str. Lancaster, Liverpool—Order, 82 bls.

Str. Poland, Antwerp—Equitable Trust Company, 153 bls.

Str. Waukegan, Dunkirk—Daniel M. Hicks, Inc., 27 bls.; Guaranty Trust Company, 85 bls.

Talc

Str. Missouri, Havre—L. Isolantite, 100 bags.

Str. Conte Rosso, Genoa—L. A. Salomon & Bros., 200 sks.

Str. Posillipo, Genoa—Order, 300 bags.

Casein

Str. American Legion, Buenos Aires—Kalbfleisch Corporation, 2,084 bags; Brown Bros. & Co., 1,251 bags.

17 PER CENT INCREASE IN JANUARY PRODUCTION

Identical Mill Reports Show Good Increase Over Previous Month

PRODUCTION of paper by identical mills reporting to the American Paper and Pulp Association and cooperating organizations showed an increase of 17 per cent in January from the December production, according to the monthly statistical summary of the paper and pulp industry.

The tonnage summary is prepared by the American Paper and Pulp Association with the cooperation of the Binders Board Manufacturers Association, News Print Service Bureau, Tissue Paper Manufacturers Association, Wrapping Paper Manufacturers Service Bureau and Writing Paper Manufacturers Association. The figures for January follow:

Grade	Number of Mills	Production Net Tons	Shipments Net Tons	Stocks on Hand, End of Month Net Tons
Newsprint	67	128,772	123,253	28,417
Book†	35	49,972	49,473	24,855
Paperboard	112	111,213	109,676	34,736
Wrapping	90	51,522	48,817	60,917
Bag	26	9,747	10,259	6,191
Fine	84	25,100	25,482	40,067
Tissue	44	9,567	9,668	7,240
Hanging	10	4,113	4,426	1,995
Felts	17	13,048	12,479	2,633
Other Grades	59	16,561	16,245	17,620
Total—All Grades		419,615	409,778	224,631

†Preliminary

The statistical table below gives the number of mills reporting to the American Paper and Pulp Association and the U. S. Pulp Producers Association, and the data as to production of the various grades of pulp in January.

Grade	Number of Mills	Production Net Tons	Shipments Net Tons	Stocks on Hand, End of Month Net Tons
Ground Wood Pulp	99	116,677	91,615	81,987
Sulphite, New Grade	39	48,922	45,717	17,739
Sulphite, Bleached	19	20,610	17,917	4,022
Sulphite, Easy Bleaching	7	6,086	4,542	1,222
Sulphite, Mitscherlich	6	6,139	6,132	1,050
Sulphate Pulp	12	14,502	12,509	8,082
Soda Pulp	11	14,001	10,683	2,605
Other than Wood Pulp	2	136	.....	243
Total—All Grades		227,073	189,115	116,950

A ROLLING STONE GATHERS NO MOSS

BUT, Paper rolled by Press Rolls of Barre Granite gathers increased profit for those whose machines are equipped with these famous rolls.
Full information about them will be sent upon request.

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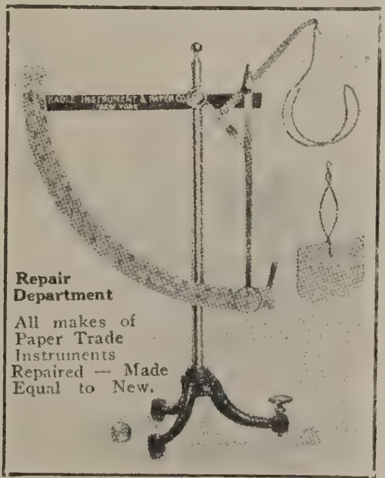
SUPERIOR TO ANY OTHER MAKE



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Pocket Scale
Reduction Scale
Box Board Scale
Reduction Box Board Scale
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Sample 12" x 12"
Desk Gauge 6" Dial
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Pocket Gauge
Testers
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KALAMAZOO, MICHIGAN

CANADIAN EXPORTS OF PULP AND PAPER, FEBRUARY, 1924

ACCORDING to the report issued by the Canadian Pulp and Paper Association the exports of pulp and paper from Canada in February were valued at $10,947,199, an increase of $47,149 over the total for January.

Comparison with the returns for February, 1923, shows a considerable increase in the value of the pulp and paper exports for last month, the value this year exceeding that for last year by $963,531.

Following are details for the various grades:

PAPER:

	February 1924		February 1923	
	Tons	**Value**	**Tons**	**Value**
Newsprint	99,621	$7,339,636	84,395	$6,360,140
Book Paper (cwts.)	1,242	7,496	3,259	20,790
Bond & Writing " .	597	6,222	755	8,080
Wrapping	1,334	190,103	1,986	286,209
All Other	—	276,968	—	354,918
		$7,940,324		$7,030,137
PULP:				
Mechanical	14,004	$ 533,217	15,464	533,455
Sulphite Bleached	14,713	1,060,777	12,526	1,105,616
Sulphite Unbleached ..	12,679	686,955	12,950	696,128
Sulphate	12,298	725,926	9,525	618,342
	53,694	$3,006,875	50,465	$2,953,541

Februayr exports of pulpwood amounted to 131,785 cords valued at $1,219,525; this is the highest figure recorded since August, 1923, and is a big increase from the 99,830 cords valued at $866,128 exported in February, 1923.

For the first two months of this year there has been a considerable increase in the value of the exports of pulp and paper over the corresponding two months of 1923, the total value for the current year being $21,847,249 compared with $20,281,921 last year, an increase of $1,565,328.

The following table gives the exports of the principal grades of pulp and paper for the first two months of 1923 and 1924:

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, of PAPER, published weekly at East Stroudsburg, Penna., for April 1st, 1924.

State of Pennsylvania }
County of Monroe } ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Russell C. Hughes, who, having been duly sworn according to law, deposes and says that he is the Publisher of PAPER and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Hughes Publishing Co., Inc., East Stroudsburg, Penna.
Editor, Thomas J. Keenan, East Orange, N. J.
Managing Editor, Russell C. Hughes, East Stroudsburg, Pa.
Business Manager, Russell C. Hughes, East Stroudsburg, Pa.

2. That the owner is: (If the publication is owned by an individual, his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding one per cent or more of the total amount of stock should be given.)

George C. Hughes, East Stroudsburg, Pa.
Russell C. Hughes, East Stroudsburg, Pa.
Carl L. Hughes, East Stroudsburg, Pa.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscibers during the six months preceding the date shown above is
(This information is required from daily publications only.)

RUSSELL C. HUGHES
Signature of Publisher.

Sworn to and subscribed before me this 29th day of March, 1924.
(Seal)

HELEN T. HUGHES.
(My commission expires March 6, 1927.)

Color Combinations for Placards and Containers

THE newspaper agitation over the color for license plates, adopted by the New York State Automobile Commissioner has served to direct attention anew to the legibility of different colors. In the matter of legibility and ability to recognize the number of the car at a considerable distance, Pennsylvania is easily first with a combination of dark blue letters on a bright yellow background, New Jersey is a close second with red on white, but New York State is out of the running altogether, there being no provision made in any color scheme known to advertising experts for white on slate, which, however artistic it may be, on purely esthetic grounds, is valueless where legibility at a distance is concerned.

The selection of colors for advertising cards and signs has been the subject of intensive study by manufacturers of colored inks, as well as by specialists in advertising. Travelers on subway, elevated and surface car lines where advertising cards are displayed have only to cast their eyes along the line of advertising placards, to appreciate what it means to use the right arrangement and combinations of colors. On some cards the eye will rest with pleasure while others will be passed over hurriedly. Some cards may arrest attention by glaring display of color, or extreme legibility of lettering and design, but it is not by chance or haphazard methods that attractiveness and attention—value in advertising cards are secured.

Colored advertisements are generally believed to be more valuable than plain effects in black and white, though some advertising specialists are of opinion that color legibility is best obtained with an area of 25 percent of white and 75 percent of black, or background of any color with white.

Many factors influence the degree of effectiveness in a car sign, placard or even carton or label; chief of these are proper combinations of colors and backgrounds, complementary to each other. In this connection it may be of service to present a tabular list of combinations of colors, in the order of their legibility for reading at a distance. The list is quoted from a book entitled, *Color and Its Applications*, by M. Luckiesh, director of the laboratory of applied sciences, National Lamp Works of General Electric Company, who is an authority on the use of light and color as aids in advertising and selling.

1. Black on yellow
2. Green on white
3. Red on white
4. Blue on white
5. White on blue
6. Black on white
7. Yellow on black
8. White on red
9. White on green
10. White on black
11. Red on yellow
12. Green on red
13. Red on green

In each case the first color is that of the printed matter and the second color that of the background. Of course, it is dangerous to draw conclusions too finely from such data when physical characteristics of the colors, such as brightness and saturation, are not available; however, the data are interesting and may serve at least to indicate the importance of color combinations. Legibility is not the same as attention-value but there is an intimate relation. The last named is of great importance in advertising by means of railroad car display cards as well as with ordinary methods of merchandising where attractiveness of container is likely to be an important factor in selling goods, cartons, for example.

Turn to the Clearing House and Read Every Line—It Will Pay You

Kuttroff, Pickhardt & Co., Inc.

128 Duane Street, New York

For Paper Makers

DYESTUFFS
COLORS
CHEMICALS

Branch Offices:

BOSTON, 157 Federal St.
PROVIDENCE, 52 Exchange Place
PHILADELPHIA, 111 Arch St.
CHICAGO, 305 W. Randolph St.
—also—
MONTREAL, 10 St. Peter St.

DER PAPIERFABRIKANT

Official Publication of the German Pulp and Paper Engineers Association and of the leading Trade Unions of the German Paper Industries

With Supplement:
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Edited by Prof. Dr. Heuser

Published weekly in parts of about 50 pages each.

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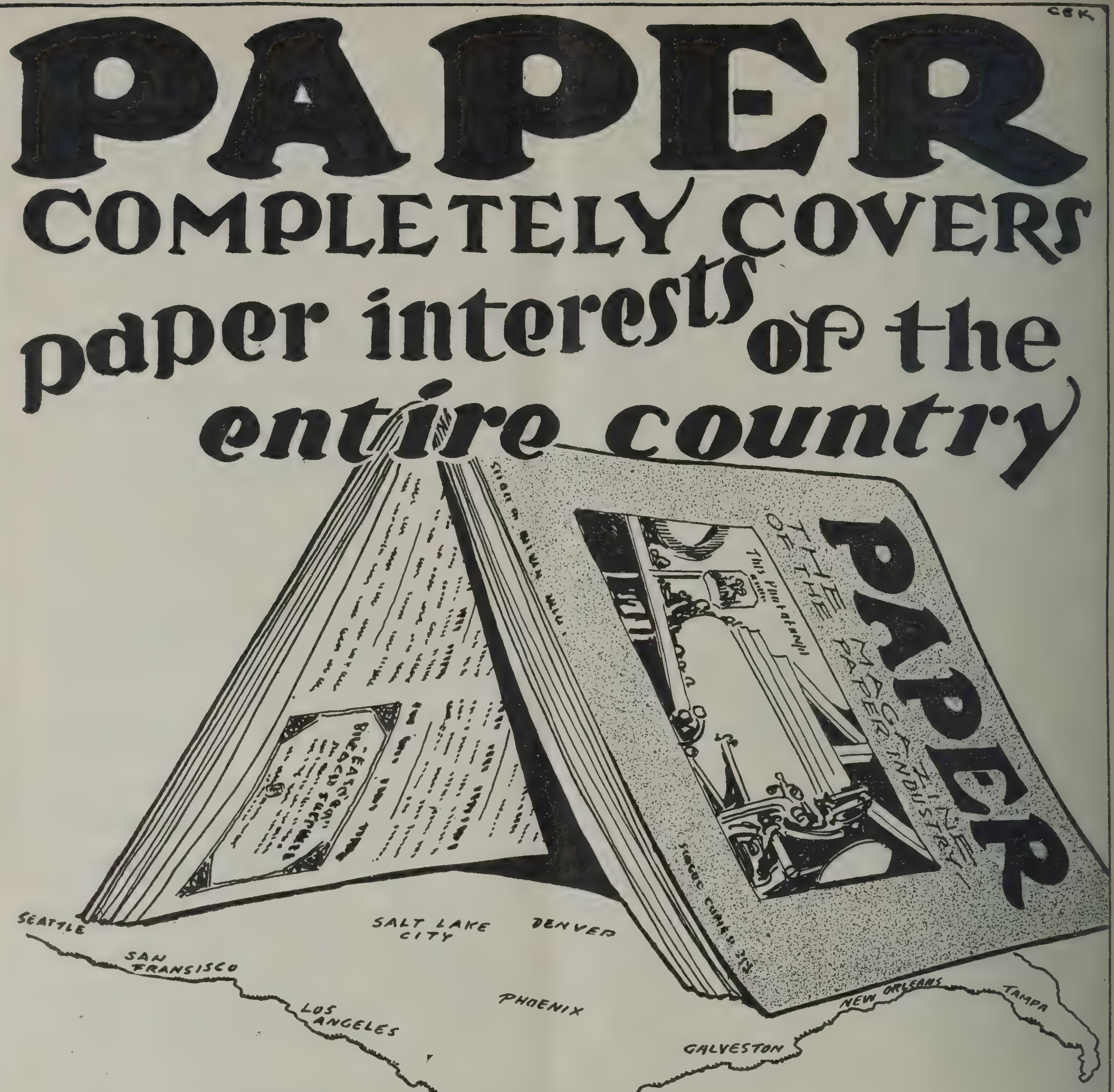
Berlin S. 42 Oranienstr. 140/142



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Butchers Manila
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Manufacturers of

TARZAN

Fibre Shipping Cases

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New York

Western Sales Office
620-621 McCormick Bldg.
Chicago, Ill.

EMPIRE SIZE AND CHEMICAL CORP.

Rosin Size — Foam Killer
Felt Soap

ALBANY, N. Y.

ALVAH MILLER TOM T. WALLER ARTHUR C. HASTINGS EDWARD A. WESTFALL NATHANIEL L. MILLER

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BOX BOARD - WOOD PULP

52 Vanderbilt Avenue New York City

CLASSIFIED DIRECTORY

PAPERMAKING MACHINERY AND SUPPLIES

A handy reference for the busy Purchasing Agent of the Paper and Pulp Industry. Names listed in bold faced type are the regular advertisers in PAPER whom we can recommend for service and satisfaction.

ACID SYSTEMS

Stebbins Eng. & Mfg. Co., Watertown, New York.

AIR COMPRESSORS

Nash Engineering Co., South Norwalk, Conn.

ALKALI

MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.
DIAMOND Alkali Co., Pittsburgh, Pa.

ARCHITECTS AND ENGINEERS

CAREY—James L., Chicago, Ill.
FERGUSON—Hardy S., New York City.
HARDY—George F., New York City.
Stebbins Eng. & Mfg. Co., Watertown, N. Y.
WALLACE—Joseph H., & Co., New York and Montreal.

BEARINGS

LINK-BELT Co., Chicago, Ill.

BEATER PADDLES

Menasha Wood Split Pulley Co., Menasha, Wis.

BELT CONVEYORS

LINK-BELT Co., Chicago, Ill.

BELT DRESSING

H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.

BLEACHING POWDER

MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

BOILERS

Manitowoc Eng. Works, Manitowoc, Wis.

BOND PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.

BOX BOARDS

STANDARD Paper Co., Kalamazoo, Mich.

BRIMSTONE

UNION Sulphur Co., New York.

CARS

Pulp

Easton Car & Construction Co., 196 Fulton Street, New York City.
Chase Foundry & Mfg. Co., 2800 Parsons Ave., Columbus, Ohio.

CASEIN

California Central Creameries, Inc., 425 Battery, San Francisco, Calif.
Bird & Co., J. A. & W., 88 Pearl St., Boston, Mass.
King, E. & F. & Co., 367 Atlantic Ave., Boston, Mass.
Reardon Company, 127 Clinton, St. Louis, Mo.
Wiarda, John C. & Co., 91 Provost St., Brooklyn, N. Y.
Sheffield By-Products Co., Hobart, N. Y.
Atterbury Bros., 145 Nassau St., (French Imported) New York City.
Casein Mfg. Co., 15 Park Row, New York City.
Duche & Sons, T. M., (Imported), 376 Greenwich St., New York City.
Hamilton Company, 50 Church St., New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff, New York City.
Kalbfleisch Corp., The, 31 Union Sq., New York City.
Peek & Velsor, 8 Gold, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Amalgamated Gum Co., (Vegetable for Wall Paper & Paper Coater Mfgrs.) Troy, N. Y.

CAUSTIC SODA

MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.
DIAMOND Alkali Co., Pittsburgh, Pa.

CHAINS AND WHEELS

LINK-BELT Co., Chicago, Ill.

CHEMICALS

Papermakers

Cooper & Cooper, Inc., 23 Cliff St., New York.
du Pont, E. I. de Nemours & Co., Inc., Lithopone, Pigments & Heavy Chemicals Div., Wilmington, Del.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
American Woodpulp Corp., 347 Madison Avenue, New York City.
Battelle & Renwick, 80 Maiden Lane, New York City.
Burns Mfg. Co., 46 W. Broadway, New York City.
Cooper, Charles, & Co., 194 Worth, (Job), New York City.
DIAMOND Alkali Co., Pittsburgh, Pa.
KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.
National Sales Co., Cincinnati, O., (Bentonite).
Paper Makers Chemical Co., Easton, Pa.
PENNSYLVANIA Salt Mfg. Co., Chestnut St., (Bleach), Philadelphia, Pa.
EMPIRE Size & Chemical Co., (Rosin Size—Foam Killer—Felt Soap), Albany, N. Y.
Philadelphia Quartz Co., 121 So. 32 St., Philadelphia, Pa., Silicate of Soda.

CLAY China

Cooper & Cooper, Inc., 23 Cliff St., New York.
United Clay Mines Corp., Trenton, N. J.
Bernhan Chemical & Metal Corp., 309 Broadway, (Job), New York
Bingswanger, H. P., 7 West 16, New York City.
Chrystal, Chas. B., Co., Inc., 99 John, (Imp.), New York City.
Drakenfeld, B. F., & Co., Inc., 50 Murray, New York City.
English China Clays Sales Corp., 33 West 42nd St., New York City.
General Mineral Co., Inc., 104 Spring, New York City, (Imp., Exp. & Mfrs. Agts.)
Hammell & Gillespie, 240 Front, New York City.
Higman Company, John W., 29 Broadway, New York City.
Innis, Speiden & Co., Inc., Isco Building, 46 Cliff (Job), New York City.
Keystone Minerals Co., 41 Union Square, New York City.
Penn-Keystone Co., 41 Union Square New York City.
Roessler & Hasslacher Chem. Co., 709 6th Avenue, New York City.
Salomon & Bro., L. A., 216 Pearl, (Imptr., Exptr. & Dir.), New York City.
Scheel, Wm. H., (Dept. A.), 159 Maiden Lane, (Imptrs., Exptr. & Dir.), New York City.
Smith & Co., J. Lee, 23 Jacob, New York City.
Taintor Mfg. Co., H. F., 2 Rector, (Bolted), New York City.
Tennant Sons & Co., C., 76 William New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City
Vanderbilt, R. T. Co., Inc., 50 East 42nd St., New York City.
Whittaker, Clark & Daniels, Inc., 245 Front (Exp. & Imp.), New York City.
Hardis Kaolin Co., Dillsboro, N. C.
Onondaga Pottery Co., (Vitrified), Syracuse, N. Y.
Excelsior Ball Clay Co., 31 East 13th, Cincinnati, Ohio.
National Sales Co., 31 East 13th, Cincinnati, Ohio.
Harshaw, Fuller & Goodwin Co., (Imptr.), Cleveland, Ohio.
Florida China Clay Corp., (Fla.), Easton, Pa.
Immaculate Kaolin Co., (For filling, coating & pottery purposes), Easton, Pa.
Paper Makers Chemical Co., (Eng.), Easton, Pa.
Williams, C. K., & Co., (Bolted), (Imptrs.), Easton, Pa.
Atlas Mineral Products Co., Mertztown, Pa.
Star Clay Co. (powdered & lump washed), Mertztown, Pa.
Fergusson, Alex. C., Jr., 460 Chestnut, Philadelphia, Pa.
Foote Mineral Co., Inc., 113 No. 19th, Philadelphia, Pa.
Nevins Co., Samuel, 109 So. 2nd, (Dried, Grd. & Bolted), Philadelphia, Pa.
Philadelphia Clay Co., 1201 Chestnut, Philadelphia, Pa.
Wayner, Chas. A. Co., Inc., 814 Noble St., Philadelphia, Pa.
Lyon & Bro. S. C., Bennington, Vt.
Horn, Crockett & Co., (Miners & Refiners), Brandon, Vt.
Dill-Coppage, Inc., 235 Pine (Imptrs. & Exptrs.), San Francisco, Calif.
Savannah Kaolin Co., Savannah, Ga.
Bennett & Davis, Inc., 327 So. LaSalle, Chicago. Ill.
Mepham, Geo. S., & Co., East St. Louis, Mo.
Cooley Ball & Sagger Clay Co., Hazel, Ky.
Kentucky Const. & Improvement Co., Pryersburg, Ky.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McHose Clay Co., Perth Amboy, N. J.
McHose, L. H., Inc., P. O. Box 345, Perth Amboy, N. J.
Such Clay Co., Perth Amboy, N. J.
Perrine, Hy. C., & Son, South Amboy, N. J.
Golding Sons Co., Trenton, N. J.

CLAY

Papermakers

Savannah Kaolin Co., Savannah, Ga.
Owyhee Chemical Products Co.,3946 So. Union Avenue, Chicago, Ill.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
Laclede-Christy, Railway Exch. Bldg., St. Louis, Mo.
Crossman Co., South Amboy, N. J.
Wright, Marcus S., South River, N. J.
United Clay Mines Corp., Trenton, N. J.
Carbola Chemical Co., Inc., 299 Ely Avenue, Long Island City, N. Y.
Binney & Smith Co., 81 Fulton, New York City, N. Y.
Chrystal, Chas. B. Co., Inc., 99 John, New York City.
General Mineral Co., Inc., 104 Spring, (Imptrs. & Exptrs., Mfg. Agts.), New York City.
Higman, John W. Co., 29 B'way, (Eng. & Amer.), New York City.
International Pulp Co., 41 Park Row, New York City.
Johns & Company, Inc., 50 Church, New York City.
PERKINS-GOODWIN Co., 33 West 42nd St., New York City.
Talc Products Co., 120 B'way, New York City.
Vanderbilt, R. T. Co., Inc.. 50 East 42nd St., New York City.
Whittaker, Clark & Daniels, Inc., 245 Front St., (Exp. & Impt.), New York City.
Excelsior Ball Clay Co., 31 East 13th St., Cincinnati, Ohio.
National Sales Co., (Colloidal Clay), Cincinnati, O.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Williams, C. K. & Co., Easton, Pa.
Star Clay Co., Mertztown, Pa.
South Carolina Clay Co., West Chester, Pa
Horn, Crockett & Co., Brandon, Vt.

CLAYS

Cooper & Cooper, Inc., 23 Cliff St., New York.
Francesconi, J. C., & Co., 25 Beaver, New York City.
General Mineral Co., Inc., 104 Spring, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses St., New York City.

COAL AND ASH HANDLING MACHINERY

LINK-BELT Co., Chicago, Ill.

COGS

Menasha Wood Split Pulley Co., Menasha, Wis.

COLORS

Papermakers

H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.
King, E. & F. Co., 376 Atlantic Ave., Boston, Mass.
Hampden Paint & Chemical Co., Springfield, Mass.
Lucas & Spencer Co., (Pulp), Camden, N. J.
Sun Chemical & Color Co., Harrison, N. J.
Central Dyestuff & Chemical Co., Plum Point Lane, Newark, N. J.
United Color & Pigment Co., Evergreen Ave., Newark, N. J.
Janeway & Carpender, New Brunswick, N. J.
Debrook Co., Inc., 1105 Metropolitan Ave., Brooklyn, N. Y.
Clinton Metallic Paint Co., Clinton, N. Y.
Harmon Color Works, Inc.. (Pulp), College Point, N. Y.
Imperial Color Wks., Inc., Tait Paper & Color Industries, Inc., Glenns Falls, N. Y.
Tait Paper & Color Industries, Inc., Glens Falls, N. Y.
Aniline Sales Corp., 480 W. B'way, New York City.
American Aniline Products, Inc., 80 5th Avenue, New York City.
Ansbacher, A. B. & Co., 527 5th Avenue, New York City.
BACHMEIER & Co., 438 W. 37th St., New York City.
Binney & Smith Co., 81 Fulton, New York City.
Carbic Color & Chem. Co., Inc., 451-453 Washington, New York City.
Certified Chemical Corp., 80 Maiden Lane, New York City.
Ciba Co., Inc., Cedar & Washington, New York City.
Crescent Color & Chemical Works, Inc., 59th St. & 11th Avenue, New York City.
Devoe & Raynolds Co., Inc., 101 Fulton, New York City.
Doggett, Stanley, Inc., 1 Cliff St., New York City.
Heller & Merz Co., 503 Hudson St., New York City.
KUTTROFF, PICKHARDT & Co., Inc., 128 Duane, New York City.
Laidlaw, Kelley & Co., Inc., 14 Platt, New York City.
Lavanburg, Fred. L., 100 William, New York City.
McNulty, Joseph A., 114 Liberty, New York City.
Martin Co., L., Liggett Bldg., New York City.
Metz, H. A. & Co., Inc., 122 Hudson, New York City.
National Aniline & Chemical Co., 40 Rector St., New York City.
Osborn Co., C. J., 101 Beekman. New York City.
Smith & Co., J. Lee, 23 Jacob, New York City.
Tidewater Chemical Co., Inc., 31 Desbrosses, New York City.
Wetterwald & Pfister Co., (Brunswick Color & Chem. Co.), 276 Spring, New York City.
Whittaker, Clark & Daniels, Inc., 245 Front, New York City.
Palatine Aniline & Chem. Co, Poughkeepsie, N. Y.
Siegle, G. Corp. of America, Rosebank, N. Y.
Standard Printing Ink Co., 1638-1648 Providence, Cincinnnati, O.
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.
Tyler-Patterson Co., The, 404 Superior Bldg., Cleveland, Ohio.
Hommel, O. Co., 211 4th Ave., Pittsburgh, Pa.
Williams & Co., C. K., Easton, Pa.
Wilhelm Co., A., Reading, Pa.

CLASSIFIED DIRECTORY—Continued

Keystone Color & Mica Co., (Wall Paper, Coated Paper & Scenic), York, Pa.

Pulp

Du Pont, E. I. de Nemours & Co., Inc., Wilmington, Del.
Hampden Paint & Chemical Co., Springfield, Mass.
Kohnstamm, H. & Co., 83-93 Park Pl., New York City.
National Aniline & Chemical Co., Inc., 40 Rector St., New York City.

CONSISTENCY REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

CONVEYORS AND ELEVATORS

LINK-BELT Co., Chicago, Ill.

COUNTER & MARKER

Mamco

Maxson Automatic Machinery Co., Westerly, R. I.

COUPLINGS (Shaft)

LINK-BELT Co., Chicago, Ill.
Hudson-Sharp Machine Co., Green Bay, Wis.

DANDY ROLL MAKERS

Smith, C. H., Corp., Sylvan St., West Springfield, Mass.

DIGESTERS

Chicago Bridge & Iron Wks., 2036 Transportation Bldg.. (pulp), Chicago, Ill.
Watson, Frye Co., Ltd., (paper & pulp mill, soda & sulphate), Bath, Me.
PORTLAND Co., (copper, paper & pulp mill), Portland, Me.
McNamara Bros. Co., Westport, Baltimore, Md.
Dillon Steam Boiler Wks., D. M., (paper & pulp mill, rotary), Fitchburg, Mass.
EASTWOOD Wire Mfg. Co., (papermaking), Belleville, N. J.
Reeves Bros. Co., 338 Rush Street, (pulp & paper mill), Alliance, O.
Tudor Boiler Mfg. Co., 715 E. 3rd St., (pulp), Cincinnati, Ohio.
Riter-Conley Co., 318 Oliver Bldg., (papermaking), Pittsburgh, Pa.
McAleenan Bros. Co., 25th & Railroad Sts., (pulp paper mill), Pittsburgh, Pa.
West Point Boiler & Tank Works, 23rd & Smallman, (paper making), Pittsburgh, Pa.
Petroleum Iron Works Co., Drawer 539 (pulp), Sharon, Pa.
Manitowoc Shipbuilding Corp., (paper mill, sulphate, rotary & soda), Manitowoc, Wis.

DIGESTER LININGS

Stebbins Eng. & Mfg. Co., Watertown, N. Y.

DRAINER BRICKS

H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.

DRIVES

Smidth & Co., F. L., 50 Church St., (Beater-Belt-Lenix), New York City.

DRYERS

Paper & Pulp Makers

Mintin, Ogden, Greenwich, Conn.
Smith & Winchester Mfg. Co., So. Windham, Conn.
Gordon, Robert, Inc., 1355 W. Washington Blvd., Chicago, Ill.
Rice Barton & Fales Machine & Iron Co., Worcester, Mass.
St. Louis Ventilating & Sheet Metal Co., 1306 Ann Avenue, St. Louis, Mo.
Carrier Eng. Corp., 39 Cortlandt, New York City.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Bartlett & Snow Co., C. OO French & Columbus, Cleveland, Ohio.
French & Columbus, Cleveland, O.
Cummer, F. D. & Son Co., Hanna Bldg., Cleveland, Ohio.
Kilby Mfg. Co., 4623 Lakeside Ave., Cleveland, Ohio.
Proctor & Schwartz, Inc., 7th St. & Tabor Road, Philadelphia, Pa.
Gordon Dryer Corporation, 275 W. Exchange, Providence, R. I.

EQUIPMENT

Crandon Mfg. Co., (special electrical, for pulp & paper mills), Portland, Me.

EVAPORATORS

Soda Pulp

Buffalo Foundry & Machine Co., 43 Winchester Avenue, Buffalo, N. Y.
Devine, J. P., Co., 1380 Clinton, Buffalo, N. Y.
Zaremba Co., 508 Niagara Life Bldg., Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City.
International Process Co., 5 Beekman, New York City.
Odrway, Charles 25 Church, New York City.
Wallace-Bird Pine Products, Inc., 5 Beekman, New York City.
Kestner Evaporator Co., North Philadelphia, Pa.

FELTS

Dryer, Jackets

FITCHBURG Duck Mills, Fitchburg, Mass.
H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.
F. C. HUYCK & Sons, (Kenwood Mills), Albany, N. Y.
Albany Felt Co., Albany, N. Y.
Appleton Woolen Mills, Appleton, Wis.
ORR Felt & Blanket Co., Piqua, Ohio.
WATERBURY Felt Co., Skaneateles Falls, N. Y.
Lockport Felt Co., Lockport, N. Y.
SHULER & Benninghofen, Hamilton, Ohio.

FILLERS

Papermakers

U. S Gypsum Co., 205 W. Monroe, (Terra Alba & Select), Chicago, Ill.
Macneal's Varnish & Color Works, 1600 Block Warner, Baltimore, Md.
Western Paper Makers Chemical Co., (Pearl), Kalamazoo, Mich.
American Chemical & Mfg. Corp., Kenilworth, N. J.
Carbola Chemical Co., Inc., 229 Ely Avenue, (Fillers for every purpose), Long Island City, N. Y.
INTERNATIONAL Pulp Co., 41 Park Row, New York City.
Talc Products Co., 120 B'way, New York City.
Solvay Process Co., Syracuse, N. Y.
Lookout Paint Mfg. Co., Chattanooga, Tenn.

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Pulp and Paper

Oliver Continuous Filter Co., 503 Market, San Francisco, Calif.
Redlich Mfg. Co., 637 W. Oak, Chicago, Ill.
Ordway, Charles, 25 Church, New York City.
Permutit Co., The, 4th Ave. & 30th, New York City.
Kiefer, Kary Machine Co., 919 Martin, Cincinnati, Ohio.
Loew Mfg. Co., 9100 Madison Ave., Cleveland, Ohio.

GRINDERS

Wood Pulp

Pusey & Jones Co., Wilmington, Del.
Stroud, E. H. & Co, 928-934 Fullerton Ave,, Chicago, Ill.
Holyoke Machine Co., Holyoke, Mass.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Carthage Machine Co., Carthage, N. Y.
Dilts Machine Co., Inc., Fulton, N. Y.
Glens Falls Machine Wks., Glens Falls, N. Y.
Sandy Hill Iron & Brass Wks., Hudson Falls, N. Y.
Brown Co., A. & F., 79 Barclay, New York City.
Bagley & Sewall Co., Watertown, N. Y.
Jeffrey Mfg. Co., 956 No. 4th, Columbus, Ohio.
Dayton Globe Iron Works Co., Dayton, Ohio.
Scott, Olin, Est. of, Bennington, Vt.

JORDAN FILLINGS

The Bahr Bros. Mfg. Co., Marion, Ind.

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Atkins, E. C. & Co., Inc., 402 So. Illinois, Indianapolis, Ind.
Simonds Mfg. Co., Fitchburg, Mass.
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Paper Working Machine Co., Ave. U & 56th, (Corrugated), Brooklyn, N. Y.
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KNOWLTON Co., M. D., 26 Industrial, (corrugated), Rochester, N. Y.

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Smith & Winchester Mfg. Co., So. Windham, Conn.
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American Type Founders, 4-6 Communipaw Ave., (lever & power), Jersey City, N. J.
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Morgans & Wilcox Mfg. Co., (printers), Middletown, N. Y.
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Hoffman Type & Engraving Co., 112 East 13th St., (mnfrs., reps. & imptrs.), New York City.
KNOWLTON, M. D. Co., 26 Industrial, Rochester, N. Y.
Seybold Machine Co., Dayton, Ohio.
Sheridan, T. W. & C. B., 434 B'way, New York City.
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Beloit Iron Works, (Board & Paper), Beloit, Wis.

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PICKLES—W. F., Buckland, Conn.
Pusey & Jones Co., (papermaking machinery), Wilmington, Del.
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Waterville Iron Wks., Waterville, Me.
Davis, Frank H., Co., 175 Richdale Ave., Boston, Mass.
Meisel Press Mfg. Co., 949 Dorchester Ave. 25, Boston, Mass.
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du Pont, E. I. de Nemours & Co., (explosives dept.), Wilmington, Del.
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Orono Pulp & Paper Co., (unbleached sulphite fibre), Bangor, Maine.
Eastern Mfg. Co., (sulphite fibre), Bangor, Maine.
Eastern Pulp Wood Co., Calais, Me.
Cherryfield Lumber Co., (Wood), Cherryfield, Me.
Howland Pulp Corp., The, (Sulphite Fibre), Howland, Maine.
Pejepscot Paper Co., (Br.), (Sulphite Fibre), Lisbon Falls, Me.
Nekonegan Paper Co., (Ground Wood), Oldtown, Me.
BROWN Company, (Sulphate Fibre), Portland, Maine.
Riverside Pulp Co., (groundwood), Skowhegan, Maine.
Skowhegan Pulp Co., (groundwood), Skowhegan, Maine.
Forest Paper Co., (soda fibre), Yarmouthville, Me.
Advance Bag & Paper Co., Inc., 301 Congress St., Boston, Mass.
Hollingsworth & Whitney Co., 185 Devonshire (sulphite fibre & groundwood), Boston, Mass.
Mount Tom Sulphite Pulp Co., 50 State (bleached sulphite pulp), Boston. Mass.
Penobscot Chemical Fibre Co., 49 Federal (wood pulp), Boston, Mass.
St. Croix Paper Co., 244 Wash'n, (sulphite fibre & ground wood pulp), Boston, Mass.
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Ramage Paper Co., James, (wood), Monroe Bridge, Mass.
Fletcher Paper Co., (groundwood & sulphite fibre), Alpena, Mich.
Cheboygan Paper Co., (groundwood), Cheboygan, Mich.
Detroit Sulphite Pulp & Paper Co., 9131 W. Jefferson Ave., (sulphite fibre), Detroit, Mich.
Johnston, W. J., (wood), De Tour, Mich.
Escanaba Paper Co., (Duplicate), Escanaba, Mich.
Filer Fibre Co., (Kraft Sulphate Pulp), Filer City, Mich.
Itaska Paper Co., (Ground Wood Pulp), Grand Rapids, Mich.
Central Paper Co., (sulphite fibre also paper), Muskegon, Mich.
French Paper Co., (ground wood pulp), Niles, Mich.
Port Huron Sulphite & Paper Co., (Mitscherlich Process), Port Huron, Mich.
Northern Cedar & Lumber Co., (wood), Blackduck, Minn.
Northwest Paper Co., (ground wood, sulphite pulp), Cloquet, Minn
Hennepin Paper Co., (ground wood), 401 E. Main, Minneapolis, Minn.
Minnesota & Ontario Paper Co., 1100 Builders' Exch., (ground wood Pulp & Sulphite Fibre). Minneapolis, Minn.
Mason-Perkins Paper Co., (wood), Bristol, N. H.
Groveton Paper Co., Inc., (sulphite), Groveton, N. H.
Veazie, Geo. A., Littleton, N. H.
Livermore Falls Pulp Co., (air dried ground wood pulp), Plymouth, N. H.
Crabtree & Sons, Edwin, (Ground Wood Pulp), Wendell, N. H.
Rogers & Co., J. & J., (ground wood & sulphite), Ausable Fork, N. Y.
Lewis Co., The J. P., (ground wood), Beaver Falls, N. Y.
Lewis, Slocum & Lefevre, (ground wood), Beaver Falls, N. Y.
Bayless Pulp & Paper Co., (Paper), Binghamton, N. Y.
National Sawdust Co., 99 No. 1st St., (hardwood, softwood), Brooklyn, N. Y.
Langston Co., Samuel M., (paper can, paper box, corrugating, tube making), Camden, N. J.
Waldron, Jno. Co., (Napkins, Sand Wall Paper Printing, Wall Paper embossing, napkins), New Brunswick, N. J.
Taylor, Stiles & Co., (paper stock, rag cutters), Riegelsville, N. J.
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Sandy Hill Iron & Brass Works, (fourdrinier), Hudson Falls, N. Y.
Trevor Mfg. Co., 168 Market (wood pulp splitting, wood pulp, wet), Lockport, N. Y.
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Smith & Co., F. L., 50 Church St., (Power Transmission), New York City.
Jaqenberg Machne Co., Inc., 133 W. 24th Street, (hot air dryers, gas heated, for coated paper, either in sheets or rolls), New York City.
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Textile Finishing Machy. Co., 83 Exchange Pl., (finishing machy. for writing, ledger, coated & glazed papers), Providence, R. I.
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Hooker Mfg. Corp., St. Johnsbury, Vt.
Appleton Machine Co., Appleton, Wis.
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Manitowoc Ship Building Corp., Manitowoc, Wis.
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McDonald, Chas. J., (Rolls), Worcester, Mass.
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Island Paper Co., (ground wood dry), Carthage, N. Y.
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Finch, Pruyn & Co., Inc., (gorund wood pulp), Glens Falls, N. Y.
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Hinckley Fibre Co., (sulphite fibre), Hinckley, N. Y.
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Malone Paper Mill, (sulphite fibre: gound wood), Malone, N. Y.
Hoornbeek's, John C., Sons, (ground wood, dry), Napanock, N. Y.
American Woodpulp Corp., 347 Madison Ave., (wood, chemical & mechanical, Kraft), New York City.
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Beebe & Co., Ira L., 132 Nassau, (wood pulp), New York City.
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Helwig, Rudolph, 451 Wash'n., (sulphite pulp), New York City.
International Paper Co., (ground wood pulp & sulphite), New York City,.
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Paine, A. G., Jr., 200 Fifth Ave., New York City.
PERKINS-GOODWIN Co., 33 W. 42nd St., New York City.
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Union Bag & Paper Corp., Woolworth Bldg., (ground wood, sulphite & kraft pulps), New York City.
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Pettebone-Cataract Paper Co., (ground wood), Niagara Falls, N. Y.
Defiance Paper Co., (ground wood), Norwood, N. Y.
Martin Pulp & Paper Co., (wood), Ogdensburg, N. Y.
Lake Champlain Pulp & Paper Corp., (Dry ground pulp), Plattsburg, N. Y.
Saranac Co., (ground wood pulp), Plattsburg, N. Y.
Underwood Paper Mills, Inc., (ground wood), Plattsburg, N. Y.
Hannawa Falls Water Power Co., (ground wood, pulp), Potsdam, N. Y.
Raquette River Paper Co., (ground wood sulphite), Potsdam, N. Y.
Johnston & Son, (dry ground wood), Port Leyden, N. Y.
St. Regis Falls Wood Corp., (ground wood pulp), St. Regis Falls, N. Y.
American Wood Board Co., (ground wood pulp), Schuylerville, N. Y.
Blandy Paper Co., (ground wood), Schuylerville, N. Y.
Iroquois Pulp & Paper Co., (ground wood pulp), Thomson, N. Y.
Ticonderoga Pulp & Paper Co., (Soda Fibre, Wood), Ticonderoga, N. Y.
Santa Clara Lumber Co., (pulp), Tûpper Lake, N. Y.
Schroon River Pulp & Paper Co., (ground wood, dry), Warrensburg, N. Y.
Diana Paper Co., (ground wood pulp), Watertown, N. Y.
St. Regis Paper Co., (ground, wood, dry sulphite fibre), Watertown, N. Y.
SHERMAN Paper Co., (ground wood pulp), Watertown, N. Y.
Champion Fibre Co., (paper pulp), Canton, N. C.
Halifax Paper Corpn., (sulphite fibre & ground wood), Roanoke Rapids, N. C.
Mead Pulp & Paper Co., (soda fibre), Dayton, Ohio.
SRERE Pulp & Paper Co., Franklin, Ohio.
Williamette Pulp & Paper Co., (sulphite fibre, also paper), Oregon City, Ore.
Oregon Pulp & Paper Co., (bleached & unbleached sulphite pulp), Salem, Ore.
Bayless Mfg. Corp'n (ground wood, sulphite fibre, also paper), Austin, Pa.
Durham Paper & Pulp Co., Durham, Pa.
Williams & Co., C. K., (mineral), Easton, Pa.
HAMMERMILL Paper Co., (unbleached sulphite), Erie, Pa.
Analomink Paper Co., (ground wood pulp), North Water Gap, Pa
Cherry River Paper Co., (sulphite pulp), 2129 Land Title Bldg., Philadelphia, Pa.
Dill & Collins Co., 140 N. 6th, (soda fibre, paper), Philadelphia, Pa.
Jessup & Moore Paper Co., Com'l Tr. Bldg. (soda pulp), Philadelphia, Pa.
Parson Pulp & Lumber Co., (spruce bleached & unbleached sulphite pulp), Finance Bldg., Philadelphia, Pa.
Bare, D. M., Paper Co., (soda fibre, also paper), Roaring Spring, Pa.
Glatfelter, P. H. Co., (soda fibre. also paper), Spring Grove, Pa.
Carolina Fibre Co., (ground wood, dry, sulphite also paper), Hartsville, S. C.
Tenn. Fibre Co., (cotton hull, fibre, dry), Southern Ry & Linden, Memphis, Tenn.
Yellow Pine Paper Mill Co., (sulphite fibre), Orange, Tex.
Sugarland Pulp & Paper Co., Sugarland, Tex.
Ryegate Paper Co., (Pulp), East Ryegate, Vt.
Parks Paper Co., (ground wood), Fitzdale, Vt.
Groton Mfg. Co., (wood pulp), Groton, Vt.
Columbian Paper Co., (soda fibre), Buena Vista, Va.
Hummel-Ross Fibre Corp., (sulphate pulp), Hopewell, Va.
Stamsocott Co., The, Inc., (cotton linter pulp), Hopewell, Va.
Virginia Carolina Tie & Wood Co., (wood), Norfolk, Va.
Chesapeake Corp., (papermakers' pulp), Westpoint, Va.
Washington Pulp & Paper Co., (ground wood), Port Angeles, Wash.

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Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
Combined Locks Paper Co., (sulphite fibre), Appleton, Wis.
Marshall Paper Co., (wood), Appleton, Wis.
Riverside Fibre Co., (bleached — unbleached sulphite fibre also paper), Appleton, Wis.
Ashland Paper Co., (spruce ground wood), Ashland, Wis.
Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.
Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.
Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.
Kaukauna Ground Pulp Co., Kaukauna, Wis.
Outagamie Paper Co., (ground wood), Kaukauna, Wis.
Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
Medford Lumber Co., (wood), Medford, Wis.
Mellen Lumber Co., Mellen, Wis.
Island Paper Co., (sulphite fibre), Menasha, Wis.
Ewing Everest Pulp Co., (ground wood), Merrill, Wis.
Grandfather Falls Co., (ground wood pulp), Merrill, Wis.
Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood and sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Flambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.
Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS

Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia. Pa.

RAGS

American Woodpulp Corporation. New York.
Keller Co., Inc., E. J., New York.
CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill.

ROPE DRIVE

LINK-BELT Co., Chicago, Ill.

SCREENS

Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del.
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill.
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman, H. L. (centrifugal), Dayton, Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale. Pa.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill.

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS

Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS

Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific St., Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.
Paper Makers Chem. Co., (combination), Easton, Pa.
Boley, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.
Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.
Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel, T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
MURRAY Mfg. Co., D. J., Wausau, Wis.
Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.
Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Cohoes Iron Foundry & Machine Co., (Cylinder; Hot Air), Cohoes, N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.
Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA

Ash

DIAMOND Alkali Co., Pittsburgh,
MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

SODA

Pulp

Mead Fibre Co., The, (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SODIUM SULPHATE

(Salt Cake)

Cooper & Cooper, Inc., 23 Cliff St., New York.

SPLITTERS

Wood

Grace, C. M. & Co., Huntsville, Ala.
Ripley, Lewis R., Harvard, Mass.
Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.
Ryther & Pringle Co., Carthage, N. Y.
Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Multnomah Iron Works, Portland, Ore.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works, Co., Appleton, Wis.
Smalley Mfg. Co., Manitowoc, Wis.

SPROCKET WHEELS

LINK-BELT Co., Chicago, Ill

STOCK REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

STONES

Wood Pulp

Pusey & Jones Co., (Kollergang), Wilmington, Del.
Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.
Lombard & Co., 238 A Street, Boston, Mass.
JONES Bros. Co., Boston, Mass.
Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.
Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.
Empire Pulp Stone Co., Empire, Ohio.
C. & M. Quarries Co., Marietta, Ohio.
Smallwood Stone Co., Steubenville, Ohio.
American Stone Co., Wheeling, W. Va.
JONES Bros. Co., Barre, Vt.

SUCTION BOX COVERS

Menasha Wood Split Pulley Co., Menasha, Wis.

SULPHATE MILL EQUIPMENT

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.

SULPHITE FITTINGS

EASTWOOD Wire Mfg. Co., Belleville, N. J.

SULPHUR

UNION Sulphur Co., New York.

SULPHUR BURNERS

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.
TRIMBEY Machine Works, Glens Falls, N. Y.

CHAIN DRIVE SILENT

LINK-BELT Co., Chicago, Ill.

TANKS

Settling & Pulp Thickening

Chicago Bridge & Iron Works, 2036 Transportation Bldg., Chicago, Ill.
Eagle Tank Co., 2436 No. Crawford Ave., Chicago, Ill.
Johnson & Carlson, 848 Eastman, (Wood), Chicago, Ill.
New York Central Iron Works Co., Inc., Hagerstown, Md.
New England Tank & Tower Co., Boston Postal District, Everett, Mass.
Acme Tank Co., 41 Cortlandt St., (Wood), New York City, N. Y.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Hendrick Mfg. Co., 75 Dundaff St., Carbondale, Pa.
Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.
Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawer 539, Sharon, Pa.
Newport Foundry & Machine Corp., (Siphon), Newport, R. I.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.
Textile Finishing Mach. Co., Providence. R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill.

DE-INKING PROCESS

CASTLE & OVERTON, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

VALVES

Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.
WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

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Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

WET FELTS (Woolen)

H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.

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EASTWOOD Wire Mfg. Co., Belleville, N. J.
CHENEY-BIGELOW Wire Works, Springfield, Mass.
LINDSAY Wire Weaving Works, Cleveland, Ohio.
WM. CABBLE Excelsior Wire Mfg. Co., Brooklyn, N. Y.
INTERNATIONAL Wire Works, Menasha, Wis.
GREEN BAY Wire Works, Green Bay, Wis.
APPLETON Wire Works, Appleton, Wis.
WISCONSIN Wire Works, Appleton, Wis.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

CYLINDER MOLDS

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Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

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OF THE PAPER INDUSTRY

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Advertisements in this department cost $1.00 for 25 words or less, payable in advance. Additional words, two cents each. This price covers the cost of remailing answers directed to boxes, care of this office. Matter for insertion should reach the office of PAPER not later than the Saturday preceding date of issue.

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CHEMICAL ENGINEER, expert on digesting process and acid making for sulphite manufacturing desires position as chemist, assistant to superintendent or in research and development work. Experience from Sweden and United States. References. Address Box 1291, care of PAPER.

Single young college man, American with several years experience with Canadian newsprint manufacturers now ready for position of wider opportunity. This with approval and assistance of present employers. Experienced in paper mill, in engineering dept., sales office and especially in handling statistics. Capable of organizing and maintaining statistical department, chart control, reports, etc., or making himself useful in sales or manufacturing departments. Excellent references. Address Box 1292, care of PAPER.

ACCOUNTANT-EXECUTIVE, specializing in the solution of problems in the stores, cost and accounting departments, wants permanent position with manufacturing concern. Good accounting education and fourteen years' experience in varied lines of industry, including public accounting work in the installation of stores, cost and accounting systems. Successful in handling situations requiring tact and diplomacy. Progressive and up-to-date. Age 36. Present location Central States and location considered. Address Box 1293, care of PAPER.

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POSITIONS WANTED

CANADIAN, 26, college trained, with 3 years in big news mill office and control work, wants a chance in export or selling organization. Address Box 1294, care of PAPER.

GRADUATE CHEMIST, age 21, wishes position as junior in pulp and paper mill. Available May 1. Address Box 1295, care of PAPER.

PAPER SALESMAN—University graduate with chemical experience in the manufacture of pulp and paper desires to connect with a firm where hard work and results will be rewarded. All correspondence strictly confidential. Address Box 1287, care of PAPER.

GRADUATE mechanical engineer, age 31, married; practical experience in newsprint and fine writings; assistant superintendent of specialty mill; at present selling; desires to give up traveling and join paper organization in production capacity. Address Box 1297, care of PAPER.

SULPHITEMAN, university graduate, with five years' experience as laborer, foreman and chemist at mills making both strong and easy bleaching pulp desires position. At present employed as chemist but desires change and prefers a position as superintendent or assistant. Address Box 1296, care of PAPER.

FOR SALE

Beaters—One N & W 48x48 rolls, 21"-6". Two iron tub rolls 52"x40".

Bed Plates—Large lot, all sizes. New.

Calenders—One 7 roll 72"; one 9 roll 72"; one 5 roll 78"; one 7 roll open side 84". One 7 roll 124".

Calender Rolls—Large assortment, all sizes; one 14x86"; one 18x84"; one 18x100" and many others.

Coaters—One 45" Waldron, double coater, and others.

Cutters—One 38" Guillotine.

Cylinder Moulds—One 36"72"; one 30"x52"; one 12"x22".

Drives—One No. 1 Reeves Class E; two No. 3 Reeves Class E, 4 to 1; one No. 3 Class E; one No. 6 Large Reeves; one No. 10 Reeves, F-3 to 1 with extra disc.

Dryers—48x116.

Exhausters—One Sturtevant.

Fans—3 Hunberry; 2 Perkins.

Jordans—One N & W Monarch, with new shell two Horne; two Emerson, large size, one base; one N & W Pony, with extra plug.

Pulleys—One 98"x34" face, double arm, modern, Iron pulleys; Cone pulleys for Marshall Drives.

Pumps—One dry suction Knowles 12x22x18; one 1000 gal. Blake Tank pump; two Lawrence Mch. Co.'s Class A 8" high duty; two 6" Emerson make; one 4" Centrifugal; one Type 4 Gould 5" triplex, self contained. Two Lawrence Machine Co.'s Class A, No. 4, double suction pump for high elevation or for low speed. Thoroughly rebuilt and ready for shipment.

Press Rolls—One pair new, one RC 18x80"; one Gun metal 18x81"; one 16x75"; one RC 15½x73½".

Rag Cutters—Two No. 2 Daniels; one Perkins.

Screens—4-8 pl. New Success.

Slitters—One 86" P & J.

Winders—One 86" P & J; one 100" P & J; one 112" M & W.

Wet Machines—One N & W with cut offs, mould 30x52"; two spare moulds.

One set Dillion Doctors for 80" calender rolls.

MILLS MACHINE COMPANY
Lawrence. Mass., U. S. A.

THE CLEARING HOUSE—Continued

MISCELLANEOUS

WANTED—A paper company to locate a large pulp and papermaking plant in North Carolina, with a million cords of pulp wood deliverable at the plant at $3.75 a cord, a saving of $20,000,000. Lands for plants, fronting deep water for deep sea loading. Millions more cords of wood available very cheap. A clear stream of fresh water free for washing pulp. Address Box 245, care of PAPER, 1478 Broadway, New York City.

REPRESENTATION is solicited of responsible mill which seeks to sell paper or pulp in this country. Considerable experience and success enjoyed in the industry. Age 34; university training and well connected. Will share expense of a trip to home office of mill interested in interview. Address Box 1289, care of PAPER.

EXPERIENCED publicity and advertising man who can make paper carry any desired message of interest to the promoter, for any legitimate business or its expansion for greater profit, is open for engagement. Address H. C. Beatty, Box 58, Wilkinsburg, Penn.

GOVERNMENT BIDS

TREASURY DEPARTMENT, Office of the Secretary, Washington, D. C., March 15, 1924. Sealed proposals will be received at this office until 11 o'clock a. m., Wednesday, April 16, 1924, from manufacturers of bond, bank-note and other fine papers for furnishing bank-note paper of the highest quality containing the distinctive feature now in use by the Department, for the printing of United States currency and public debt securities, national and Federal reserve bank-notes, Federal reserve notes, etc., for the fiscal year beginning July 1, 1924. Blank forms for submitting proposals, with specifications and further information will be furnished manufacturers who intend to bid upon application to this office, where samples of the paper required may be examined. A. W. MELLON, Secretary of the Treasury.

Treasury Department, Bureau of Engraving and Printing, Washington, D. C., April 2, 1924. Sealed proposals are invited to furnish this Bureau with Postage Stamp Paper and Internal Revenue Paper, Brass and Iron Castings, Cleaning of Windows, Purchase of Pulp, Ink Scrapings, Distinctive Paper Shredded Trimmings and Postage Stamp and Internal Revenue Paper Trimmings, during the fiscal year beginning July 1, 1924. Proposals to be received not later than 2 P. M., Monday, May 12, 1924. Blank forms with specifications for proposals for the several schedules and further information will be furnished on application to Paul E. Twyman, Assistant Director.

ANNOUNCE PROGRAM OF DAYTON MEETING

Some Splendid Speakers on List for May 22nd Meeting

THE formal opening of the convention of the American Pulp and Paper Mill Superintendents Association together with problems of training of men for work in paper mills will mark the forenoon session of the opening day of the convention, May 22, at Dayton. The work of formulating the detailed program is progressing rapidly, and the first day's program is already practically completed.

In detail the program will be as follows for the opening day:

MORNING SESSION:

9:00 A. M.—Opening Address, President Nelson R. Davis
Address of Welcome, Mayor, Frank B. Hale
Response, B. T. McBain
Apprenticeship in Papermaking, Geo. P. Hambrecht
Vocational Education, Harry Carruth
Employment Problems, Francis S. Pope
Building and Maintaining an Organization, Robert B. Wolf

12:30 P. M.—Buffet Luncheon

AFTERNOON SESSION:

1:30 P. M.—Our Part in Forest Conservation, C. L. Cecil
Papermaking Fibres, B. S. Summers
Steam & Power for Pulp & Paper Mills, H. S. Taylor
The Beater of Today, Charles Shartle
The Drying of Paper, E. P. Gleason
The Selection and Abuse of Felts, M. C. Burrell

7:00 P. M.—Banquet & Entertainment
Toastmaster, (Undecided)
Address, Sherman Rogers
Monologue, George Mann
Vaudeville Acts from Keith Theatre

* * *

Started in 1924

Company	No.	Make	Size	Tons	Month
Belgo	1	D. E.	232	81	January
Donnacona	1	Walms.	234	100	January
Price	1	Walms.	234.	100	January
Total	3			285	

To Start in 1924

Company	No.	Make	Size	Tons	Month
Kenora	1	D. E.	234	100	March
Price	1	Walms.	234	100	(?)
St. Maurice	2	P. & J.	166	130	November
Great Lakes	1	——	232	100	December
Anglo-Nfd.	1	Walms.	226	75	December
Total	3			505	

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Volume XXXIII, No. 26

PAPER

April 17, 1924

The Magazine of the Paper Industry

THOMAS J. KEENAN, F.C.S., Editor
RUSSELL C. HUGHES, Publisher
ISMAR GINSBERG, B.S., Contributing Editor

A Few Stray Thoughts

THE big convention is over. The shouting has died and the captains have departed. The manufacturers of pulp and paper came to New York, basked in the sunshine of each other's smiles, commiserated each other and hoped for better times, renewed their love for each other and some mellow souls even pledged eternal fealty. They slapped each other on the back and lamented how times have changed and how it could never be again like it used to be. The socialized and fraternized, they visited and they reminisced.

Best of all they absorbed some of the collective wisdom of that group of papermakers and paper marketers. Under all the fun and happiness, there was a start of business. The various associations looked facts in the face and formed more or less nebulous plans for the future.

Everywhere there was regret at the present and immediately past conditions, but likewise the rainbow of the convention was that conditions are getting better and are expected to steadily improve. That was the hopeful thing about the entire week. There was little utter discouragement present, despite the universal agreement that conditions are not what they should be.

And therein lies encouragement.

One of the flowers that burst into bloom at the convention was the American Association of Paper Specialty Manufacturers. Its long-tailed name cloaks a wealth of possibilities for service in the trade. J. E. Willert, who has long been connected with the specialty line, is responsible for the organization. The idea has been with him for many years. In cooperation with PAPER, the American Paper and Pulp Association and a few of the big broad-minded specialty companies, the idea was put across in splendid shape. W. R. Lenderking was elected president and Mr. Willert secretary. We have no hesitancy in saying that the organization gets off to a flying start with the opportunity of doing much for the trade. PAPER wishes it success.

PAPER wants to congratulate the owners of the *Paper Trade Journal* and the *Paper Mill* for the magnificent convention numbers published. Typographically, textually and from a literary standpoint they were splendid. Wistfully, we wish for the support that makes their robustness possible. It appears the law of nature says babies must crawl first. Naturally babies appreciate a helping hand.

* * *

It will be very fortunate if there is another Paper Industries Exposition next year. It is certain, in our opinion that there will be no convention unless the exposition is held in the same building with the convention meetings.

While many companies reported a splendid list of prospects as a result of the week, there was much dissatisfaction with the attendance.

The show itself was a good one. The various lines of the industry were represented and many of the exhibits were remarkable for the thoroughness with which they were put on. Some represented long days of hard work and thought. Many were impressive and some fairly exuded education.

But the attendance was nothing to boast about. And that mere fact alone is enough to kill a thing like an exposition—especially when the lack of attendance of the manufacturers themselves is considered.

It will be regrettable to lose it and during the coming months a solution to the problem should be sought. It is the general belief that the exposition is a good thing for the industry generally and that it should not die an untimely death.

* * *

By the way, what do you think of the Convention Issue of PAPER? Our one ambition is to keep it the livest magazine in the paper industry. What is your opinion of this issue?

RUSSELL C. HUGHES,
Publisher.

The Albany Felt Co. Albany, N. Y.

Justifiable Pride in a Good Reputation

The reputation for staunch business integrity which the Albany Felt Company holds among those interested in the Paper and Pulp Industry is gratifying to us. Equally pleasing is the reputation for uniformly high quality which our felts and jackets enjoy among the trade.

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The Convention—and What

MEETING INCOMING VISITORS at hotel headquarters during Paper Week in New York is always a pleasant experience. Many mill owners and executives are unable to visit the metropolis oftener than once a year. This is especially the case with those members of the American Paper and Pulp Association and affiliated associations who travel great distances from the outlying centers of papermaking. One may maintain touch by correspondence all during the year, but this is a cold mode of contact compared with hearty handshake and greeting which follow a personal encounter.

IT was the privilege and pleasure of the editor to meet a large number of old friends and acquaintances in the paper industry from widely separated parts of the country during Paper Week. First impressions of the state of mind reflected by the leaders were somewhat disappointing, but as the week wore on much of the feeling of uncertainty was dispelled. It became apparent that the manufacturers of pulp and paper represented by membership in the American Paper and Pulp Association had not come together merely to talk of production and the probable course of prices. There were issues to be met, chief among them being the menace of foreign competition which it is alleged has grown to great proportions with a large tonnage of paper shipped to this country under false classifications.

IT is evident that a keen fight must be waged to protect our pulp and paper industry by higher tariff bars, but this being a year of presidential election and there being sharp differences of opinion among the members of the United States Tariff Commission, it is not likely that anything definite will be accomplished at this session of Congress in the way of obtaining tariff changes. The pulp producers of this country have no intention of opposing the legitimate entry of foreign pulps, but they do hope to effect some agreement with foreign manufacturers to restrict the ruinous gambling in foreign pulp which has so demoralized the market during the past year. Hand in hand with this is a movement to make the pulp industry more of a force and dominating influence throughout the entire industry. It is recognized that the situation is an extremely difficult one in view of the fact that pulp is on the free list, but a majority of the responsible firms of importers of pulp are convinced that the recent cutthroat competition has injuriously affected trade both in this country and in Scandinavia.

DURING the first day or two of contact with the leaders in the industry there was difficulty in getting them to give expression to their views concerning either the business outlook or the future of the association. A pessimistic strain prevailed and some indifference was manifested to the fortunes of the association, which was caused no doubt by the unsatisfactory state of its finances. But later on in the week the skies cleared and pessimism was replaced by optimism. A feeling of confidence as to the place of the American Paper and Pulp Association in the industry grew and developed, and this must be regarded as one of the worthwhile accomplishments of the gathering. Viewed from this and other standpoints the meeting was a success. Organization as represented by the parent association and its ten affiliated bodies is left by last week's gathering of manufacturers and mill executives in a much more secure and confidential position than ever before. As the week wore on evidences multiplied of closer coordination among the different branches and one could almost hear the steady "pump, pump" of a well oiled engine. It must have been especially gratifying to the older men in the industry to witness the enthusiasm displayed by the younger element in organizing and directing the affairs of the constituent associations. It was a matter of comment that more affiliated associations and allied groups held meetings during the convention last week than ever before, and the attendance was fully up to that of previous years, though the banquet hall on the last day of meetnig was not overcrowded, there being, indeed, some falling off in attendance as compared with previous years.

IT must be a source of great gratification to Secretary Baker and his coworkers that the association has been placed on a more substantial financial basis. It is now reported to be clear of all debt with a definite pledge of income from individual mill memberships. The program for the coming year is set forth quite fully in our report of the general meeting. It only remains to say that the administration is committed to the policy of delivering sound, progressive, association service along the lines there set forth, with expenditures kept carefully within its income.

IN speaking of association activities during Paper Week there is inevitable mention of the Paper Industries Exposition, which was so outstanding a feature of the week's activities. There was sufficient of interest to pulp and paper manufacturers at the Paper Show to attract the attention of the leaders in attendance on the convention. Of general as well as technical interest was the demonstration of handmade paper manufacture by Dard Hunter, Dard Hunter's presence was proved to be as great an attraction as the watermarked paper which he produced daily before the delighted gaze of hundreds of visitors. Mr. Hunter is an amateur of papermaking in the true sense of that term. He has a scolarly understanding of the ancient art and his watermarking processes are much admired by connoisseurs. Not far removed from the space occupied by him was an exhibit of the papermaking resources of the South which excited no little curiosity and speculation among northern mill owners who viewed the exhibits showing rates of growth of pine and other species of woods with wondering eyes for the rate of growth was greatly in excess of that reported for woods in northern latitudes. A good impression was also made by the exhibits of clays and limestones including kaolin from southern mines. The drawback to the

It Means — *by Thomas J. Keenan*

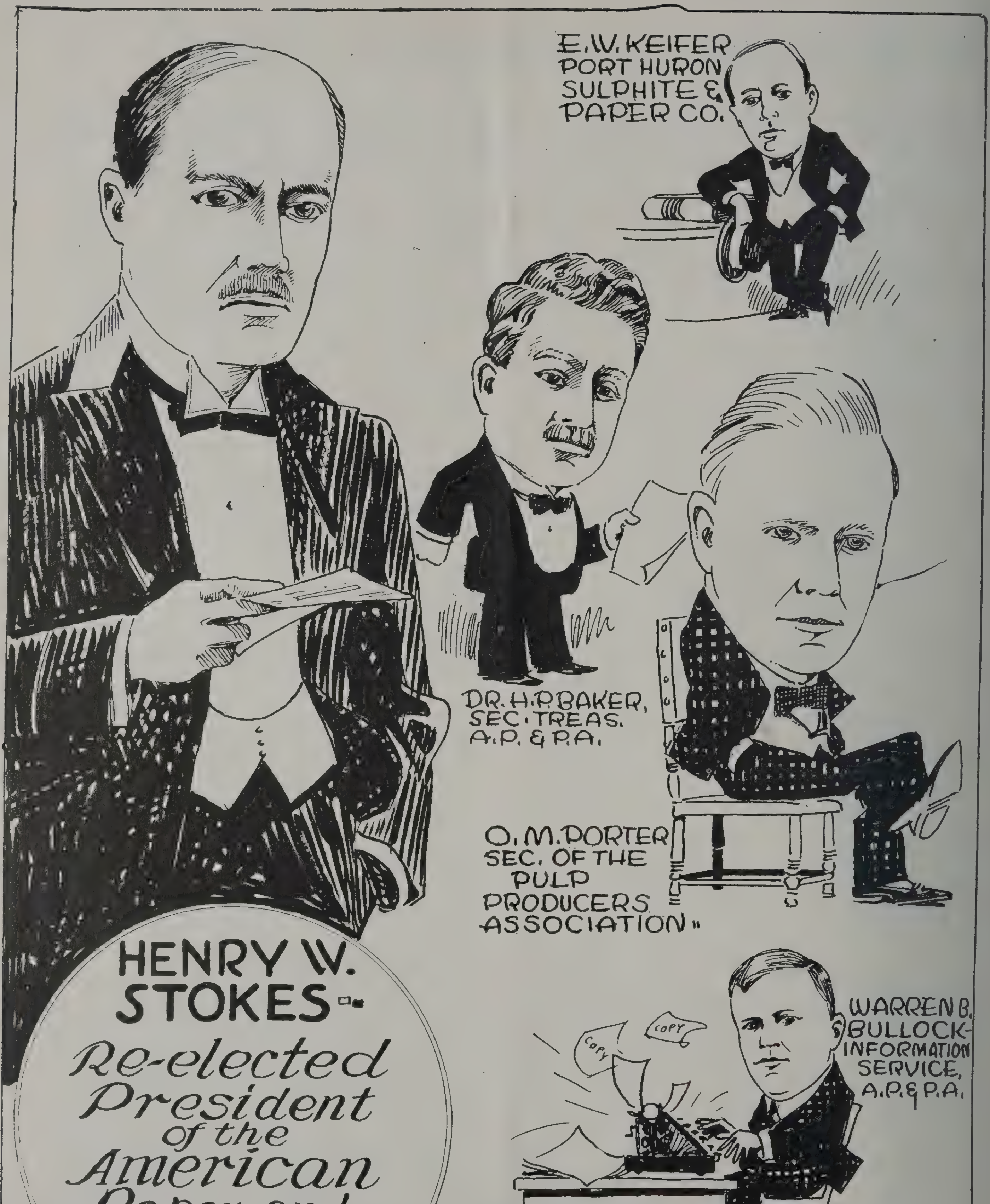
Paper Show as quite generally expressed by members of the Technical Association and the purchasing agents of firms that are large users of paper, such as tobacco manufacturers, was the small number of paper exhibits. If there had been a few more exhibits like those of the Continental Paper and Bag Mills, the Union Bag and Paper Corporation, the Hammermill Paper Company and the Westfield River Paper Company, they would have served to make the exposition less of a Machinery Show than a Paper Show.

IT may stimulate paper manufacturers to greater interest in the success of the Paper Industries Exposition to tell them that we know of one authentic instance in which a large user of paper was prepared to place $75,000 worth of business, and sent his representatives to the exposition for the purpose only to be disappointed at finding no exhibits of paper in which he was interested. There was some complaint of a falling off in attendance at the Paper Show but we do not think that the records of admissions will bear this out. The complaint was made by exhibitors and visitors who had attended the exposition the year before when it was housed in smaller quarters on the fourth floor and an impression of great crowds was helped by the constricted space. At the same time there appeared to be less disposition evinced by visitors to place orders and the record of sales effected will undoubtedly show a falling off as compared with results of the previous year.

THE Technical Association of the Pulp and Paper Industry continues to give evidence of a healthy growth and the character of work transacted at the convention evidently made a deep impression on mill owners and executives. As a result the mills are showing greater appreciation and supporting the association more actively by taking out corporate memberships, two being added during the Convention—the Continental Bag and Paper Mills and The Gardner & Harvel Paper Company. In an endeavor to visualize the accomplishments or outstanding features of the T.A.P.P.I. meeting, the casual attendant at the general sittings would be confronted with difficulties, for it was in the sectional meetings that the practical side of technical papermaking was most in evidence. There were discussions of profitable consideration for manufacturers of pulp in the separate meetings where the utilization of bark as fuel was presested together with an account of the ways of doing it, including reports on presses and furnaces. There is a possibility of manufacturers of paper who are represented by membership in the association, of knowing what it costs to dry paper irrespective of other factors. While a discussion of the paper drying code showed that it required to be developed along more correct and accurate lines the value of the code is still great. It will enable manufacturers to analyze the various factors that affect the cost of drying adversely. It was evident for example by a study of some of the tests that many times the volume of heated air for carrying off the moisture was used than actually necessary. The sectional sittings were exceptionally well attended and the discussions were noticeably active. In some instances the sittings proved so interesting that they were prolonged beyond the allotted time and the hotel employees would interrupt the proceedings to claim the room for other uses. Striking evidence of this interest in the group gatherings or sectional meetings was given at the meeting of the section on Paper Testing and Materials Testing which was held at the close of the convention when one would expect a small and listless attendance of members. It may have been that the leading lady in charge of the Materials Testing group was the drawing card, but whatever the reason, standing room only was available after the section got started on Thursday forenoon. Mis Kiely has made an unquestioned success of the work of her committee and she is entitled to considerable praise for the expeditious manner in which she conducted the proceedings. The same business-like procedure characterized most of the other sectional meetings, the sections on sulphite and soda pulps disposing of much interesting material that can be used to advantage in speeding up production and improving the quality.

IMPORTANT action was taken by the Technical Association by its decision to form local sections in selected papermaking centers, particularly where a sufficient number of the younger technical men can be brought together regularly for the discussion of problems that confront them in their daily work, and where they can get the benefit of the experience of older men in the industry. It is worthy of note that in the revision of the articles of organization provision has been made for the award of Honorable Mention, under proper certification, to inventors or discoverers of processes who may be deemed worthy of the award. If the Technical Association of the Pulp and Paper Industry had been in existence when Jordan invented his refining engine or when the decker was invented, those inventors on the mechanical side would have been distinguished in the manner that it is now proposed to single out the authors of conspicuous achievements in technical paper work.

THERE is much constructive work yet to be done by the Technical Association of the Pulp and Paper Industry and we may suggest that a closer contact might be established between the association and the various government bureaus which have relations with the industry. The Forest Products Laboratory at Madison, Wis., has always maintained the most intimate contact with the Technical Association of the Pulp and Paper Industry from the earliest days and the investigations carried on there supported to the fullest extent financially and otherwise by the leading paper manufacturing firms. There is no reason why a similar coordination of effect should not be possible with the Bureau of Standards and the Government Printing Office, who are represented in the association through the members of the Technical Staff in each instance.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PAPER

The Magazine of the Paper Industry

American Paper and Pulp Association

Action Taken to Continue Import Service for Another Three Months—General Movement for Simplification of Paper Sizes Approved—Reports on Conditions in Special Papers Show that Industry Generally is in Good Condition—President Stokes is Reelected

THE annual general meeting of the American Paper and Pulp Association was held in the Astor Gallery of the Waldorf-Astoria on Thursday morning, April 10. The meeting was called to order by Henry W. Stokes, president, who read a statement of conditions in the industry, which is printed in full on another page.

Activities and Program

Norman W. Wilson, chairman of the Special Committee on Activities and Program of the American Paper and Pulp Association, submitted a report with interpellations. The committee was composed of Norman W. Wilson, Hammermill Paper Company, chairman; H. H. Ellerson, Albemarle Paper Manufacturing Company; Frank E. Taylor, Advertising Paper Mills; D. C. Everest, Marathon Paper Mills Company; C. R. Mc Millen, Union Bag and Paper Corporation.

The committee held three meetings at which there was full discussion of the present form of organization and the relation of the association to its affiliated associations. It was found that discussion of the form of organization and its relation to affiliated associations could not be separated from the question of financing the association. The recommendations of the committee accordingly cover both form of organization and methods of financing.

Form of Organization

It is recommended that there be no essential change in the form of the Association or in the relation of the association to its affiliated associations. The association can function most effectively by continuing as the federated organization of the paper industry, with other associations in the industry as affiliated associations.

To facilitate the work of the association, however, it is recommended that the present Executive Committee, which is made up of the elected officers of the association, the past presidents and the presidents of the affiliated associations, be changed to an Advisory Council, which may meet at least once each year for discussion of the work of the association for the industry.

It is recommended also that there be an Executive Committee consisting of elected officers of the association and five other executives in the industry, who shall be elected at the same time and in the same way as the president and vice-presidents of the association. The president of the association shall be chairman of the Executive Committee.

Activities of the A. P. & P. A.

It is recommended that the association continue to function as in the past, for the protection, promotion and perpetuation of the paper industry of the United States.

It is recommended that the program for the association's activities in 1924-25 feature the following:

1. Representing the Industry—Such activity is fundamental to the character of the association. It means representing the industry at Washington, at various State capitols, in papermaking States, with other industries, and before the public.

2. Statistics.—The statistical activities of the association to cover general statistics for the entire paper industry, import and export reports, and such detailed statistical reports as may be needed. The association to cooperate with affiliated associations and thus avoid duplicating the activities of those associations.

3. Tariff and Import Service.—As the association is organized to protect and promote the paper industry of the country, it must take a definite stand in tariff matters for the ultimate good of the entire industry.

Any activities which are necessitated by the tariff law or changes in it, must be carried on in such a way as to represent all groups of the industry, and for the upbuilding of the industry. Tariff service is in a sense an emergency service, which must at all times be guided by the Executive Committee of the association.

The industry is meeting very difficult competition from foreign pulp and paper. The association should continue its efforts to prevent the dumping of foreign pulp and paper on the markets of this country, and the entrance of paper wrongly classified and undervalued.

4. Emergency Service.—As the association has been able, repeatedly in the past, to meet emergency needs in the industry, so it should continue to serve the entire industry and affiliated associations in such emergency matters as tariff, coal, pulpwood, casein, etc.

5. Cost and Income Tax Service.—It is recommended that the association be more active in developing cost education throughout the industry, and that the industry itself should support the Cost Association much more efficiently than at present. The work of the Cost Association of the Paper Industry, which is a separate organization, has been carefully analyzed, and it is believed that the Cost Association is doing work of vital importance to the industry along cost lines, and particularly in service to the industry on income tax matters.

It would tend toward both efficiency and economy were the Cost Association a cost section of the American Paper and Pulp Association, so that its cost and income tax service might be given to all members. This can be done only when and if the industry provides the necessary funds. Such an amalgamation is not contemplated at the present time.

6. Legislation. — The association should continue with even greater aggressiveness its protection of the industry from harmful legislation at Washington and in state legislatures, and should use its influence in furthering helpful legislation.

7. Information. — The association must of necessity serve the industry as a source of information relative to the industry here and abroad.

The limited funds assured the association for 1924-25 makes it necessary to give up the Information Service, as it has been known during the past three years. The committee has studied the activities of the Information Service carefully, however, and believes that these activities have been of great value to the entire industry. It recommends that the association carry on limited information service as funds permit.

8. Raw Material.—The committee recommends that the association continue even more aggressively its efforts to insure the industry a permanency of raw materials, such as rags, paper stock, pulpwood, etc.

During the past three years the association has allocated certain sums of money annually for the support of the work of the Woodlands Section. Last year this amount was $3,000, which covered in part the salary of the Assistant Secretary. The proposed budget will not permit of the continued support of this work. It recommends, however, that the association continue its general work through its regular force for maintenance of a permanent supply of raw materials, and that the Woodlands Section be reorganized so as to give special association service to the manufacturers owning timberlands, logging operations, reforestation, etc.

9. Meetings and Conferences.—In addition to carrying on its general work for the industry, in arranging for conventions and meetings, the association is in a position to handle the general association and statistical work of such of its smaller affiliated associations as do not have paid secretaries, at cost to the affiliated association, thus maintaining the organizations of these associations for emergency action and unifying the general statistical activities of the industry.

10. Arbitration.—It is recommended that the association extend its service in arbitrating difficulties between the buyer and the seller, particularly for mills in the unclassified division of the association, or for members of those affiliated associations which do not give direct arbitration service. The association should not extend this service into groups where the service is already under way, unless specifically requested to do so.

NORMAN W. WILSON
Vice President American Paper & Pulp Association

Financing the Association

The American Paper and Pulp Association is a busniess organization, in existence to serve the paper industry in a practical businesslike way. The committee believes that as the industry learns more of the character of service given by the association, it will finance the association so as to adequately meet the needs of the industry.

With an assured and known income which can be made the basis of annual budgets, the association can give more effective service to the industry than has been possible in the past where income has been irregular and uncertain.

It is recommended that the association continue as a federated organization with affiliated associations continuing as organization members on a nominal membership fee of from $100 to $300 per year. The committee believes that such an arrangement will not change in any way the present harmonious relations which the association has with its affiliated associations.

It is also recommended that the association continue the plan inaugurated this year of going directly to the mills, both to those members of its affiliated associations and to its own individual unclassified members, for annual membership pledges, and that, based upon the pledged amount, the Executive Committee fix the budget for the following year at its last meeting in any fiscal year, prior to the year during which the budget will be effective.

Finally, it is recommended that the Secretary-Treasurer submit monthly full statements as to the financial condition and the activities of the association to members of the Executive Committee.

On motion, the report as presented by Chairman Wilson was adapted by unanimous vote.

Financial Difficulties

President Stokes reviewed the difficulties which had confronted the association throughout the year on account of scarcity of funds to meet the expense of an ambitious program of activities. Early last December the treasury of the association was faced with a deficit of $15,000 and an appeal was sent out by a special committee for $29,000 to carry on the work of the association till the close of the association year. The response was gratifying, some $25,000 having been contributed by 114 different companies. On March 31, the books showed a deficit of $1,400, but this had since been cleared up by receipts from banquet registration fees and the association began its fiscal year on April 1, free from debt.

Acknowledgments

President Stokes closed a well worded and impressive statement with an expression of thanks to the members of the executive committee and the special committees and he made special mention of the assistance in the work of his office which he had received from Emmet H. Naylor, secretary of the Writing Paper Manufacturers' Association, and A. J. Stewartson, secretary of the Wrapping Paper Manufacturers' Service Bureau.

W. J. Raybold, chairman of the Special Finance Committee, supplemented what had been told by President Stokes in regard to the financial difficulties of the association. Along in December, he said, the officers woke up to find that the funds to run the association had been exhausted. The measures taken to remedy the situation were then described as told above.

At this point, President Stokes appointed a Committee on Nominations to draw up a slate for the election of officers.

Announcements by Secretary

Before presenting his report for the year, Executive Secretary Baker made several announcements, including one of a visit to the Hell Gate power plant arranged by Edward B. Cowles, of the American Engineering Company. He called attention to the subscription blanks for "Our Judge Moore's" book on *One Thing and Another* and made an appeal to all who had not yet ordered a copy of the book to do so now.

Secretary Baker then presented his annual report as secretary-treasurer. This will be found on another page in this issue of Paper.

He followed his report with an audit of the association's finances by a firm of certified public accountants, and both were adopted as read.

Secretary Baker then read the text of a resolution adopted by the Salesmen's Association of the Paper Industry, and before action was taken on this resolution he read several excerpts from his own annual report covering the paper and import situation.

Resolution Offered by Salesmen

The resolution presented for action by the Salesmen's Association was worded as follows:

"Whereas the paper industry of the United States is suffering from the continued and increasing volume of cheap made foreign paper imported and put upon the market of the United States at prices less than the said imported papers can be produced in the mills of the United States, and

"Whereas the paper mills of the United States are wholly unable to meet this pirate competition due to the fact that they must pay their American workmen the highest prices for labor on earth and also the consequent high raw material trnasportation and tax charged, and

"Whereas charges are freely made and widely circulated to the effect that quantities of this cheap and foreign paper are coming into this country falsely classified and evading the customs law of the land, and

"Whereas these import abuses and crimes demand that the entire membership of the paper industry in the United States do immediately create and erect some adequate and powerful agency which shall put an end to this strangling menace to our industrial properity, and

"Whereas the paper industry in the United States is today without any such powerful and adequate agency for the purpose required, and

"Whereas, it appears that the one sole reason why no such immediate competent and adequate measures are available to cope with this import menace is because of the lack of some comprehensive plan backed by sufficient funds to make it effective, and

"Whereas, we believe that our American paper markets exist primarily for the benefit of the American manufacturers, workmen and consumers and further that American people will buy American paper to the exclusion of cheap made foreign made paper products if they be shown the perils that confront their American industry, and

"Whereas, we believe that the perfection and adoption of some adequate plan backed by sufficient funds and directed by the American paper industry as a whole is the proper manner in which to proceed to educate the buyers of the United States in favor of the American paper products and to correct and put a stop to the unlimited entry of the cheap foreign papers into this country,

WARREN B. BULLOCK
Who has waged the war on import violations

Therefore, be it resolved by the members of the Salesmen's Association of the Paper Industry in annual meeting assembled on this eighth day of April, 1924, that we do hereby call upon the executives of the American Paper and Pulp Association to take some immediate action toward the adoption of some adequate plan backed by the requisite funds necessary for the protection of the American paper market from the invasion of the cheap made foreign paper products, and be it further

"Resolved that the Salesmen's Association of the Paper Industry pledges 100 percent cooperation to the American Paper and Pulp Association in any and all efforts it may undertake for the adequate grappling with this huge problem.

"Resolved, that a copy of these resolutions be transmitted by this association to the president and secretary of the American Paper and Pulp Association with the request that the subject matter of these resolutions be made a matter of consideration at their annual meeting on Thursday next April 10."

Advocated by Secretary

Secretary Baker called attention to a statement covering the paper and import situation which he had made in his report for 1922. After a reference to the great quantities of paper then being brought into the country under improper classification he recommended that the industry should have a man who understands thoroughly the importation of paper who could keep close touch with the larger ports to see that paper is brought in under right classification, and secure information as to importations. Such work, he said, could not be done with the present force of the association.

Again in his report for 1923, Secretary Baker returned to the subject and said:

"A very important piece of work could be done for the industry by the association having in its employ a man who understands thoroughly the importation of pulp and paper. Every time that a shipment of paper is brought into this country undevalued or wrongly classified it injures the industry. No one can estimate the amount of paper that is being brought in and wrongly classified and undervalued. The association is keeping in as close touch as it can with customs officials at the Port of New York and elsewhere and the specific cases which the customs officials of New York have brought to the attention of the association in the past six months are clearly indicative of the very great help which could be given the entire industry if this work could be handled in a more effective way. Furthermore, such a man could keep the industry thoroughly informed as to the pulp coming into this country, how much is in warehouses, etc. The value of this information does not need to be enlarged upon—your secretary is so convinced of the necessity of service along these lines that he will continue to emphasize them in the hope that eventually such service may be given— and the wonder will be then that the service was not given before."

Had Asked For

He reminded the members that he had asked that the association be given a customs expert to assist in the carrying on of the work, and pointed out that if the industry was facing a period of declining prices, with keener competition and lower margins of profit there was greater necessity than ever that the association do more aggressive work in meeting this situation.

After E. W. Kiefer, of the Port Huron Sulphite and Paper Company, had moved that no action on the resolution be taken at this time, the whole matter was referred for consideration to the incoming executive committee.

Simplification

W. A. Durgin of the Department of Commerce was then called upon to address the meeting on the subject of "The Simplification of Paper Sizes".

Mr. Durgin said the work had been going forward most encouragingly and that the fact was being driven home that the function of the distributor is to serve the consumer at a profit rather than to merely give the consumer what he thinks he wants. There was no need to worry about the distributor and consumer fields but the simplification program would not go nationally unless it had the endorsement and support of the producers. He urged that the pledge to the program be signed. "It simply binds you to use your best efforts to conform to certain sizes," he said. 'We have no police power," however, "and cannot send you to Leavenworth if you fail to conform to them. The signing of the pledge simply places you on record as in favor of simplification in your business."

Demand for Simplification

Mr. Durgin said the government was not in this on its own initiative but that there was a real demand for simplification and the government was only functioning to get all the factions together. "If only one branch got into it," said Mr. Durgin, "I suppose someone would raise a hue and cry about being in restraint of trade. But the time has come when we must go through with this or cast it into the discard for all time. It will either become a great benefit to the industry soon or we would like to withdraw from our efforts very soon."

Resolution Adopted

Following this address a resolution on the subject was adopted. It read:

"It is the sense of this meeting to get behind the paper simplification program to the limit and make it effective in the shortest possible period of time."

Review of the Woodpulp Situation

A statement on the woodpulp situation was then presented by E. W. Kiefer, president of the Port Huron Sulphite and Paper Company, as follows:

"Seven years ago I addressed you on the subject of pulp and the expansion then taking place in the industry and the effect it was likely to have, and it may be well to recall the situation at that time in an effort to properly evaluate the present.

"Before the war domestic manufacturers were shipping 9,000 tons of unbleached sulphite pulp which they had increased to 15,000 tons per month to take the place of the 6,000 tons per month previously received from Germany and Austria Hungary.

"During the last year 1923 these countries had fully recovered their position in the American market by shipping 85,000 tons of unbleached and bleached chemical pulp against the same amount in 1912. In addition to this Norway has slightly increased her shipments from 82,000 to 87,000.

Growth of Imports from Europe

"Sweden has increased three fold from 121,000 to 319,000 and Finland has made the astonishing jump from 4,000 tons to 102,000 tons, or the total importation from European countries has risen from 1,000 tons per day to 2,000 tons per day. Canada has gone from 53,000 tons to 777,000 tons, or our total importations have risen from 353,000 tons to 1,377,000 tons, nearly four times as much, in the last ten years. While this has been taking place the production American Sulphite has remanied stationary or slightly declined from 1,450,000 to 1,375,000 tons and soda in about the same proportion from 437,000 tons to 419,000 tons, Kraft jumping from 85,000 to 243,000 tons, due mainly to the building of southern mills, which expansion is still going on at a rapid rate.

Look for Increased Imports of Groundwood

"Now these statistics are interesting when analyzed but in view of the fact that European imports of groundwood have risen from 4,000 tons to 66,000 tons, we may as well proceed directly to the point, and that is that European pulpwood will continue to come over in constantly increasing quantities in the shape of groundwood and chemical pulp and newsprint until the cost of the wood at the mills in the two continents is approximtely equal.

"The traditional difference in labor cost will favor the European producer and become as in past years just about equal to his ocean freight. The cost and wood at the mills making their own pulp cannot exceed the European's price plus the freight of that pulp to the American mill.

"Now what is that cost of wood and how are we to face the issue. I had the pleasure of recently being visited by the president of one of the large Baltic Mills who was quite frank about his operations. His wood cost the equivalent of $9 per rough cord of 128 cu. ft. laid down at his mill. Inasmuch as his company has practiced forestry for some forty years and has nearly 800,00 acres under its management it seemed unlikely to him that his wood cost would change materially in years to come; in other words, this cost was a staple cost based on cost of raising, cutting, etc., and not as with us, constantly being driven by depletion of a natural resource.

High Cost of Wood

"In prewar years the price of pulpwood was fairly steady at $6.75 per cord, averaging the rough and peeled which has advanced to $10.50 on board cars or vessel at point of shipment, an advance of 55 percent which is not much more than the advance of other commodities but when we consider the rise of the cost of transportation due to various causes but mainly that of greater distance, and we see that the price at the mill has jumped from about $10 to $20, that the real significance of the European's staple price of $9 per cord at the mill is fully appreciated.

"It is plain to be seen that as long as the European has the advantage of $18 to $20 per ton on the manufactured pulp that this advantage is not to be offset by an ocean freight of some $5 plus a rail freight of $7 per ton and that the American manufacturer cannot even afford to make pulp for himself much less sell it unless his wood cost is not over $30 per ton of pulp, unless he is making a very special product.

Cannot Compete with Europe

"Not only has this situation practically stopped the manufacture of sulphite for sale, but there is great question whether it has not also stopped the growing of trees on this continent in competition with European forestry before ours has even got fairly started. Unless your woodlands are in your own back yard it would indeed be a brave man who would venture on a policy which would entail millions of dollars on an enterprise unprotected by any tariff and in competition with a strongly intrenched and low cost competitor.

Impossible to Copy European System

"Gentlemen I have devoted my time almost entirely to the pulp or pulpwood situation, as we should be a body of men entirely free from bias on this question and above all not carried away by sentiment. Much as forestry is needed in this country I see little hopes for its successful future in the face of the practical difficulties before it.

When we inquire still further into the low price of European pulpwood we find additional reasons for it. They run saw mills in connection with their pulp plants where every bit of waste is worked up, also wood charcoal and extracting plants to utilize the small stuff, the limbs being sold for faggots and fire wood. Just where in this country with our immense coal resources there is any place for such economics it is hard to see. So we may at once boldly come to the conclusion that wherever paper prices are based on our wood costs and not on European pulp they will not endure and we must do what is necessary to set our house in order by using imported pulps or by bringing our costs to an equivalent basis. So far, it seems that the tendency to do this, has shown itself in the closing down of the smaller and weaker mills and the bonding of the larger one in an attempt to provide sufficient capital to utilize lower operating costs. This course tends to further over production.

H. S. TAYLOR—PRESIDENT T.A.P.P.I.
WILLIAM RIDGEWAY—SECRETARY-N.P.T.A.
ROYAL S. KELLOGG—SECRETARY NEWSPRINT SERVICE BUREAU—
THOMAS J. BURKE, SEC.-TREAS. COST ASSOCIATION—
W. F. McQUILLEN—PRES. NAT. PAPER TRADE ASS'N. OF THE U.S.
EMMET HAY NAYLOR—SEC-TREAS. WRITING PAPER ASSOCIATION—
CLIFFORD KNIGHT - WALDORF -

Advocates Intense Specialization

"In conclusion, I wish to leave this thought with you that only by intense specialization will the day be saved and a reasonable profit assured. Concentrate on as few lines as possible instead of as varied a product as possible. Make your name stand for the best there is in some one thing and it will bring you unsolicited business in that line. Equip your mill to make that grade that is the most advantageous, considering proximity of the market, the cheapness of the particular raw material required, and last but not least, train your force in the making of that one grade of paper until they are past masters of the art.

"This will not only help to cut selling, distributing and manufacturing costs, but each cobbler sticking to his own last will prevent, to some extent, the making of prices by the inexperienced and give a chance to those who devote themselves to a single line of paper from having to compete with the fellow who will quote on anything from Oxford bible to newsprint on the same sets of costs in an effort to keep his machines running when his own line is slack.

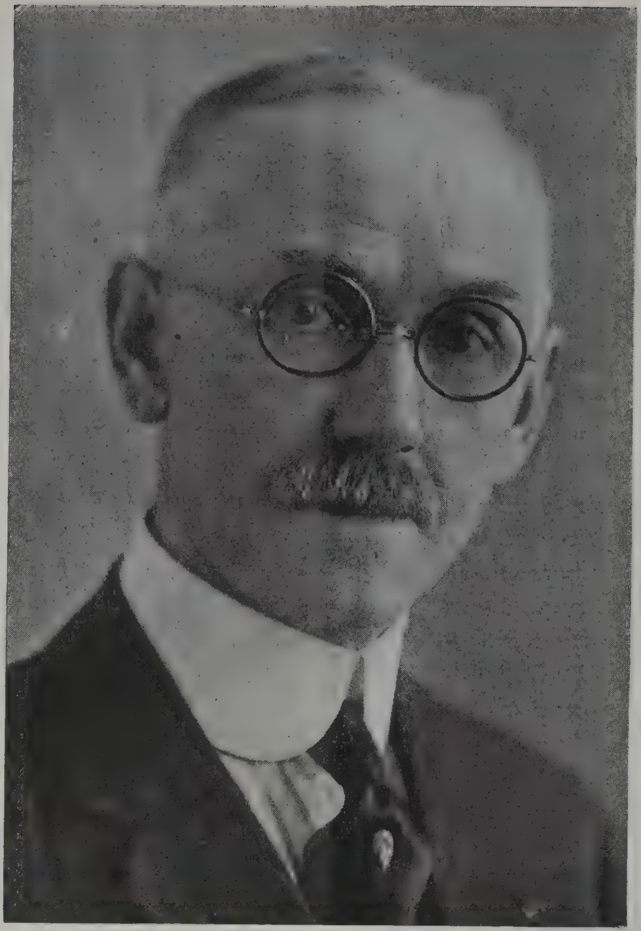
"If therefore this industry like some others which have achieved notable successes, can turn out a greater amount of production per man than the European, standardize its products and its machines until they are the world's best and emphasize specialization instead of diversity of product, then only may we hope to be ranked as one of the successful and valuable branches of American industries."

Review of Wrapping Industry

Mr. Kiefer was followed by C. R. McMillan, of the Union Bag and Paper Corporation, who announced that he would give a bird's eye view of the situation in the coarse paper field. He contrasted conditions in Europe when papermakers specialized on the manufacture of particular papers, and said this might be stimulated here where the tendency was to spread out in too many difficult directions.

Too Many in the Field

The coarse paper industry had not prospered to the extent it should have. It does not yet yield reasonable profits to the manufacturers and dealers. In this respect it stood fifteenth among the sixteen leading industries of our country. He pointed to the steel industry in which one company represented 50 percent of the net investment. There were altogether too many mills operating in the coarse paper division. Speaking figuratively, he said there were 250 men attempting to manage a fleet of 125 boats, and until all learned to use the same chart and compass, or until the number of ships in the fleet was cut down to smaller and stauncher units, he could see little hope for the coarse paper industry.



GEO. W. SISSON
Chairman of Resolution Committee

Report on Condition

Charles McKernon, of the B. D. Rising Paper Company, reported the fine paper industry to be in generally good condition, though the writing paper mills were at the present time operating only at 95 percent of normal capacity.

The price of raw materials had increased, the cost of rags being 21 percent greater than in 1923, but better freight service and lower cost of pulp had benefited manufacturers to some extent.

Officers Elected

President Stokes called for the report of the Nominating Committee. W. F. Brunner, chairman, who submitted the following list of nominations for officers to serve during the ensuing year. He prefaced his report with a statement that five members would constitute the executive committee and that the presidents of affiliated organizations would continue to serve as an advisory council. The new executive committee was chosen to represent different branches of the industry as follows:

Fine Papers—Philip Weston, of Weston, Byron Co., Dalton, Mass.

Wrapping Paper—Herman Elsas, of Continental Paper and Bag Mills, New York.

Book Paper—Frank J. Sensenbrenner, of the Kimberly-Clark Co., Neenah, Wis.

Vegetable Parchment—William F. Brunner, of the Paterson Parchment Paper Company, Passaic, N. J.

Boxboard—George M. Seaman, of the Eddy Paper Corporation, Three Rivers, Mich.

President Stokes

The officers, president and vice presidents were reelected as follows:

President—Henry W. Stokes, York Haven Paper Co., Philadelphia.

Vice President—Norman W. Wilson, Hammermill Paper Co., Erie, Pa.

Western Vice President—Alex Gilman of Allied Paper Mills, Kalamazoo, Mich.

There being no other nominations, Secretary Baker was instructed to cast one affirmative ballot for the officers named and they were declared duly elected.

Resolutions Adopted

Before the meeting closed, George W. Sisson, chairman of the Committee on Resolutions, presented three resolutions for adoption. One declared the association's approval of the McNary-Clarke bill now before Congress and urged its immediate passage. The other commended the work of the U. S. Forest Service and particularly the Forest Products Laboratory at Madison, Wis. The third resolution asked for early and prompt action on the tax problem, and a wise distribution of government appropriations.

Reopen Mill

Because of favorable market conditions the sawmill of the Whalen Pulp & Paper Company at Swanson Bay has been reopened. The plant was turned over on March 5 for the first time since the shutdown last December and it is now sawing lumber steadily. The shingle mill may also be reopened. A. C. Devine from the Vancouver office of the company has assumed the managership, succeeding R. L. Hennessy.

It is the intention of the Whalen Company to operate its logging camps on Moresby Island, Queen Charlotte Islands this summer. The camp at Cumshewa, which has been running all winter, will continue.

The Whalen Company is seeking permission from the government to export No. 3 cedar logs from its camps to the Orient. Pulpwood and slabs will be piled up at the Swanson Bay plant against the possible reopening of the pulp mill when market conditions improve.

T. A. P. P. I. Makes Real Progress

Work of Past Year Is Reviewed and Developments Noted—New Methods Are Requested

THE NINTH ANNUAL MEETING of the Technical Association of the Pulp and Paper Industry was opened by President Howard S. Taylor in the Myrtle Room of the Waldorf-Astoria, New York, on Tuesday, April 8, at 9:45 A.M. After greeting the assembled members, he proceeded to read his annual address, as follows:

President's Address

It is with great pleasure that I greet you at this the opening meeting of the ninth annual convention of our Technical Association. I am greatly pleased to see this meeting so well attended.

The association during the past year has shown a healthy progress, our membership rolls having been considerably increased. New members as well as old have shown the spirit of co-operation to a very satisfactory degree, and at the same time given the chairman of the different committees most commendable support.

HOWARD S. DAYTON
Re-elected President of T.A.P.P.I.

The work of our association must to a great extent depend upon the work of the different standing committees, and it is on the chairmen of these committees that we must depend to bring the work before the association. There is, therefore, a call on the association as a whole to work and co-operate in assisting these chairmen and their committees in every possible way.

During the past year new subjects have been investigated by different committees, and further investigation proceeded with on those subjects with which we are already familiar.

With the exception of that on the sulphate process the committee on wood-pulp processes have maintained active interest in the improvements to these processes, both in methods of control and in following the mechanical improvements made here and abroad.

Sedimentation or Freeness Test for Groundwood

In groundwood production the use of the freeness test as a means of control has become firmly established, and at the present time is in use by practically all progressive groundwork mills. It is recognized, however, that this test needs standardization.

During the year the chief advance to be noted for groundwood is the development and application of grinders whereby a continuous grinding pressure is obtained by means of chains in combination with the weight of the wood in the magazine. Grinders of two designs are in use in a number of plants, operating successfully under widely different conditions.

Hopes for Revival of Sulphate Committee

Under sulphate pulp I regret to say that for the past two years it has not been possible to arrange a committee on this subject. The recent organization of the southern kraft manufacturers and the co-operative work done by a number of the middle western sulphate mills are encouraging signs for this branch of the industry. It is to be hoped that the sulphate pulp committee may soon be revived.

Work on Standard Testing Methods

The signal achievement of the Paper Testing Committee in publishing *Paper Testing Methods* is being emulated by the Committee on Standard Methods of Testing Materials by arranging the approved methods for publication in similar form. These two handbooks with the set of textbooks and a few additional works that are now available will form an extremely valuable library for anyone engaged in the industry. Should our Technical Association have nothing else to its credit except the books I have mentioned, its existence would be amply justified.

Developments in Other Committees

The work of the Dyestuffs Committee during the year has been the preparation of the section on Coloring in the fourth volume of the textbooks. Those on Cellulose and Coated and Processed Papers have developed satisfactorily as has the Committee on Paper Drying. This last committee has shown the results of its active work in the formation of a code for paper drying. In its present form it is being used by a number of mills, by which the efficiency of the drying may be determined and the results of different mills compared.

The development of a vacuum paper machine drier on a semi-commercial scale by one of our members is worthy of record and its application in the industry will be awaited with interest.

Investigation of Waste

Since its formation two years ago the Waste Committee has carried out excellent work and reflected much credit on the association. Besides carrying the work of last year through to completion at this meeting, it has undertaken the investigation of equally important subjects of a different character. The subjects continued are White Water Losses and Their Prevention, the Utilization of Barking Drum Refuse as Fuel, and Broke Losses and Their Reduction, on which concluding reports will be made.

New Subjects of Study

The new subjects which are equally important to the industry are Heat Losses in Pulp and Paper Mills, Mechanical Handling of Materials in Paper Mills, the Utilization of Decayed Pulpwood Resulting from the Attacks of Insects and Fungi. The only thing to be feared is that too much may be undertaken at one time. Judging by the work which the committee did last year, however, and from its progress report at the fall meeting it would appear to be able to handle the large volume of work most creditably.

Heat, Light and Power

The Heat, Light and Power Committee is to report progress. In its field one of the mills is reported to have installed a power plant consisting of a boiler operating at materially higher pressure than customary and a steam turbine exhausting at a back pressure of 150 lbs. into the regular steam supply, and we hope to hear more about this installation.

Service to members started at the beginning of the year has met with considerable success. A number of important problems have been dealt with and the members who have co-operated have thereby been benefited.

Industrial Education

Under vocational education the work has gone forward with its usual success under the direction of the committee. With the publication of the fourth volume of the textbooks the large work undertaken five years ago is nearing completion. With the set of textbooks for the industry the next responsibility of the association will be to secure a wider use not only of the textbooks but of the correspondence courses centering about them which have been provided.

During the year the relations between our association and the Paper Trade Journal, in which the Technical Association Section has been published, have been most satisfactory.

Praise for Abstracts and Bibliography

The work of the Committee on Abstracts and Bibliography has been a material help. In editing the abstracts and the preparation of the index to the Technical Section, besides preparing a bibliography for the year, the chairman of the committee is to be highly complimented on the work that he has done.

We have the regular meeting now before us that will bring out new subjects of interest, which will I trust prove most enlightening and be enjoyed by all. Let us all grasp the true spirit of such a meeting as ours through the possibility that it provides for comparing the different problems and viewpoints that each one of us has, and thereby become one and all for the best interests of our Association and the Industry that it serves.

W. G. MacNaughton, secretary, reported a satisfactory increase in membership for the year. The total membership on March 31, 1924, was 571, classified as active 347; associates, 102; juniors, 90, and corporate members, 32. He announced that a compendium of approved methods for testing materials used in the industry would shortly be put on sale at $2 to members and $3 to others. The work has been compiled by the Committee on standard methods of Testing Materials of which Miss Helen U. Kiely is chairman.

Service to Members

Last year a plan was put in operation for cooperation among the members on manufacturing and technical problems. Specific inquiries by members covering their problems are published or distributed to the members in blank and replies invited. A transcript of these replies is made and distributed to those who have contributed information. In this way problems have been handled relating to a variety of subjects, specimens being as follows:

1—Substitute for poplar for soda pulp
2—Proper relation in width of felt and press rolls
3—Causes and remedies for the liming of blowpits in sulphite mills
4—The kind of prime mover for the paper machine
5—A problem in the distribution of power for costs
6—The proper method for storage of pulp
7—The interpretation of paper tests
8—The sizing of paper in the presence of calcium carbonate
9—Cleaning solution for Fourdrinier wires
10—The causes and remedies for high sulphur consumption in sulphite mills

Cooperation research was suggested to discover a substitute for casein in the manufacture of coated paper. The secretary suggested that manufacturers who are interested and ready to finance a research study should form a committee to take charge of all details with authority to act.

Planning Future Activities

Secretary MacNaughton reported that the executive committee had under consideration the question of joining the American Society for Testing Materials so as to be in a position to cooperate in some of the work it is doing. The suggestion is made that the Committee on Standard Methods of Testing Materials and the Committee on Paper Testing be made subdivisions of one Materials Testing Committee to consider raw materials and products of manufacture.

It was noted that the committees on Waste and Paper Drying have plans for cooperative work in their particular fields. White water losses, as the Waste Committee points out in its report is related to the question of stream pollution. While much of the stream pollution charged to the paper industry is exaggerated it is unquestioned that the prevention of losses of fiber and other materials in the mill effluent would automatically take care of stream pollution and at the same time be a profitable undertaking for many manufacturers. Credit was given to the Forest Products Laboratory for support and cooperation in the work of the Waste Committee.

Adoption of a Drying Code

The Committee on Paper Drying in cooperation with a similar committee of the Canadian Technical Section has compiled a Drying Code by which it is possible for mills with the ordinary equipment to compare their results on the same basis.

Secretary MacNaughton referred to the many problems in pulp and paper manufacture seeking solution and said it was through cooperation such as is being stimulated by T.A.P.P.I. that the entire industry may be greatly advanced.

He spoke of the revision of the articles of association in which provision is made for the formation of local sections of the association. He expected that the incoming executive would undertake the organization of a number of active sections in logical papermaking centers which would benefit the industry at those points.

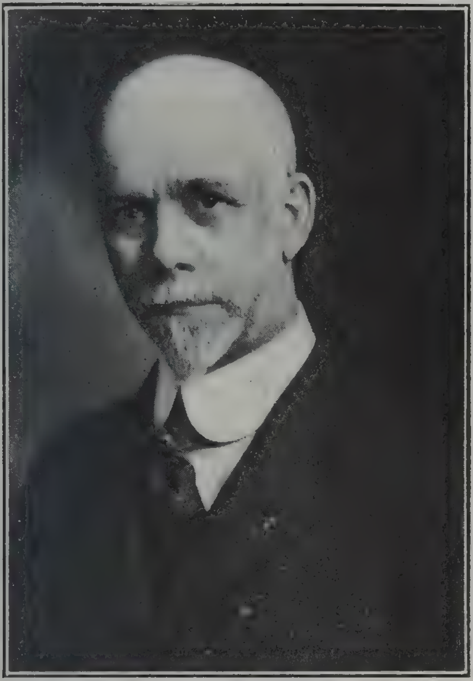
The report of the secretary was adopted.

State of the Treasury Reported

Some details of the auditor's report on the finances of the association were then given. The total income for the year amounted to $13,186.28, with expenditures of $10,666.71, leaving a balance on December 31, 1923, of $3,453.67.

Executive Committee Reports Briefly

For the Executive Committee, Royal S. Kellogg reported briefly. He said there had been fewer meetings of the executive committee during 1923 than in any other year. He placed emphasis on the proposal to form sections of the association and made it as a recommendation that steps be taken at once to effect organizations of this kind. He hoped to be able to report four sections in operation next year.



GEORGE H. HARVEY
Middletown, Ohio

Reports of standing committees were then called for, but only a few chairmen were in attendance, and such as were either reported progress or announced that the reports would be discussed in sectional meetings on the following afternoon. The Committee on Waste, R. B. Wolf, chairman, and the Committee on Paper Drying, F. R. Hyatt, chairman, were to meet in the Myrtle Room following the forenoon session. W. W. Cronkhite, for the Heat, Light and Power Committee, spoke of a certain lack of cooperation on the part of engineers with the work of his committee and stated there would be no formal report presented.

Miss Helen U. Kiely said the Committee on Standard Methods of Testing Materials had held two meetings during the year. A comprehensive report had been prepared and this would be issued shortly as a separate publication.

The revised articles of organization, embodying the Constitution and By-Laws of the association, were presented for adoption, the new sections being read by the secretary. A motion to adopt was promptly seconded and passed without debate. The text of the Constitution and By-Laws under which the association will now operate is as follows:

The Vocational Education Committee reported through Raymond S. Hatch, chairman, that it was in possession of sufficient funds, some $6,924, to complete the series of textbooks by the early publication of Vol V. A royalty fund was being accumulated and held in reserve for the payment of expenses connected with the revision of the volumes. A total of 6820 copies had been sold. Volume III proved to be the best seller, the number sold to date totaling 2036 bound copies and 181 sections or pamphlets. It is likely that sales of Vol. IV will exceed this, as 1052 copies in cloth binding have been already sold and 61 of the loose leaf or sectional volumes. It is the expectation of the committee that Vol. V will sell fully as fast as Vol. IV.

At the suggestion of Grellet N. Collins, B. T. McBain was invited to give an account of the course in pulp and paper manufacture as conducted at the mills of the Nekoosa-Edwards Paper Company at Port Edwards, Wis., under the auspices of the mill owners and management.

Mr. McBain said that courses had been carried on for three seasons. The first season's experiment was a complete failure. New methods were tried the second season and the result was an entire success. The secret of success laid in getting the superintendents and foremen interested and insuring their attendance both as pupils and instructors. It was the only way to make a success of industrial education. The system of instruction by the use of the textbooks on the manufacture of pulp and paper and the aid of professors and teachers in local colleges worked out satisfactorily at what is now called Nepco college, of which Mr. McBain is dean. The education of mill operatives in Wisconsin was also being taken care of by the Forest Products Laboratory, of Madison, in cooperation with the University of Wisconsin Extension Division. The extension course in pulp manufacture is in charge of Dr. C. E. Curran of the Pulp and Paper Section of the Forest Products Laboratory. The Nekoosa-Edwards Paper Company is at an expense of $48 a week for instructors. The company pays the enrollment fees of workers and the cost of books which are afterwards deducted by instalments from the pay envelope of the enrolled worker. Those who complete the course successfully get a refund of the fees paid. Some fifty of the employees are now taking the course.

The methods of instruction followed at the mills of the Strathmore Paper Company in Mittineague and Woronoco, Mass., were described by George E. Williamson, who is executive engineer of that company. Immediately after the publication of Vol. I of the textbooks a class was started, but it was not a success. Many of those who enrolled to take the course dropped out early, giving as an excuse that others in the class had the advantage of them in preliminary education. A system of correspondence teaching was then tried and as an inducement the company offered to refund tuition fees to those students who had been awarded certificates.

GEORGE K. SPENCE
Chairman of Committee on Soda Pulp, T.A.P.P.I.

Mr. McBain mentioned that sundry courses for the use of the textbooks were being carried on at Rothschild, Wis., by the Marathon Paper Mills Company; at Neenah and Appleton by the Kimberly-Clark Company and at Mosinee, by the Wausau Sulphate Fibre Company.

John D. Rue, of the Forest Products Laboratory, Madison, Wis., was asked to give his views concerning the best methods of conducting courses and he advocated an adoption to the capacities of the men. It was most important, he said, to lead the men on slowly.

Royal S. Kellogg, secretary of the Newsprint Service Bureau, told of inducing the stenographers and filing clerks in his office to take the course of instruction as a means of improving their education, and he had been much gratified with the results.

Martin L. Griffin spoke of the value of getting the cooperation and support of the mill superintendents as a means of getting apprentices interested.

H. O. Keay, of the Laurentide Company, Grand' Mere, P. Q., said his company was cautiously observing activities in the movement for industrial education. One of the difficulties encountered in Quebec was the inability of the French Canadians to learn English. Steps were now being taken to provide a French text of the Vocational Education course. The iron law of inequality had to be faced despite the declaration in the Constitution of the United States that all men were created free and equal. The pace must be maintained so that the slowest intellect among the students would not be discouraged and it was of the highest importance to organize the superintendents. The textbooks provided the most powerful instruments for the education of workers and the Laurentide Company was in full sympathy and desired to be of the greatest service in the movement for a correspondence course in pulp and paper manufacture.

L. M. Alexander, president of the Nekoosa-Edwards Paper Company, denied the validity of Professor Keay's statement concerning equality. There was equality in all things, he said, only opportunity might be lacking. He entertained the members with the story of a German farmer who was handicapped by inability to write or sign his name. He was forced to learn reading and writing and was soon able to sign checks on a bank.

J. J. O'Connor, of the Mead Pulp and Paper Company, Chillicothe, Ohio, told of courses in Practical Economics which had been started by an instructor from the Research Academy and had yielded good results. The men had become interested in the course because they were given subjects of study in which they had some practical working knowledge. Work in operation was studied in connection with the textbooks and not the textbooks as the prime study.

E. C. Tucker, of the Chemical Paper Manufacturing Company, Holyoke, Mass., advocated the short course feature. Failure to interest students was attributed by him to efforts that were made to gulp the system at once, instead of taking it in small doses. A good many small doses would make a big ending.

Thomas J. Keenan advocated a return to the old apprenticeship system, by which beginners could get graded courses of instruction in special operations.

Edwin Sutermeister of S. D. Warren Company, Cumberland Mills, Me., emphasized the importance of providing personal incentives to study by a system of promotion for excellence in studies.

George K. Spence, of the New York and Pennsylvania Company, Johnsonburg, Pa., said that his company had not approached the subject of industrial education from any angle whatsoever, but he was convinced of the value of the work and agreed with Mr. Sutermeister that an incentive in the way of promotion should be provided.

W. G. Mac Naughton, secretary of T.A.P.P.I., expressed the opinion that vocational education and training in mill operations should be handled in the same manner as any manufacturing problem. It must be decided by the management whether it is a good thing or not, and its cost estimated. It was essential that the idea should be sold to the management, and applied systematically to the workers in the mill, the entire arrangement being put on a business basis. A proper combination of theory and practice should be employed. At McGill University from which he was graduated, he had observed that students taking the mining course did better than others, because they were required to spend part of their vacations in practical mining operations, whether handling a pick, pushing a barrow, or handling a transit and level.

This closed the discussion and President Taylor announced the appointment of a Committee on Nominations and a Committee on Recommendations, George E. Williamson being named chairman of the first named with W. W. Cronkhite and Fred C. Clark as associates, and Martin L. Griffin, chairman of the second committee, with Thomas J. Keenan and Edwin Sutermeister as associates.

After sundry announcements by the secretary the forenoon sitting was adjourned.

Afternoon Sitting, Tuesday

Robert B. Wolf, presided at the opening of the afternoon sitting when the Committee on Waste reported on the utilization of pulpwood bark for fuel, a preliminary discussion being carried on in reference to white water and broke economies. The reuse of white water drainings at every point was emphasized. The installation of save-all and other devices for the recovery of lost fiber was urged. In discussing the value of such equipment it developed that widely varying results have been obtained at various mills. A questionnaire is to be sent out by John D. Rue of the sub committee to mills interested in the problem and data compiled and compared in order that standard methods might be established. The problem of conserving mill effluents is of immediate concern in view of the prospect of legislation prohibiting stream pollution with mill wastes. Many states have laws or pending legislation regarding stream pollution. Among these are the states of Massachusetts, Michigan, Wisconsin and Pennsylvania. If the individul pulp and paper mills study and solve their problems, the report stated, they will not only reclaim fiber that is of appreciable value, but will also meet the requirements of any laws or inevitable legislation regarding stream pollution.

In reference to bark and refuse utilization the report now in course of preparation will contain all available data upon bark presses and the furnaces now used in the utilization of wood and barking refuse. The report will cover the various methods of handling this problem under different conditions, and will give figures that will indicate the improved results that can be obtained with adequate equipment and proper control.

Appreciable savings can be effected by the more economical utilization of bark and while tests indicate that each mill has its own particular problem, the construction of the furnace, control of the air, and the method of feeding the fuel are three points that must be given special attention. In general, all refuse must be approximately 50 percent dry in order to be burned with reasonably good efficiency.

The report considered the reduction of broke losses and heat losses: handling materials in pulp and paper mills and the utilization of decayed wood for pulp.

The handling of materials is a very important item of cost in the manufacture of paper which has greatly increased during the past few years on account of the rapidly increasing cost of labor. Each mill has its particular problem and a study of the cost of handling a commodity under present methods compared with the installation and handling cost with modern equipment should be thoroughly investigated.

The Utilization of Decayed Wood for Pulp

This is one of the most important problems that confronts pulp and paper mills at the present time. Realizing that it is an international problem a Joint Committee was appointed to co-operate on this work, representing the Technical Association, Woodlands section of the Canadian Pulp and Paper Association, the Forest Products Laboratory and the Newsprint Service Bureau and during the present year the co-operation of the Woodland section of the American Paper and Pulp Association. Much valuable information has already been obtained and further reports will be submitted to the Technical Association as the work progresses.

Recommendations

In conclusion the committee made the following recommendations:

The committee believes that its main function in the future should be to assist the regular standing committees to take up problems dealing with the elimination of waste in their respective fields. The committee should act as a coordinating medium with such organizations as the Forest Products Laboratory and the Bureau of Standards in order to make available the results of their findings. The committee should also assist these agencies to continue their co-operative studies on waste elimination problems at the various mills interested in this work.

The Minton Vacuum Dryer

Ogden Minton gave an interesting account of the developments leading up to the construction of a paper dryer in which the vacuum principle is used. The text of his address is published in full on another page in this issue of PAPER. One of the great advantages of the Minton Vacuum Dryer, as pointed out by Mr. Minton, was the ability to dry paper at a comparatively low temperature with steam inside the rolls at a pressure of 5.3 pounds. The claim is made for the vacuum system of drying that 100 per cent thermal efficiency is obtained in less space than is occupied by ordinary dryer stacks. The dryers are enclosed in a high vacuum, which acts much the same as a thermos bottle, giving up heat to paper in contact with them. There is great economy of heat as no air is present to absorb and carry away heat units. The only heat loss is that by radiation from the cast iron case in which the dryers are enclosed. As noted in the text of Mr. Minton's address, with a vacuum of 28 inches of mercury, the temperature of evaporation will be about 100° F., the vapor given off having the same temperature.

Mr. Minton pointed out that when using a vacuum of 28 in., the water going to the hot well of the condenser will be approximately 90° F. This warm water could be used in the beaters or in the flow box of the paper machine instead of the ice cold water which some of the northern mills have to use in paper.

Drying Code Adopted

The adoption of a drying code, or a data sheet on paper drying precipitated some discussion. Objection was made to some of the figures on absorption of heat units by dryers, but is was explained that the code was open to amendment. The figures obtained by a careful comparison of data supplied by the Laurentide Company, Crown-Willamette Company, Pejepscot Company, Consolidated Water Power and Paper Company, Great Western Paper Company, American Writing Paper Company, the Beckett Paper Company, the Chemical Paper Manufacturing Company and the Crocker-McElwain Company supplied

Judge Moore to T. A. P. P. I.

JUDGE CHARLES F. MOORE

(From his sick bed)

Since I cannot be there to meet you,
By proxy I'm compelled to greet you.
'Twere better far to see your faces
While you are seated in your places,
And share the friendship and good cheer—
At this, the round-up of the year.
But since that pleasure I'm denied,
I'll be content and satisfied
To know that you do not forget
The olden days in which we met—
The joyous days that I recall
With gratitude for one and all.
In prison walls I've been confined;
And yet, my lot is not unkind;
For much I've had to compensate
The sore privations of my fate.
Life may not be just what we'd make it:
So much depends on how we take it!
No longer can I hold my place
Within the ranks that move apace;
But, parked beside the great highway,
I watch the world as day by day
It passes by, and I can see
It marching on to destiny.
While pausing here, the load I bear
Is no whit greater than you share,
Who daily meet and struggle through
The task that some one has to do.
While I still linger in the rear,
You man the trenches, without fear;
And fight the battles some must fight,
If we would still maintain the right.
Then why should I complain when you
Have both your work and mine to do?
It seems to me—the truth to tell—
That I should pity you who're well
While here I sit and wait and rest,
My passing days are doubly blest;
And thus the benefits I gain
Repay me well for all the pain
That I endure—repay the cost
Of all the blessings I have lost.
While many things I've been denied,
My friends indeed have multiplied;
And they have filled my days with cheer
And helped me through the lingering year.
They've put new courage in my heart,
And made me brave to do my part
As best I can—they've taught me more
Of friendship than I knew before.
In spite of some who still deceive,
My friends have taught me to believe
That men are true—that I can trust
Them to be generous and just.
In fervent faith I'll ever laud
My friends, my country and my God.

useful figures concerning the amount of heat used in drying at the various mills. In a summary it was shown that for heat units used per pound of water evaporated from sheets amounted to 1263 while the water evaporated per square foot effective drying surface per hour was 3.659, nearly double the amount of paper dried per square foot. The steam used per pound of paper dried amounted to 4.025. Variations in the foregoing figures ranged from 2030.8, 1224.6, 1067 and 1370.7 for total overall heat units used per pound of water evaporated from sheets, as compared with the first figure given—1263. The variation noted was not so great under other headings, though all were a few degrees lower.

Asbestos Coverings for Digesters

At the afternoon sitting there was an animated discussion regarding the value of asbestos coverings on digesters. Many of those who took part in the discussion denied any saving of heat while others took an opposite view. Mr. Wolf had previously resigned the chair to G. D. Bearce who said that if a saving was to be effected by the asbestos covering it would probably take a period of three years to determine it. Mr. McBain had previously reported the opposite of a saving of heat by use of asbestos coverings. Another member who had reported satisfactory results was asked what flow meter had been used to determine steam consumption and he mentioned the Republic Flow Meter as made by the Republic Flow-Meter Company, Bush Terminal Building, Brooklyn. It was jokingly suggested that if this flow-meter had been used at the Nekoosa-Edwards plant, results from the use of asbestos coverings on digesters might have showed up better.

Third Sitting, Wednesday Forenoon

It was long after the advertised hour before the third sitting on Wednesday was called to order. The first business taken up was the reception of the report of the Committee on Nominations, George E. Williamson, chairman. The officers who served during 1923 were accorded the compliment of reelection and two new members were elected to the executive committee each to serve for a period of three years. They will fill the places formerly occupied by George K. Spence and George H. Harvey, who retired by rotation. The list of nominations as submitted by the committee was voted on and the election declared unanimous.

Officers Elected

During the ensuing year the Technical Association of Pulp and Paper Industry will be officered as follows:

President—Howard S. Taylor, of Dayton, Ohio.

Vice-President—Grellett N. Collins, of Dill & Collins Co., Philadelphia.

Secretary-Treasurer—William G. MacNaughton, 18 East Forty-first Street, New York.

New members of the executive committee are L. J. Parant, of the St. Croix Paper Company, Woodland, Me., and W. E. B. Baker, of the Continental Paper & Bag Mills Corporation, York Haven, Pa. The executive committee consists of seven members, the president and secretary; E. C. Tucker, Royal S. Kellogg, B. T. McBain and L. J. Parant and W. E. B. Baker.

The report of the Committee on Recommendations was then called for. Martin L. Griffin chairman, responded with a series of endorsements of the recommendations in the president's address. Mr. Kellogg of the Executive Committee protested that action should have been taken on the recommendations made in his oral report concerning the organization of four local sections of T.A.P.P.I.

Mr. Keenan replied for the committee saying that nothing had been referred to it for consideration but the president's address. He asked leave on behalf of the committee to submit a supplementary report at a later sitting, which was granted.

In addition to endorsing the recommendation of the Executive Committee relating to the immediate formation of branches of the Technical Association in logical papermaking centers the Committee on Recommendations approved the plan mentioned in the secretary's report for cooperation on manufacturing and technical problems in the way of service to members. It also approved of the suggestion in the secretary's report that the Committee on Standard Methods of Testing should be subdivisions of one Materials Testing Committee covering both the materials used and products it manufactures. Approval was also given to the suggestion of the Executive Committee that the Technical Association join the American Society for Testing Materials. The foregoing was submitted in the form of a supplementary report, the original report reading as follows:

Report of the Committee on Recommendations

Your committee has considered the able address of President Taylor and begs leave to present the following report.

We desire to second the president's recommendation for enlarged cooperation on the part of the whole membership with the committee chairmen and the work they have in hand.

It is a matter deserving of special investigation that the Sulphate Pulp Committee should have been allowed to suspend operations in view of the growing importance of sulphate pulp in the manufacture of paper and the development of this industry in different parts of the country.

The committee recommends that steps be taken to carry out the president's suggestion in regard to the adoption of a standard freeness test for groundwood pulp.

It is in full agreement with the president regarding the importance of an extension of study in such subjects as heat losses in pulp and paper mills, mechanical handling of materials in paper mills, and the utilization of decayed pulpwood resulting from the attacks of insects and fungi, and would recommend that the development of this work be encouraged and its extent left to the discretion of the proper committees.

Your committee is impressed with the potential value of the work of the Committee on Service to Members and expresses the hope that it will be enlarged to the fullest extent that may be possible.

It joins with the president in commending the work of the Committee on Vocational Education in the near completion of the five volumes on the Manufacture of Pulp and Paper and agrees with him that the next responsibility of the Association will be to secure a wider use not only of the textbooks but of the correspondence courses centering about them which have been provided.

The important work of the Committee on Bibliography, of which Clarence J. West is chairman, has reflected credit upon the association as well as upon our entire industry, and we join the president in his felicitations to Chairman West. (Signed) Edwin Sutermeister, Thomas J. Keenan, Martin L. Griffin, Chairman.

Fourth Sitting, Wednesday Afternoon

At the afternoon sitting on Wednesday, Austin Cary of the U. S. Forest Service, presented a paper, illustrated by lantern slides, on "Papermaking Possibilities in the South." It is of striking significance that more than one paper was presented during the week of meetings on the opportunities that are open in the Southern States for the development there of a selfcontained paper industry.

Our Extravagant Use of Paper

Mr. Cary is a forester of great experience, having cruised and surveyed many tracks of timber land both in this country and in Canada. He does not look with a favorable eye on the extravagant use of paper as exemplified by the daily newspaper. To him the raw material would look better standing in the form of a tree in the forest. He confessed that this feeling might be individual or narrowly restricted and he did not hesitate to pay a tribute of esteem to our American pulp and paper industry for its intensiveness, resourcefulness and courage, not less than for its economic service to local populations making for the comfort and convenience of our lives. He reflected on the great and momentous thing which happened when a block of wood was first converted into something so unlike it—a block of paper.

Forest Resources

Turning to the subject nearer in line with his main purpose Mr. Cary said:

"I hope in this paper to make some useful contribution to the consideration now going on of the resources available for papermaking in country-wide fashion. Country-wide, at least, the consideration must be if it is to be adequate. True, papermaking in this country is now mainly located and was developed in the northeast. That as in so many other cases was largely due to the wealth, intelligence and industrial push of the section. It was also founded on natural facilities—available power, labor, supply, particularly on the location here of wood especially suited to the purpose. Spruce, the familiar tree of our boyhood, common, cheap, regarded mostly as part of the scenery and source of spruce gum, proved to have special suitability to papermaking, and for many years there were abundant supplies of it. Forty years of intense activity have made a vast difference, however. In that time the virgin stands of the northern mountains have been cleared off; great areas previously culled for their sawtimber have been combed over again, more than once in many cases; more lately a great natural force, the budworm, has worked tremendous devastation in the resources remaining. Of waste, lack of forethought, negligence, I say nothing here. If the paper industry of the northeast has not a record as clear as might be in respect to these matters to my thinking at least and speaking broadly, it has kept in advance of all other industries in these United States. But the situation is different now than it was forty years ago, or twenty for that matter. The stuff is not there now for continuance at the same rate; other local resources that might be called on are inferior. The question how much wood that available territory will grow, or can be made to grow at economic cost, is therefore presented.

HENRY F. OBERMANNS
Hammermill Paper Co., Erie, Pa.

"That as a purely technical question, though not at all easy, is rather simple. I note that it is being taken up and that it has a place on this program. Even though fully and trustworthily handled, however, the practical problem of the industry is not so settled. Competition comes in from the countries, from other parts of our own, the whole field of transportation costs, tariffs, etc. For myself I can only sketch out these questions, showing that their importance is understood, leaving their solution to those better equipped and who have more direct concern with them.

B. T. McBAIN
Port Edwards, Wis.

Possible New Papermaking Territory

"Let me now plunge into the heart of my subject by calling your attention to the vast area of pine land in the southern section of this country, following that with some account of its resident resources and growing power.

"The area in mind begins at the northeast at Chesapeake Bay and stretches in a widening belt, continuous except for a strip bordering the Mississippi River, to timber line in Texas and Oklahoma and to northwestern Arkansas. Fourteen states, some of them the largest in the Union, are embraced in it wholly or in part; its outside boundary encloses over 350,000 square miles, some 230,000,000 acres. Compared with this, the spruce bearing region of Northern New England and New York is less than one-eighth as large. As I figure it, it is just about equal to the gross area in the United States and Eastern Canada south of the Arctic drainage that can be looked on as naturally or potentially spruce bearing Not at all the area of course is forest or even potential pine forest. Millions of people reside there with their cities, pastures, and cultivated areas; also much land not actually productive of pine is necessarily included. But the area in timber or available for timber is still vast indeed, figured net for pine some years ago by the Forest Service at half the gross area, or 115,000,000 acres.

"So much for that feature. For timber stands on account of the billions of feet available for sawtimber, the only basis on which the resource has ever been estimated, would have extremely little significance to you. Reference to vast areas of second growth, not possible now to estimate for area or quantity of available wood, is far more to the point. This resource, of so much natural interest to men of your outlook and training, is in that section not only in very minor degree subject to demand from local industries; very largely indeed the local population do not regard it as having commercial value or even potential utility at all.

Great Rate of Growth in South

"Even beyond that, however, in its significance to an industry such as yours, of large plant investment and enduring outlook, is the growing power there. Here we touch on a subject on which every forester who gets acquainted with the region becomes enthusiastic. With soils for the most part well suited to the rapid production of timber, particularly with a warm climate and long growing season, timber in much of this region grows at a rate not to be believed until seen by those familiar with northern territory. In the Southern pine belt, the United States is thought to possess the greatest single asset in the way of a potential source of coniferous wood and lumber that exists anywhere on the face of the earth.

"The pictures to be thrown on the screen later will bring this home in the most effective way available, but a few brief statements here will be appropriate. Three feet of yearly height growth is not uncommon among the southern pines, that to compare with half as much for white pine in New England, and a foot and less for spruce as it grows in most northern territory. Two cords per acre of wood yearly is not infrequently grown; 60 cords of rough wood at 25 years of age have been personally recorded. At 20 and 25 years of age such lands produce trees of sizes nicely suited for use as pulpwood. Some species and much soil produce at a rate of about half as great as mentioned and results actually attainable are of course affected by a great variety of factors. Men entering on long-range enterprise based on southern pine lands will do well to look carefully into such things, as soil as related to the species of timber at hand, including drainage; rate of tree growth as manifested most clearly by height on age; bush growth and undesirable species as affecting the matter of reproduction of timber.

Three Regions Adapted for Paper Industry

"To be a little more specific three regions illustrative and perhaps most attractive from the standpoint of paper manufacturing enterprise, may be covered briefly. One is Northern Alabama, a region abundantly provided with coal, also with water power in some measure; in that region are very large resources of second growth pine, one variety of the tree sufficiently low in pitch content so that its wood has been ground under present processes. That region too is very favorably situated in relation to great markets for paper.

"Second, I may refer to southern Arkansas and northern Louisiana, a region characterized by the rapid growing loblolly pine, much of it underlaid by natural gas that may be used as fuel. More than one papermaking enterprise is located in that region and others are in contemplation.

Conditions in Georgia and Florida

"Third, lying back of and tributary to the seaboard cities of Savannah and Jacksonville there is an area of some 10,000,000 acres especially attractive from the forest standpoint. Great aggregate resources of suitable wood are there; the characteristic pines are slash and long-leaf, both rapid growers, high in quality of lumber, while in respect to an additional source of revenue, naval stores, they are the most productive species known to man. Words would fail, pictures must serve, to depict conditions in that territory—the tremendous producing power, the resources available today, the enormous waste of wood that is going on, a waste that no agency is so well calculated to stop as the introduction of an industry like papermaking.

Kraft from Southern Pine

"Rounding out this division of the paper, one must refer briefly to the lines of papermaking to which southern resources are adapted. Kraft and fibre boards, as is well known, are the leading lines of product from the southern pines today, that by the sulphate process. To this process the wood is thoroughly adapted and the product of excellent quality, competing successfully with paper of the same kind from any source.

"Magazine and book paper is another line which seems to attract, the difficulty of bleaching pine fibre having, it is understood, been successfully surmounted, and most regions which furnish pine possessing also sufficient stocks of gum and other hardwoods suited to the production of the short fibre required. The fact may also be noted that intensive investigations are now going on that seem to promise much in connection with one other great line, that of newsprint paper. These technical points and some others essential to the location of successful papermaking enterprises are not authoritatively treated here. It seems, however that one might say with confidence that the era of invention and discovery in this field is not passed; consequently that wise men will be keeping close watch on developments and inaugurating enterprises as they see the opportunity at all clear, in this general direction.

Cheap Sources of Wood Supply

"Wood supply—its cheapness today, the possibility of cheaply perpetuating it—is the main topic of this year. That comes out for one thing in the present cost of pulpwood at southern paper mills, around $5 a cord on cars as I understand it, against approximately $20 a cord mill cost for many northern producers. The mere stumpage cost of New England pulpwood about equals cost of wood on cars at the south; some northern mills are paying considerably more than the same figure for freight haul. Sawmill waste and the refuse of great logging operations are now supplying a share of present requirements too, this at cost as low as or less than the other, and opportunity to obtain stock of this character will at well chosen points be long open.

Tree Cultivation

"The production of wood by design is a matter of great interest; in fact ultimately we shall have to look to it for our main reliance. Here the advantages of the South shine out in comparison with those of the present location of the paper industry. Statements already given on amount of wood that can be grown in a given time indicate that to an extent, and the following further brings out the contrast: Several years ago Canadian authorities made the statement that 20 cords of spruce wood could be raised in 40 years from planted and tended forest. The figures given could be turned around in application to much southern territory.

"Natural seeding for all the southern pines except long-leaf is abundant and easy, will serve essential purposes on most territory, given only fire control, concerning which, however, in view of conditions, especially the habits of southern country people about fire, I am bound to say there may be considerable difficulty.

Reforestation Pays in the South

"It is also true that with timber growing as rapidly as it does in the south cultural measures will pay that must be looked at askance in northern territory. This holds true of thinning, which so reduces the time required for production of usable wood; it is also true in a marked degree of artificial stocking. That measure, when successful, it is well understood, fully utilizes the ground and so spaces the trees as to secure the utmost in quantity and quality production.

"Fortunately, just at this time an enterprise is working out in the south that serves to demonstrate and test these methods. Several years ago the Great Southern Lumber Company at Bogalusa, La., a lumber concern primarily, but having a paper mill, though with many years' supply of virgin timber, set out on the project of perpetuating its busy and beautiful town on the basis of papermaking. Various conditions are favorable there, including timberlands, taxation. Selecting, therefore, a bright local man to take the lead in their reforestation work, in the last three years they have carried out the following measures: They have fenced up 30,000 acres of cut-over land to secure the utmost possible degree of protection and fire control, especially preserving by this means the bunchy and scattering tree reproduction on it; through a little regulation of their logging they saved 4,000 acres of the great longleaf mast of 1920; they have left seed trees standing over land recently cut; lastly and more directly to the present purpose they have to date planted 1,000,000 small trees, while the planting of not less than 5 million is on their 1924 program. That is going in with both feet. The project as a whole and the results to date in different directions are matters of vast interest to the whole American paper industry.

"Think in the first place what it will be if say twenty-five years from now instead of paying the prices that may then be current and hauling pulpwood hundreds of miles, as many do today, at cost of several dollars a cord, a paper mill can run a tramroad out into its own back yard as one may say, and haul in wood that it grew on its own property. Big advantage there, as all can see. What, however, of the cost of the planting operation?

Cost of Planting Operations

"There again northern men get a jolt when they learn what has actually been done at a southern locality. It takes us in New England three years one transplanting included, to raise planing stock that we think well suited to put out in the woods and the cost of the work complete runs anywhere from $10 or $12 to $20 an acre. At Bogalusa in 1922 the seed of loblolly pine was sown in March and November of the same year the beds were full of fine, stocky plants, 450,000 of them, ready to be put out in their final location. That was done with the spacing of 6x8 feet, around 900 trees to the acre, and the total cost of the work—raising plants, setting them out, fencing cost prorated, supervision and overhead not in—was little over $4 an acre. That figure is trifling in proportion to the yields in woods and value that may be looked for from successful plantations.

"Final, undoubted success is not claimed, at any rate on this occasion; some difficulties are being met and chances are involved that cannot be weighed now, for which we must make allowance. Extremely promising, however, the work must be rated at date. As noted earlier it is a thing to be given careful attention by the whole paper industry; also the men are to be congratulated and honored who lead in enterprise of this bold and constructive kind.

"That seems to tell the main story. It is an outline only, so recognized; in every phase of the subject presented extensive elaboration might well be made. In this connection it must be noted that possibilities in the way of productive forest management exist that have not even been hinted at as yet. An imperfect outline, however, if timely, stimulating and true to the facts, is often of much use, and that is all there is room for at this time.

Timber in Abundant Supply Over Wide Areas

"The South, strangely it seems, is a section little known to residents of the one in which we are. If it is a section whose possibilities wonderfully attract. Today, by reason of natural facilities and economic changes that have come about in the recent past, it is fast taking away from New England the cotton manufacturing industry that originated there, that for many years was a strong support and source of pride. The question put up in this paper is how far and how fast manufacture promises to go the same way.

"The question involves very many things and anything approaching an adequate answer has been attempted on one side only, the side of timber supply. This is a summary in that field of what has been said and of the information and study that are behind it; timber available in abundance over vast areas, at but small fraction of the cost to northern mills, much of it close to where it should be manufactured, a good portion of it as things are now going not in a way ever to produce sawtimber but going to absolute waste; opportunities for plant location and the acquisition of land wide open at low cost; timber production so easy and rapid that it looks as if, should prompt and well judged measures be taken, the cost of standing wood need never rise beyond say $2 a cord.

Causes of Color Changes in Paper

Following Mr. Cary, a paper by Martin L. Griffin was scheduled which treated of the causes of deterioration of color in pulp and paper. The text of Mr. Griffin's communication appears elsewhere in this issue of PAPER.

Mr. Griffin called attention to some interesting instances of paper discoloration. Paper made from esparto takes on a pinkish tint when exposed to aniline fumes. If rag papers are made from pulps containing residual impurities they will become discolored in course of time, while it is well known that the presence of rosin is a menace to permanent white in high grade papers.

W. A. Munro, who was formerly active on the Groundwood Committee, is now employed by the Washington Pulp and Paper Corporation at Port Angeles, Wash., and could not be present to read his paper on "Comparative Efficiency of Pulp Grinders". Copies of the paper were available and distributed to those in attendance.

Sectional Meetings

A series of sectional meetings took place in different rooms during the afternoon. The Soda Pulp Committee held forth in room 151 where papers were presented by George K. Spence and W. D. Mount. A joint session of the Technical Association and the Woodland Section was held in the Myrtle room. At this meeting J. D. Rue, of the Forest Products Laboratory, Madison Wis., continued his observations on the use of decayed wood in the manufacture of sulphite pulps.

In room 110 a session of the Heat, Light and Power Committee was held at which papers were presented on "Maintenance of Electrical Equipment" and "Prime Movers for Paper Machines," by H. L. Hayes, and F. O. White respectively.

Good Pulp from Bad Wood

In regard to the work on the utilization of decayed wood for the manufacture of pulp, Mr. Rue said that pulp for newsprint production may be made from infected wood with yields only slightly lower than those usually obtained with good wood, though the color might not be what was desired.

George K. Spence presided at the meeting of the Soda Pulp Committee and read his paper entitled "Methods in Use for Disposal of Lime Sludge and Sulphate Pulp Mills." This is reproduced on another page of this issue of PAPER.

Fifth Sitting, Thursday Morning

Sectional meetings of the Technical Association were held on Thursday forenoon during the progress of the general meeting of the American Paper and Pulp Association.

Materials and Paper Testing

In Room 151, the Materials and Paper Testing Committee met with Miss Helen U. Kiely in the chair. The chief subject of discussion with pulp testing and much interest was taken in the proceedings by an assembly that filled the room to overflowing.

Book on Standard Methods to Be Published

Miss Kiely stated that during the past year the Materials Testing Committee has assembled and had published for the first time standard methods covering the more common materials tested in the ordinary paper laboratory. She said that these methods were in all instances practical commercial methods in daily use in many laboratories. While it was realized that these might not meet with the approval of the highly scientific, it was thought better to prepare such methods as would best suit the needs of the ordinary paper mill chemist. For college laboratories or for referee analysis a more detailed method might be more advisable.

The committee will continue to assemble and check new methods during the year. It is hoped that a revised methor for pulp testing may be developed, as there seems to be a growing need for a new method that may better approximate mill working conditions.

No data seemed to be available on the testing of rags and it is also hoped that something may be worked up along this line.

If there are any particular methods which the members desire the committee to investigate they should be brought to the attention of the committee and consideration will be given them.

The meeting was then turned over to the Paper Testing Committee, Fred A. Curtis taking the chair. The annual report of the chairman was distributed in printed form and this is reproduced separately. Mr. Curtis then brought up a list of twelve questions for consideration, but no action was taken.

Sulphite Engineers Hold Sectional Meeting

At the sectional meeting conducted by the Sulphite Pulp Committee in Room 110, G. B. Genberg's paper on the Cooking of Sulphite Cellulose was presented and a further contribution from the Forest Products Laboratory on the chemistry of the sulphite process was reported. Mr. Genberg attempted to throw some light on the questions as to which country produces the best pulp and which method of cooking gives the best results. Acknowledgment for assistance in the preparation of data were made to W. G. MacNaughton, O. L. Berger and the Stebbins Engineering Manufacturing Company. The conclusions reached were that Finnish and Swedish mills cooking spruce by the Ritter-Kellner process get a lower yield of easy bleaching pulp than the Quick Cook mills in North America.

Mixtures of spruce and fir give a lower yield of both strong and easy bleaching pulp than spruce alone. Hemlock gives a lower yield than spruce for both strong and easy bleaching pulp . Mitscherlich mills get a lower yield than Quick Cook and Ritter-Kellner mills.

A simple illustration showed that where a Quick Cook mill cooking spruce uses only five digesters for a certain volume of pulp produced, six digesters must be used with hemlock to get an equal volume of pulp, nine digesters with the Ritter-Kellner process and ten with the Mitscherlich. It was noted that the steam consumption in the direct cooking process is higher than in the indirect process and that the steam consumption increases with a decrease in yield from the species of wood cut.

A Busy Corner of the Shop

One of the busiest corners on the floor of the Grand Central Palace during the week of the Second Annual Paper Industries Exposition, was that occupied by the Foreign Paper Mills, handlers of the Schopper scales and paper testers. With the Messrs. Schniewind and Voltman in charge, there was always a good sized crowd about the booth hearing the interesting demonstration of the various instruments and incidentally learning something new about paper testing.

The instruments displayed ranged from large ones for those who go deeply into the matter of paper and smaller ones for more cursory tests.

* * *

Opens New Office Here

Karl Lefren, who recently opened an office at 171 Madison Avenue, New York, as consulting engineer, is having good success. He is a member of the American Society of Mechanical Engineers and handles a wide range of work in the paper mill field, including industrial power plants, paper and board mills, general mill construction and designs.

* * *

Eagle Company Starts

The Eagle Instrument and Paper Company has recently started business in New York City. It will handle scientific paper trade instruments and paper specialties. C. J. Koenigsamen, who has long been in the business, is at the head of the company. He is perfectly familiar with paper scales having long experience in selling them.

The Eagle Company is the sole agent for F. E. Amthor's paper trade instruments. An office has been opened at 396 Broadway, New York City. A special repair department is being maintained also. Mr. Koenigsamen was with Crouse for some 20 years.

Meet Miss Kiely

MISS HELEN U. KIELY

Miss Helen U. Kiely, chairman of the Materials Testing Committee, enjoys the distinction of being the first lady member of the Technical Association of the Pulp and Paper Industry. A graduate of Smith College, she has had a considerable amount of experience in general analytical work, having been with the General Chemical Company and the Rockefeller Institute in New York.

In March, 1918, Miss Kiely joined the staff of the American Writing Paper Company, where for the last four years she has been in charge of the Paper and Materials Testing Section. In 1921 she made an extensive tour of western Europe studying paper conditions.

The many very successful educational papermaking shows conducted by the American Writing Paper Company during 1922 and 1923 were carried out under Miss Kiely's able direction. For the past three years she has been a member of the Paper Testing Committee and for two years chairman of the Materials Testing Committee of T. A. P. P. I.

* * *

Middle Mill Closed

The middle mill of the International Paper Company, situated at Glen Park, near Watertown, has been closed permanently for good reasons, according to Philip T. Dodge, president of the International Paper Company, in his annual report to stockholders last week.

The middle mill of the International Paper Company is also known of as the "C. R." mill. The "C. R." mill and the Ontario mill, the third in the group, have been running at intervals during the past two years, but the No. 4 mill has been closed since the strike two years ago.

"The development and consolidation of the water powers," Mr. Dodge states, "to give a materially greater amount of power, has been carefully planned, together with the introduction of electric generators from which surplus power may be sold."

Meetings of Affiliated Associations

SEVERAL of the manufacturers' associations affiliated more or less directly with the American Paper and Pulp Association held meetings during the week. The annual meetings of the Technical Association and the Salesmen's Association are reported separately. The Tissue, Writing and Cover Paper Associations met for the election of officers to serve during the ensuing year and the results are given below.

Officers of Tissue Association

The following officers and executive committee were elected at the annual meeting of the Tissue Paper Manufacturers' Association held Tuesday, April 8:

President, F. W. Hoefler, Oswego River Paper Mills, Phoenix, N. Y.; vice president and chairman Toilet and Towel Division, H. W. Brightman, Northern Paper Mills, Green Bay, Wis.; vice president and chairman Sheet Tissue Division, J. B. Rieg, Erving Paper Mills, Erving, Mass.; Secretary-Treasurer, E. H. Naylor, 18 East 41st Street, New York, N. Y.

Executive Committee, F. W. Hoefler, Oswego River Paper Mills, Phoenix, N. Y., chairman; H. W. Brightman, Northern Paper Mills, Green Bay, Wis.; J. B. Rieg, Erving Paper Mills, Erving, Mass.; Z. W. Ranck, Crystal Tissue Co., Middletown, Ohio.; J. M. Ross, Sauquoit Paper Co., Inc., New Hartford, N. Y.; Member of Advisory Committee of the American Paper and Pulp Association, F. W. Hoefler, Oswego River Paper Mills, Phoenix, N. Y.

Writing Paper Association

The Writing Paper Manufacturers Association elected the following officers and executive committee at the annual meeting held at the Waldorf-Astoria on Wednesday, April 9.

President, Philip Weston, Byron Weston Co., Dalton, Mass.; first vice president, W. M. Crane, Jr., Crane & Co., Inc., Dalton, Mass.; second vice president and chairman Sulphite Bond Division, A. H. Nevius, The Miami Paper Co., West Carrollton, Ohio; Secretary-treasurer, E. H. Naylor, 18 East 41st Street, New York, N. Y.

Executive Committee — chairman, Philip Weston, Byron Weston Co., Dalton, Mass.; W. M. Crane, Jr., Crane & Co., Inc., Dalton, Mass.; A. H. Nevius, The Miami Paper Co., West Carrollton, Ohio; D. K. Brown, Neenah Paper Co., Neenah, Wis.; A. H. Dwight, Hawthorne Paper Co., Kalamazoo, Mich.; E. A. Oberweiser, Whiting-Plover Paper Co., Stevens Point, Wis.; A. R. Smith, Keith Paper Co., Turners Falls, Mass.

Member of Advisory Council of American Paper and Pulp Association, Philip Weston.

Cover Paper Association

The following officers and executive committee were elected at the annual meeting of the Cover Paper Manufacturers Association held at the Waldorf-Astoria on Tuesday, April 8:

President, D. L. Quirk, Jr., Peninsular Paper Company, Ypsilanti, Mich.; vice president, B. A. Franklin, Strathmore Paper Company, Mittineague, Mass.; Secretary-Treasurer, E. H. Naylor, 18 East 41st Street, New York, N. Y.

Executive Committee—chairman, D. L. Quirk, Jr., Peninsular Paper Co., Ypsilanti, Mich.; B. A. Franklin, Strathmore Paper Co., Mittineague, Mass.; Minor M. Beckett, The Beckett Paper Company, Hamilton, Ohio.

Member of Advisory Committee of A. P. & P. A., D. L. Quirk, Jr.

Converting Paper Mills Association

Discussion of the foreign import situation as it relates to the book paper mills particularly those of the middle west, was an outstanding feature of the discussion of the Converting Paper Mills Association. This association, which for the past year has been conducting its work independently of the American Paper and Pulp Association, decided to have its statistical work handled in future by the central association.

Waxed Paper Manufacturers

The Waxed Paper Manufacturers, after two days of conferences, have formally organized an association which will have nearly 80 percent of the tonnage of that group of the industry. The new association decided to affiliate with the American Paper and Pulp Association.

Cardboard and Fancy Papers

The Cardboard and Glazed and Fancy Paper Manufacturers' Associations, whose secretarial and general association work has been handled by the American Paper and Pulp Association since the retirement of Jacob Erichsen to enter the pulp industry, decided at their meetings Wednesday, April 9, to continue their present organizations and work through the American Paper and Pulp Association. The Gummed Paper Manufacturers Association, third association handled by Mr. Erichsen, has not decided its future policy, but is considering a slightly different form of association activity.

United States Pulp Producers

A turn for the better in the American Pulp industry was reported at the meeting of the United States Pulp Producers Association, when it was found by reports from all parts of the country that the importers have injured their own market by the recent sacrifice sales of Scandinavian pulp.

Foreign pulp has been sold at prices which forced the shutting down of some domestic mills, where the paper manufacturers found they could buy plup cheaper than they could make it in their own pulp mills. The foreign manufacturers have lost so heavily by their competition for American business that they are being forced to change their marketing policy, and the results are already beginning to be felt.

The election for officers to serve during the ensuing year resulted as follows: President, D. C. Everest, Marathon Paper Mills Company, Rothschild, Wis.; vice president, L. M. Alexander, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; E. W. Kiefer, Port Huron Sulphite & Paper Co., Port Huron, Mich.; W. H. Savery, Harpers Ferry Paper Co., Harpers Ferry, W. Va.

Executive Committee, Herman Elsas, Continental Paper & Bag Mills, 16 East 40th Street, New York; G. W. Sisson, Jr., Racquette River Paper Company, Potsdam, N. Y.; N. W. Wilson, Hammermill Paper Co., Erie, Pa.

Membership Committee, G. E. Crafts Crono Pulp & Paper Co., Bangor, Me.; H. W. Stokes, York Haven Paper Company, 906 Land Title Bldg., Philadelphia, Pa.

Secretary-Treasurer, Oliver M. Porter, 18 East 41st Street, New York.

Woodlands Section A. P. & P. A.

The United States consumed more paper in 1923 than in any previous year of its history, G. W. Boyce of the United States Forest Service told the Woodlands Section at its meeting on Wednesday.

"In studying the relationship of paper to the forestry problem," he said, "the Forest Service finds that in 1923 the United States consumed 8,500,000 tons of paper, of which 7,200,000 was made in this country. Of the imported paper, by far the largest quantity was newsprint imported from Canada, and the highest previous record for paper consumption was the consumption in 1922 of 8,003,000 tons."

Officers of the Woodlands Section were re-elected as follows:

Chairman, C. W. Hurtubis, Hammermill Paper Company, Erie, Pa.; vice chairman, Geo. N. Ostrander, Finch, Pruyn & Co., Inc., Glens Falls, N. Y.

Executive Committee, C. W. Hurtubis, Geo. N. Ostrander, D. E. Lauderburn, Pejepscot Paper Company, Brunswick, Me.; Edward S. Bryant, Boston, Mass.; Oliver M. Porter, ex-officio.

Secretary-Treasurer, Oliver M. Porter, 18 East 41st Street, New York.

Members at Large, E. S. Holloway, Hammermill Paper Company, Matane, P. Q.; Ellwood Wilson, Laurentide Co., Ltd., Grand Mere, P. Q.

Salesmen's Association

The Salesmen's Association of the Paper Industry met on Tuesday, April 8, and transacted a good deal of important business. Action was taken looking to more keen surveillance of paper imports, the charge being made that much foreign paper is being brought into the United States under false classification, a grade of imitation parchment or greaseproof paper, for example, being entered as wrapping and afterwards sold as parchment, so it is reported.

A resolution was adopted for transmission to the president of the American Paper and Pulp Association with the request that it be considered for adoption at the annual meeting of the parent association. The text of this resolution, which was introduced by George K. Gibson, of the Wausau Sulphate Fibre Co., is given in our report of the general meeting on another page.

The members then listened to an address by Francis H. Sisson, of the Guaranty Trust Company, New York.

Basically, business conditions throughout the country are progressing satisfactorily, but there is a tendency on the part of business interests to await tax reductions before undertaking further forward movement. The plethora of money in the banks is due in part to high taxes and the resulting disinclination of investors to let their funds move into regular investment channels. In fact, had the tax bill been passed as introduced by the Administration shortly after Congress convened, the country would probably have experienced a material increase in business and a general stimulation of industrial activity.

Unsettlement has been a feature of both security and commodity markets in recent weeks, due largely to political developments, rather than to current changes in fundamental business conditions. The action of the House in rejecting the Mellon tax revision plan and adopting an inadequate substitute has unfavorably affected business sentiment; although the restoration of the Mellon rate schedule is the revenue bill by the Senate Finance Committee was a reassuring note. Disclosures made in the course of the oil investigation have tended further to disturb confidence. The approval of the bonus bill by the House, while not unexpected, called attention to the possible enactment of the measure in some form at this session. The sharp decline in the exchange value of the French franc, until it was arrested upon the announcement of a loan to the Bank of France by a group of American bankers, was an additional disturbing element.

Cautious Business Policies

In the face of these uncertainties, a general attitude of hesitation and unwillingness to make commitments for the future continues. As a result, hand-to-mouth buying is general and programs involving the expansion of old or the undertaking of new enterprises are held in abeyance. In some industries this is more pronounced than in others but the general effect has been to restrain speculation and to lower prices somewhat. Conservatism and caution are the keynotes of the situation.

Market trends in the immediate future will probably be influenced in considerable degree by further developments at Washington, as well as by the reactions to the recommendations of the Dawes Committee concerning reparations and German financial rehabilitation.

It is obvious that the present activities of Congress must interfere in some measure with a constructive legislative program. This may not have an entirely unfavorable effect, however, for it may prevent the enactment of some laws inimical to the best interests of business, such, for instance, as legislation antagonistic to the railroads.

Outlook is Favorable

The succession of untoward developments at Washington, accompanied by the menace of further blows at public confidence, came at a time when industrial production and trade were expanding. Subsequent curtailment in the production schedules of some automobile manufacturers, together with reduced buying of steel, led to recent apprehension of a general slowing down of business. The movement of commodity prices has been uncertain, with a tendency to weakness, as is shown by the continued decline of the index of wholesale prices. And there is even more reluctant buying by distributors in many lines than prevailed heretofore. A pronounced slackening of business as a whole has not occurred, however, and the outlook remains favorable.

Money Market to Continue Easy

The fundamental soundness and strength of the banking situation as a whole is one of the greatest assets in the balance sheet of business conditions. The upturn in commercial loans in January was preceded by much the largest contraction they have undergone since their expansion began in the summer of 1922. This recession was apparently a tardy reflection in some degree of the general slowing down of business which began last spring. The expansion of commercial loans in recent weeks was not as rapid as that which took place during the corresponding period last year.

The fluctuations in the trend of secured loans have reflected in some degree the activity in the securities markets, with the peaks occurring near the quarterly settlement dates. These loans are now at approximately the level of the corresponding period last year.

Although credit requirements are now somewhat greater than a year ago, loanable funds are plentiful and interest rates have recently declined. Indications are that the money market will continue easy for the immediate future, and basic economic factors warrant a firm bond market, with perhaps an upward tendency.

The present building activity is on a large scale and the outlook for the year is very promising. As with the automobile industry, building development is favorably reflected in numerous other industries manufacturing building material and supplies.

While the housing shortage has been greatly reduced by the extraordinary activity of construction in the last ten years the end of the period of intense activity in this field is by no means yet in sight. During the past winter favorable weather conditions have served to provide a more even distribution of building operations throughout the year.

Good Volume of Traffic

Car loadings of freight have continued at a high level and indicate the active consumption of goods which is taking place. The loadings for the first several weeks of this year exceeded the corresponding total of a year ago, and later reports show a volume of traffic well above the previous figures for the winter season. A further favorable factor in the railroad situation is the fact that there is now little likelihood of adverse or disturbing legislation in Congress affecting the roads. If given freedom to develop we may expect the railroads materially to improve their credit situation during the current year.

In the cotton textile business, however, the high price of raw material, a lagging market, and a difficult labor situation have led to considerable curtailment of operations in New England and also to some extent in the South.

Manufacturers of paper and paper pulp look forward confidently to a year of active business. The production of paper in 1923 was nearly or quite of record volume, and the first of this year opened with a notable influx of orders for nearly every grade of this product.

The prevalent piece-meal buying by distributors of merchandise in general, despite the hardships which it imposes upon producers, and the selling of costs in some cases, represents a strong safeguard against losses incident to possible price fluctuations. While production conforms closely to current consumption, with inventories of business as a whole.

Meanwhile, with all the continuing irregularities, a better balance is gradually being effected between the different branches of industry. The value of last year's farm products, for example, shows an estimated increase of approximately $1,000,000,000 over the 1923 estimate, and the computed gain in average purchasing power of farm products from January, 1923, to January, 1924, was 9 per cent. Such a condition cannot fail to influence favorably the course of business as a whole.

The Outlook

When an attempt is made to forecast the future and to estimate the influences which are likely to affect commerce and industry favorably or adversely it is evident that one must ascribe a dominant place to political factors both at home and abroad. For example, in so far as the prosperity of the United States is dependent upon foreign trade it is sensitive to the significant political developments which are now taking place in Europe which may have so profound an influence upon the financial and economic situation there. There are many evidences of a definite improvement in this situation during the past year, but this improvement cannot be founded upon a firm foundation until a satisfactory solution is given to the reparations problem. If a way has at last been found for the settlement of the differences between Germany and France, and if both countries discover the real path to balanced budgets and stability of currency values, we may confidently expect to see the restoration of economic health in Europe within a comparatively short time and a corresponding favorable reaction upon the international interests of the United States.

Fortunately, conditions today seem to be more favorable than heretofore for such a settlement. And there are indications that Europe may be on the threshold of a market revival. Austria, which was apparently the most helpless insolvent, has been placed on her feet again. The economic demoralization of Germany apparently has been arrested. France has halted her unwise loan program. Italy has surprised the world by the masterly management of her finances. And the labor government has not so far disturbed the stability of Great Britain, which, by the way, reports a handsome Exchequer surplus for the second consecutive fiscal year, despite a cut in taxes last year.

Our Great Inherent Strength

Far more important, however, to the satisfactory development of trade and industry in the United States, as I have indicated, are the outstanding political problems presented by tax revision and the soldiers' bonus proposals now under consideration in Congress.

A recent estimate of the wealth of the United States places the total at the enormous figure of more than $320,000,000, or more than $2,900 per capita. This makes the United States by far the richest country in the world and constitutes it the most important world market. The task of supplying this vast domestic market alone is sufficient to occupy our own industries to a very large percentage of their capacity, thus almost assuring a constant high minimum of industrial activity. This gives us a strength of position that is in marked contrast with that of other manufacturing nations, such as Great Britain, France, Belgium and Germany, which must find a far larger proportion of their markets abroad and risk serious depession whenever such markets diminish their demand, as is the case at the present time.

This inherent strength in the economic position of the United States, as compared with other countries, has been shown by its relatively rapid recovery from the disastrous effects of the war and the postwar inflationary period. It creates an exceptional stability in trade and manufacturing which justifies a confident attitude towards the future. While it is admitted that prosperity in the United States can be materially lessened by errors of political policy, progress will still take place in spite of these obstacles. Few even in America realize the overwhelming impetus which its wealth of resources, its unexcelled facilities for transport, and the number and character of its population now give to the nation.

Thus, pessimism in regard to its future finds little justification at the present time. Only a catastrophe can check its upward and onward course and the possibility of such a catastrophe now seems remote. Experience has always shown that in the last analysis the conservative forces of the United States remain dominant. This is the year of a presidential election and coming months will no doubt be characterized by a certain hesitation in business. These influences, however, are essentially temporary in their effect and should not seriously retard the generally favorable progress of business. In fact, it is believed that the outlook for the future justified a reasonable degree of optimism on the part of trade and industry. The domestic market is very large, production and consumption are on a satisfactory scale, and the foreign situation is definitely improving. In fact, no country in the world is so soundly buttressed financially and economically as the United States today."

The election of officers to serve during the ensuing year was then taken up the following slate being presented:

For president, J. L. Fearing, International Paper Company, New York; vice president, New England District, Walter E. Perry, Chemical Paper Manufacturing Company, Holyoke, Mass.; New York District, F. N. Countiss, Martin Cantine Company, Saugerties, N. Y.; Chicago District, J. Ray Russell, Marathon Paper Mills Company, Chicago; Miami Valley District, R. T. Houk, Jr., Dayton, Ohio; Secretary-treasurer, Warren B. Bullock, New York.

PAPER MERCHANTS BANQUET

Jolliest Party of the Week Entertained by Stars from Ziegfeld's Follies—No Set Speeches

THE National Paper Trade Association of the United States closed its annual meeting with a banquet at the Waldorf Astoria on Wednesday evening, April 9, which was one of the most enjoyable ever held. It was attended by paper merchants and their guests from all parts of the country, the floor of the large ballroom being fully occupied by tables, some being placed in the rear passageways.

Best of the Series

In a week of banquets that of the National Paper Trade Association is distinguished by an absence of speechmaking. The entertainment provided for members and their guests is always of a high order of excellence and this year's assembly, the fourteenth in the series, was no exception to the rule, but rather surpassed previous performances.

All Join in Singing

During the course of an excellent dinner, served as none but Oscar can serve it, Conrad's orchestra played various selections and the jovialtiy of the gathering was manifested by all taking part in singing the choruses. Through the Ned Wayburn Office, Inc., several stars from Zeigfeld Follies had been secured to repeat their acts at the Waldorf, among them being Ann Pennington, who gave the Dimple Knee dance and received many encores. Will Morrissey acted as master of ceremonies in his own inimitable fashion and was a host in himself.

A Happy Continental Crowd

Edna Leedom and Dave Stamper gave their performance of "Trying to Get into the Follies." Dave rattled off some of his popular songs on the piano and all present tried their best to sing and whistle with him.

It was a happy contented crowd that adjourned shortly after eleven o'clock to the Astor Gallery where dancing was enjoyed until the early morning hours.

Simplification Committee

The meeting of the Simplification Committee, held Tuesday morning at the Waldorf-Astoria, was attended by a representative gathering of manufacturers, distributors and consumers. Various speakers favored getting behind the simplification program which has as one of its main features the adoption of eight basic sizes. The meeting unanimously endorsed the simplified practice recommendation as embodied in the action made at a general conference of representatives of manufacturers and users of paper which met at the Bureau of Standards in Washington on June 19, 1923. The stock sizes which are approved by Tuesday's meeting are:

General printing and publishing—26 x 29 inches; 29 x 52 inches; 25 x 38 inches; 38 x 50 inches; 32 x 44 inches; 44 x 64 inches; 35 x 45½ inches.

Book publishers—30½ x 41 inches; 41 x 61 inches.

Forms and letterheads—17 x 22 inches; 22 x 34 inches; 17 x 28 inches; 28 x 34 inches; 19 x 24 inches; 24 x 38 inches.

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Consolidated Officers

Offices of the Outagamie Paper Company have been removed from Kaukauna, Wis., to Appleton and consolidated with those of the Patten Paper Company. Judson G. Rosebush recently acquired control of the Outagamie Company and the change in the business headquarters was in the interest of efficiency, making it possible to centralize operations. The business of the Outagamie Company is now being handled by the Patten Paper Company. The operating force at Kaukauna has not been changed and several clerks will remain there to take care of manufacturing details. A. C. Remley is in charge of the mill at Kaukauna.

An amendment to the articles of incorporation of the Patten Paper Company, Limited, recently was filed in the office of the secretary of state at Madison, putting that company in the million dollar class. The capital stock has been increased from $100,000 to $1,000.000. The papers bear the signature of Judson G. Rosebush, president, and Eric D. Lindberg, secretary of the company.

* * *

Fear Spring Floods

The annual spring floods are taking place along the Wisconsin River Valley and the many paper mills are on the alert to prevent damage that will interfere with operations. At Stevens Point reports tell of the river overflowing the dikes and inundating a large section of the city. Relief in the Portage Street district is said to be dependent solely on the ability of the gates in the Consolidated Water Power and Paper Company dam to carry off the river water and keep the level of the river lower than that of the slough. Thus far the big dam of the Consolidated Company has been able to cope with the situation, partially because of river conditions in the valley. Lack of rains last fall sent the river to a very low stage and the reservoirs between Wausau and Rhinelander contained only 7 per cent of capacity. In March the Valley Improvement Association of Wausau reported only 12 inches of snow north of Wausau, a condition that indicates the water may be drained off more gradually than usual.

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To Build Addition

The Menominee and Marinette Paper Company, Menominee, announces plans to erect a $200,000 addition to its plant.

Pulp and Paper Men Dine

Annual Dinner of the American Paper and Pulp Association Marked by Speeches Bearing on Industrial Progress—Indexes of Production and Consumption are Indicative of Advancing Civilization According to President Barnes

THE attendance at the forty-seventh annual banquet of the American Paper and Pulp Association, held in the grand ballroom of the Waldorf-Astoria on Thursday evening, April 10, was quite up to the expectations of Secretary Baker and the Committee of Arrangements, headed by President Henry H. Stokes, assisted by G. G. Abernethy, A. Calder, L. H. Davey, Herman Elsas, A. S. Guggenheimer, C. F. Guild, W. Lloyd Heath, Roger B. Taft and G. M. Whitmore.

President Stokes Toastmaster

President Stokes was toastmaster and occupied the center place at the speakers' table where he was flanked on right and left by the chief speakers of the evening and many of the past presidents of the association. The banquet hall was festooned with flags, those of the United States and the State of New York being conspicuous. In the decorations of the tables flowers were not spared and the scene was one of great beauty. At the tables the guests found handsomely engraved menu cards in heavy covers which gave, besides the menu, the names of the speakers, officers, committees and former presidents of the association. At each plate was placed an ornamental package containing a de luxe Ever-Ready shaving set with extra blades, a gift of the manufacturers. Saratoga Geyser water was supplied ad. lib. by the Saratoga State Waters Corporation.

An Attractive Menu

The menu was up to the usual Waldorf-Astoria standard of perfection, consisting of

Cold Spring Harbor Oysters
Sorrel Soup with Toasties
Celery Olives
Aiguillette of Sole a la Bonne-femme
Potatoes, Hollandaise
Sweetbreads a la Florentine
Squab Chicken en casserole, Waldorf
Hearts of Lettuce, Russian Dressing
Bombe Villeneuve Ice Cream
Assorted Cakes Macaroons
Coffee

Mr. Barnes on Trade Indexes

In a few well chosen words, Toastmaster Stokes at 9:30 o'clock introduced Julius H. Barnes, president of the Chamber of Commerce of the United States who delivered a lengthy address on trade indexes. For more than an hour and a half he poured out a flood of statistics dealing with the progress of industry throughout the world, with special regard to the standing of the United States.

Taking individual industries he referred to the index of iron production and consumption as an indicator of industrial progress, the advance of civilization being traced in the annual record of the use of iron and its metal products. The health tables of cities and attendance figures in schools and colleges might also be considered an index of development, he said.

Indicators of Progress

The indicators of progress in the paper trade are to be found, the speaker said, in the cold statistics of industry, which are nevertheless warm with human meaning.

Mr. Barnes spoke without notes and his delivery was rapid, so that the whole speech impressed one as a great mnemonic feat. He traced the progress of America for 143 years, the following paragraphs embracing the main points of his address.

Industrial Progress in U. S.

It was of vast significance to the world, he said, that here in America 6 percent of the world's population produces annually, and converts to the manifold shapes that lend themselves to human use, practically half of the world's production of the basic materials of industry. It was of immense importance that the United States produces 43 percent of the world's coal, and consumes 42 percent; that it produces 54 percent of the world's iron, and consumes 53 percent, that it produces 64 percent of the world's steel and consumes 57; that it produces 49 percent of the world's copper, and consumes 44; that it produces 64 percent of the world's oil, and consumes 72; that it produces 52 percent of the world's timber, and consumes 51; that it produces 69 percent of the world's cotton, and consumes 37 percent.

Significance of the Statistics

But above and beyond these striking figures of the accelerated conversion of the wealth of nature into forms of use through the basic processes of industry, runs the significance of the fact that 6 percent of the world's population produces 43 percent of the world's production of print paper, and uses at home practically a half of the entire world consumption. In its last analysis, the production and consumption of newsprint in this astonishing degree by 6 percent of the world population is the greatest assurance of achieved progress in America, and holds forth the greatest promise for the expansion of world industry, year by year. American enterprise, American adaptability, American earning power, are strikingly shown in the fact that America so readily visualized the possibilities of the automobile, and so adapted it both as a widener of social contact and as a great earning contribution, that this 6 percent of the world's population produces 92 percent of the world's automobiles, and uses in its service 90 percent of the world equipment. When we add to this extraordinary record the fact that this 6 percent of the world population possesses almost half of the railroad mileage of the world, and almost three-quarters of the telegraph and telephone equipment of the world, we begin to visualize those devices which, created by ingenious and inventive minds, have been harnessed to the service of industry.

An Example of Other Nations

If, he continued, we have in America developed a new means of quick and ready transport which establishes marketing opportunity and economic independence to vast areas of production without the enormous capital investment of the earlier railroad; if we have found in this great country such use of that agency of transportation that it has created a new marvel of industry, and, by the very earning power which it itself facilitates, found a market for the unprecedented aggregate of fifteen million automobiles, then the natural question arises as to why the new and undeveloped regions of the world will not, given political and financial stability, follow America's example?

In this picture comes with peculiar promise to the paper trades the fact that, through all the ages, the permanent record by which proven experience and knowledge is transmitted to succeeding generations, has been the major reliance of the world. The paper trades of America had their recent years of trial, accentuated by the fact that war, and its aftermath, and the succeeding inconclusive peace, have checked, among Europe's three hundred million people whose living standards approach our own, the advancing living standards by which we prove the advancing standards of America. Those advancing standards rest most securely on increased knowledge and experience, which themselves base on a more general appreciation of the printed page.

The whole leadership in living standards which America holds forth as the inspiration for the rest of the world rests on the demonstrated earning power which follows certain ideals, methods, practices and philosophies that are peculiarly American.

From the very moment that highly productive industry became assured by the discovery of steam generation in 1781, America's industrial progress has been one of, first, slow, then rapid, development, of the harnessing of nature's forces to the service of industry.

Adaptation of Machine Production

This progress has clearly rested on America's adaptation of machine production, by which the power of every pair of worker's hands to create something for human use, has been steadily enlarged. The figures of power service, the figures of various kinds of power consumption, show the enormous growth of machine production. It is not alone that the average yearly consumption of coal of a century ago, of 140 thousand tons, has risen now to 575 million tons; it is not alone that in forty years the production of crude petroleum has risen from 26 million-barrels annually to 700 million barrels annually. Parallel with these most striking figures runs the story of electric light and power, which has risen in twenty years from two and one-half billion kilowatt hours per year, to fifty billion. These things mark the accelerated speed with which America's industrial methods and practices convert the basic materials of Nature into the shapes for human use, and they are the security on which rests earning and buying power.

This conversion of industry to a machine-power basis, instead of man power alone, rests primarily too on a people of developed mentality and intelligence that can direct the vast and intricate machines of productive industry. Here America is beginning to realize on its capital investment of generations of public school education. America's industry is constantly invigorated with a new and virile leadership through a social system that closes no door of opportunity through birth or accident of station, because we have no concept of social stratification. The door of opportunity swings in America for energy and ability, which of itself lends new vigor and enterprise to industry.

Now through this whole social structure, and responsive to the demands of industry which require knowledge and intelligence as never before, runs the sure assurance of undiminished demand and use for the printed page, for all it can print of accurate information and guidance. Here is a vision of enlargement for this industry which runs parallel with a justification of healthy profits which expanding industry should itself assure. So that it seems today there is a vista of promise of expansion of industrial and social reliance on the industry which prepares the sheet on which will be spread the information and knowledge which stimulates human activity and secures its earning power as well, that may well give a peculiar pride and confidence to this particular one of America's great industries.

A Trip to South America

Before introducing the next speaker, Toastmaster Stokes told of a trip which he had made to South America and how he had been impressed by the evidences left in the great capitals of that country by the Spanish and Portuguese invaders by whom civilization and the Christian religion had been introduced.

Relations of Capital and Labor

Frederick P. Fish, chairman of the National Industrial Conference Board was then introduced and talked at considerable length of the relations of capital and labor, so that it was nearly midnight before the Reverend Doctor W. Warren Giles had an opportunity to be heard. Mr. Fish said that in the United States the tremendous problem of equitable relations between employer and employee had been solved with more satisfactory results than in any other country of the world.

Dr. Giles Lets Out a Secret

In rising to speak, after a suitable introduction by Mr. Stokes, the Reverend Doctor Giles struck a sympathetic chord in the audience by saying, "I want to take you into my confidence and say that I am not a statistician so you will get home before twelve o'clock, and I will tell you that I am not a lawyer so that you may expect to get to bed before morning." He then pointed out some of the dangers with which civilization in this country was threatened and spoke of a little white book which he always carried with him, concerning which not enough was generally known by the great masses of the people and the politicians.

He Utters a Warning

Taking a pamphlet out of his pocket he waved it above his head and said the little white book he referred to was this—the Constitution of the United States. It was time, he warned, that our statesmen returned to the ways of the fathers of our country and be guided by the Constitution. The well-being and safety of our country was menaced, according to the late Pope Benedict, by five modern plagues and these were enumerated by Dr. Giles as (1) The unprecedented challenge to authority; (2) hatred between races; (3) Aversion to work; (4) Excessive thirst for pleasure; (5) Complete materialization of life.

Touches a Spiritual Note

The burden of Doctor Giles' address was an appeal to return to the spiritual outlook of the founders of our country, as in that way only could lasting success be obtained. All else was evanescent. He closed on the spiritual note of mystic meaning by telling the story of a beautiful woman who died recently in Edinburgh. In her last illness she kept reaching for a little locket suspended above her neck, and those who surrounded her dying bed felt sure that the secret of the belle of Edinburgh, who had never married despite the most advantageous offers, would be found in that locket. When the locket was opened after her death all that it contained was a little piece of paper bearing some words testifying to her love for Christ, beginning "Who having not seen I have loved."

The Reverend Doctor Giles proved a most capable successor to the former chaplain of the association, the Reverend Doctor Nehemiah Boynton, who is now in foreign parts. During the course of his short but eloquent address he was frequently interrupted by applause and at the close he was heartily cheered.

The list of guests:

James M. Abell, G. G. Abernethy, Chas. Addoms, H. A. Adler, P. Aitchison, Chester W. Alden, Lynn E. Aldrich, L. M. Alexander, Magnus W. Alexander, Judge Allen, P. M. Allen, Philip R. Allen, R. L. Allison, C. A. Alpers, Frank Amy, L. C. Anderson, Richard T. Anderson, J. A. Andrew, A. C. Andrews, Joseph Andrews, L. O. Angevine, G. Asplund, L. Astrom, Geo. H. Attfield, Edw. H. Austin.

Charles J. Babcock, P. R. Bachman, O. Bache-Wiig, Harry F. Badgley, John L. Bagg, John S. C. Bailey, G. F. Baine, C. W. Baker, Hugh P. Baker, W. E. B. Baker, H. R. Baldin, A. J. Baldwin, Arthur J. Baldwin, Charles H. Baldwin, Charles Ballin, W. F. Bancker, Julius H. Barnes, L. E. Barnes, W. J. Barnes, J. V. Baron, Nicholas J. Barrett, A. O. Barrows, N. L. Bartlett, A. C. Battersby, Philip C. Batzle, Richard Bauer, W. M. Baxter, Jr., S. C. Bayless, Edward Beck, Leon Beck, F. L. Becker, George W. Becker, M. M. Beckett, Chas. W. Beers, C. R. Bell, Howard R. Bemis, Bernard Benson, H. J. Berger, B. F. Bicking, C. N. Bicknell, H. O. Bing, Louis Bittner, W. M. Blackford, J. G. Blaine, B. O. Booth, L. W. Bowker, N. J. Bowker, H. H. Bowman, S. F. Boyd, D. D. Bradish, James E. Bradley, C. W. Brenn, Edward H. Bridge, W. F. Bromley, D. K. Brown (Strathmore), D. K. Brown (Neenah), H. H. Brown, W. F. Brunner, W. T. Brust, C. M. Bryan, H. Bryn, L. H. Buckley, Warren Bullock, Alfred Bunge, Fred W. Burbank, T. J. Burke, Fred T. Burkhardt, George Burkhardt, J. E. Burkhardt, A. A. Bush, E. H. Bush, George Buzzard.

George J. Cadwell, A. Calder, James E. Campbell, Holly R. Cantine, J. F. Capen, W. H. Capen, I. W. Carpenter, J. A. Carpenter, R. S. Carraway, H. P. Carruth, Albert P. Carter, George H. Carter, Hubert

L. Carter, W. L. Carter, A. C. Cary, Jr., Austin Cary, Charles H. Cashmore, C. V. Cassidy, F. C. Cate, R. A. Cauthorne, C. W. Chabot, Edwin C. Chadwick, Philip S. Chadwick, Charles L. Chapin, R. F. Chapin, Russell Chapin, W. N. Chapin, J. O. Chenevert, H. L. Cheney, Malcolm Chesney, S. Johs. Christensen, Claremont Paper Co. (Guest), F. B. Clark, H. V. Clark, John H. Clarke, Robert Clayton, W. G. Cleveland, C. A. Clough, George H. Cobb, Harry S. Coke, C. W. Collins, G. N. Collins, Grellet Collins, Ralph W. Collins, S. C. Collins, C. S. Colson, Lewis T. Condon, E. D. Conklin, H. H. Conklin, C. W. Cook, Stanley W. Cook, S. B. Copeland, John Cornell, A. R. Cornwall, C. E. Cortis, F. N. Countiss, J. H. Cowhill, Wm. Griscom Coxe, James H. Coy, Edwin S. Crabtree, George E. Crafts, Leon A. Crafts, F. G. Crane, Jr., H. W. Cressy, B. C. Crittsinger, C. A. Crocker, W. H. Croft, T. L. Crossley, M. E. Crouch, Allen Curtis, Geo. Custer, H. W. Chadwick.

C. E. Daley, A. C. Damon, A. B. Daniels, A. Millard Daniels, Walter E. Daniels, William L. Daniels, Samuel Dauman, Leigh H. Davey, C. S. Davis, L. M. Davis, W. L. Dawson, William Y. Dear, C. W. Dearden, Alfred DeJonge, C. E. Devonshire, W. F. Dewey, Henry Dickhaut, H. A. Dickie, Harry Dixon, M. C. Dobrow, Murray Dodge, Philip T. Dodge, Harry F. Donahue, T. H. Donlan, Thomas F. Donoghue, D. H. Doremus, S. W. Dow, Chas. R. Doyle, Harry W. Draudt, A. E. Dubey, D. A. Dunlevy, Theodore W. Dunn, G. J. Dunphy, A. H. Dwight.

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R. H. Fallon, H. S. Farleigh, D. G. Farwell, R. E. Farwell, Alton Faunce, J. L. Fearing, A. J. Feiler, J. F. Filbert, Frederick P. Fish, Paul S. Fiske, H. C. Fleischer, William Flohr, Frank E. Floyd, F. E. Forsbrey, A. N. Forsythe, Thomas R. Fort, Jr., Fred F. Fox, Harold Fox, Henry D. Fralick, C. Eduard Francke, Max Frank, B. A. Franklin, G. F. French, E. B. Fritz, K. B. Fullerton, Jr., G. E. Furniss, Thomas F. Fynes.

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THE AMERICAN PAPER AND PULP
ASSOCIATION
WALDORF-ASTORIA NEW YORK APRIL 10 1924

SCENE AT THE ANNUAL BANQUET OF THE AMERICAN PAPER AND PULP ASSOCIATION, THURSDAY EVENING, APRIL 10, 1924.

T. A. P. P. I. Has Brilliant Banquet

Judge Moore Sends Rhymed Address—Speakers Recount Progress in Science and Industry—Origin of Paper Interestingly Told by R. S. Kellogg, Who Impersonates Tsai Loun, Tutelary Deity of Papermaking

The Technical Association of the Pulp and Paper Industry moved this year to the Hotel Commodore for its annual banquet, the ninth in the series. The accommodations were all that could be desired and the menu was generally enjoyed. The absence of Judge Charles F. Moore from his familiar place as toastmaster was again noted with regret by all in attendance. His place was taken by Howard S. Taylor, president of the association, who displayed unlooked for ability as a toastmaster, discharging the pleasing functions of his position with noticeable success. After the coffee was served he announced that he had a message from Judge Moore which would be read by George E. Williamson.

Judge Moore to His Dear Techs

The Judge's message consisted of rhymed verses to his "Dear Techs," in which he made acknowledgments to the members of T. A. P. P. I. for the delightful associations of the past and touched on his present condition as the slave of illness. The verses are given in their entirety on another page of this issue of Paper. Before taking his seat Mr. Williamson made an appeal to those present to assist Judge Moore by purchasing his book "One Thing and Another," notices and order blanks of which would be found on every table.

Analyzing Industry

J. P. Jordan, president of the National Association of Cost Accountants, was then introduced by the toastmaster and made an address analyzing phases and growth of industry. He advocated the coupling up of cost accounting and executive control.

Paul T. Brady, of the Westinghouse Electric and Manufacturing Company, gave a long and instructive account of the evolution of power and pictured the possibilities of the future when the waterfalls of Niagara and other rivers were utilized to their fullest extent.

Tsai Loun and the Spirit of Papermaking

Toastmaster Taylor set the diners wondering by his next announcement, which was that an ancient Chinese document had been lately discovered dealing with the story of Tsai Loun, the inventor of paper. He said that Tsai Loun himself would appear and give a discourse on the Chinese origin of paper. Two figures attired in Chinese costumes then advanced to the piano, who were afterwards disclosed as Mr. and Mrs. Royal S. Kellogg. Mrs. Kellogg looked charming in an embroidered Chinese kimono. Announcing herself as the "Spirit of Papermaking," she played several Chinese selections and told of Chinese artistry in the efforts of the poets and painters of Cathy to get color and tone in wood, stones, etc.

The Curious Story of Tsai Loun

The musical overture finished, Mr. Kellogg took a position at the speaker's table and unrolling a lengthy Chinese scroll, recited the veracious (more or less) history of papermaking in China as developed in the story of Tsai Loun whom he impersonted.

Mr. Kellogg made a brilliant picture, attired in a flowing robe of green silk and wearing what was intended for a Chinese mandarin's cap. He added many curious details to the original story of Tsai Loun and gave the impression that this great historical character was a sort of "Wandering Jew" who still looked after the destiny of papermakers. He made him out to be one who was especially watchful over the preservation of sources of paper-making supplies, forests, etc.

Tutelary Deity of Chinese Papermakers

Tsai Loun was a celebrated man who lived in the time of the Emperor Ho-Ti about the year 100 A. D. He was held in high esteem by everyone; by his skill he invented the manufacture of paper from rags, hemp waste, fishing nets and the bark of trees. To papermakers in China he is a tutelary deity. His pagoda stands in the temple of Shue-Feng of Ta-Tong-Meng and there is always a large number of people in spring and autumn before his statue. The mortar in which Tsai-Loun pounded the fibers of the mulberry bark to make paper is still exhibited in the Imperial museum and exceptional honors are paid to this modest utensil. People and emperors have recognized in the mortar and pestle of Tsai-Loun the characteristic symbol of a new industry which was his own work. His invention placed paper at the disposal of all and he was acclaimed as a great discoverer throughout the empire. In his own country was paper used as it was in China, where everyone, poor or rich, small or great, learned to draw and to write on this medium.

Was Commissioner

Mr. Kellogg told a wonderful story of the versatility of Tsai-Loun who, among other posts under the Emperor Ho-Ti, held that of Commissioner of Agriculture. History records that Tsai-Loun was also Inspector of Trades; by his advice and with his methods, engineers and workmen made swords and various weapons with first class materials. In the first year of the reign of Yuan-Tch'ou, the Dowager Empress T'ang gave Tsai-Loun the honorary title of Marquis of Long-T'ing, for his services at the palace; the government gave him the ground-rents and products of the soil for three hundred acres.

Ends Own Life

According to one of the annals of the Chinese people Tsai-Loun did not die a natural death. Having been commanded by the Empress to invent calumnies against the grandmother of the Empress' consort, on the death of the Empress and the accession of the Emperor An-Ti, Tsai Loun was brought before the Ministry of Justice and accused of wrongdoing. He felt such shame and remorse that he poisoned himself. To this day however his name is venerated among papermakers throughout the world and Mr. Kellogg succeeded admirably by the account which he gave of his career in making his personality vivid. The story was greatly appreciated and Mr. Kellogg received many encomiums on his literary ability and of histrionic art the cheering being loud and continuous as he rolled up his scroll, gathered his robe about him and took his seat again with the party at his table.

Greetings from Canada

Edward Beck, secretary of the Canadian Pulp and Paper Association, was introduced and made a characteristic talk which kept the assembly highly entertained and vastly amused. He said that the absence of

George Carruthers who was unable to be present on account of business was much regretted. Other notable Canadian absentees who were usually to be found in attendance at the meetings of T. A. P. P. I. were R. W. Hovey who had left Iroquois Falls several days ago on his way to New York but had failed to show up.

Editor Stephenson

Joe Stephenson, an unfailing attendant at the meetings, was now in London superintending the Canadian exhibit at the British Exposition at Wembly and learning to say "My Word" and wear a monocle; while Arthur Dawe was sailing for Australia on the morrow in an effort to ascertain why Australian publishers did not buy more paper in Canada.

Dawe's Portable Typewriter

As secretary of the Canadian Pulp and Paper Association, Mr. Beck had assisted Dawe in the work of outfitting him for his trip to the Antipodes, but had been rather upset by some of the requests that had been made of him. Arthur had considerable trouble in getting all that he asked for. One day he would ask if it would be all right to take along a portable typewriter. Mr. Beck, or some other official in the association, said, yes, it would be all right "If she would pay her own expenses."

Industry Assists Government

Mr. Beck said he had been an interested attendant at the meeting of the Technical Association that morning when the subject of educating the French Canadians had been brought up. He mentioned that steps had been already taken to provide a French edition of the textbooks. The Canadian Pulp and Paper Association was active in its support of research. Recently a deputation from the association called on some government officials in Ottawa and were greeted with "Well, what do you want?" The officials were rendered speechless when told that the Canadian Pulp and Paper Association was there to offer the government a subsidy or yearly sum of money to support the work of the Forest Products Laboratory.

Mr. Beck closed an address of more than ordinary interest and retorical excellence by expressing the hope that the day would come when there would be no international lines and they would have only one industry and one technical association.

Impressions of European Mills

The last speaker of the evening was John Traquair, of the Mead Pulp and Paper Company, Chillicothe, Ohio. Mr. Traquair had just landed that morning from an ocean steamship. He has spent some time in France, Belgium, England and Scotland and gave some impressions of his trip. The industry was, he said, fairly flourishing in France and Belgium but much depressed in England and Scotland. England was now under a socialistic government and was affected injuriously by the emigration of a large number of artisans and trained workers.

Scotch Esparto Mills

He visted a number of Scotch esparto mills and commented on the fine sheet of paper they were able to produce with a furnish of 80 percent esparto and 20 percent of wood.

The feel and look-through compared very favorably with most United States papers. More attention was paid he said to specialties in British mills, quality being the first consideration rather than quantity of production.

It was a late hour before the party broke up but all were unanimous in praising the committee of arrangements for the excellent entertainment provided in the way of speechmaking and music. A professional entertainer occupied a seat at the speaker's table and at intervals he would be called upon to tell stories always of a humorous character, which he did with inimitable art and accent, so as to make the soberest member of the party unbend and risk the buttons of his waistcoat in laughter.

Those Present

The list of those who had seats at the banquet follows:

W. C. Ahlers, L. M. Alexander, Fred L. Allen, Adam E. Armstrong and guest, W. H. Artz.

J. S. Babbitt, Hugh P. Baker, W. E. Byron Baker, W. Noyes Baker, Lawrence F. Barsaloux, George D. Bearce, Edward Beck, Mrs. Edward Beck, T. A. Bennett, H. J. Berger, E. A. Bergholtz, L. M. Booth, Paul T. Brady, Thomas J. Burke, Mrs. Thomas J. Burke, John E. Burkhardt, James A. Cameron, James L. Carey, L. R. Carpenter, Emmett B. Carter, George H. Carter, M. L. Caust, A. B. Clark, Mrs. A. B. Clark, F. C. Clark and guest, Samuel Clayman, Max Cline, W. C. Clingan, Grellet N. Collins, Ward Comstock, Edward B. Cowles, Mrs. Edward B. Cowles, T. Linsey Crossley, Lester W. Crouse.

J. A. DeCew and guests, C. P. Deitrick, Richard H. DeMott, William F. Dewey, Philip DeWolf, G. W. Dodge.

George C. Emigh, C. M. Eshelman.

Herman C. Fleischer, Maurice C. Fleming, S. W. Fletcher, Mrs. S. W. Fletcher, Edward B. Fritz, Mrs. Edward B. Fritz, P. H. Glatfelter, Gilbert H. Gleason, John H. Graff and guest, John Grieve, Martin L. Griffin.

Carl S. Hamersley, H. P. Harris, Kenyon Harris, H. H. Harrison, Hugo Hartig, George H. Harvey, Raymond S. Hatch, C. H. Helvey, C. L. Higgins, H. H. Holden and guest, Harold M. Holmes, A. H. Hooker, H H. Hooker, Benjamin K. Hotchkiss, Russell C. Hughes, Edward Hutchins.

S. W. Jacobs, Frederick I. Jacoby, Irving C. Jennings, W. O. Johnson, Robert McC. Johnstone, Willis T. Jones, J. P. Jordan, Mrs. J. P. Jordan.

Harry Kay, H. O. Keay, Thomas J. Keenan, R. S. Kellogg, Mrs. R. S. Kellogg, Miss Ruth Kellogg, Miss Helen U. Kiely, T. T. Kintzing, Paul Koenig, Herman L. Kutter.

Arthur W. Lamb, Ralph W. Leeper, Frank D. Libby, H. H. Lockey, Lowell E. Longstreth.

W. G. MacNaughton, Louis W. Mahle, Clarke Marion, Julian W. Maxson, B. T McBain, Ira R. McCall, J. W. McCammon, W. S. McClellan, John McEwan, Miss Louise E. McGrath, Ogden Minton, William D. Mooney, Charles F. Moore, W. H. Millspaugh and guests.

E. H. Neese, W. S. Newell, W. A. N. Newton, A. W. Nickerson.

James E. O'Connell, James J. O'Connor.

F. W. Partsch, Mrs. F. W. Partsch, P. A. Paulson, Harold L. Peckham, O. M. Porter, Miss Helen Pritchard, R. W. Pryor, Jr., Mrs. R. W. Pryor, Jr.

R. M. Radsch, G. F. Reale, Edward O. Reed, Charles F. Rhodes, H. T. Robbins, John R. Roberts, J. O. Ross, Mrs. J. O. Ross, John D. Rue.

C. Frank Sammet, F. M. Sanger, A. Lyman Satterthwaite, Thomas H. Savery, Jr., Carl C. Schneider, H. Z. Schniewind, F. T. E. Sisson, R. Skagerberg, H. J. Skinner, A. F. Smith, Frederick L. Smith, J. J. Sokolinski, George K. Spence, George H. Spencer, W. W. Spratt, V. M. Stouck.

Howard S. Taylor, Mrs. Howard S. Taylor, E. C. Tucker.

J. M. Wade, Sigmund Wang, G. A. Ware, William J. Weed, Yuan K. Wei, H. H. Werley, W. A. Whitenack, Ralph H. Whitney, A. F. Wilcox, George E. Williamson, J. D. Williamson, R. B. Wolf, Mrs. R. B. Wolf, J. B. Woodruff.

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Supers Meet In May

The Northwest Division of the Superintendents' Association will hold a convention at Marinette, Wisconsin, on Friday and Saturday, May 2nd and 3rd.

The committee has arranged a splendid program and some very interesting and instructive papers will be presented at the meeting. The program also includes an inspection of paper mills in this locality.

Lunch for members and guests will be served in the cafeteria of the Marinette & Menominee Paper Company Saturday noon, May 3rd. The wind-up will be a banquet on Saturday evening; good speakers have been obtained who will talk on live, interesting subjects and a fine musical program has been arranged. The complete program will be announced later.

Program Committee are: William Eibel, treasurer and general manager, Peshtigo Paper Company; W. W. Hinnenthal, assistant manager, Marinette & Menominee Paper Company; P. J. Lamoureaux, general superintendent, Marinette & Menominee Paper Company; P. J. Sievert, superintendent park mills, Marinette & Menominee Paper Company; J. H. Slater, manager, Escanaba Paper Company; A. G. Stone, superintendent Menominee mill, Marinette & Menominee Paper Company.

Salesmen Make Merry at Banquet

Henry A. Wise Announces Wise Plan at Annual Banquet of Salesmen—Entertainment of Merit Follows

THE long forecast and expected Wise plan to cope with the lamentable import situation was announced by its originator Henry A. Wise, long an attorney for the pulp and paper industry, at the annual convention of the Salesmen's Association atop the Waldorf-Astoria on Tuesday evening of convention week. With the topic "European Competition" he gradually led up to the plan.

Despite the fact that the plan was at least temporarily shelved by the American Paper and Pulp Association it merits publication.

In opening his address Mr. Wise reviewed the things which have made the papermaker's lot here almost intolerable. "All things being equal the United States mills should have produced all the paper used in the United States."

He further said that "imports would be of small account except for their effect on the price of the entire market," and there the attorney hit the crux of the entire matter.

Mr. Wise is a protectionist. He emphatically said so in these words: "I am a protectionist first, last and all the time. I am a protectionist, unequivocally, irrevocably." And he pointed out the need for protection for the paper industry in America.

"Only five per cent of the production causes all the rest to be sold at a loss," was one startling statement he made.

"In any other country industry would combine to destroy this competition. Here industry is constrained to live under laws which are sometimes detrimental to the vital industries of the country. The American manufacturers must not combine to destroy this competition, despite the will of the people is for protection."

Taking up the actual import situation, Mr. Wise said: "Either the tariff rate is too low or some shinanigan is going on somewhere."

He then asked the question: "Why doesn't the government protect American industry?" And he went on to answer it by telling of the work of the appraisers and calling on the paper companies for assistance for the "legitimate elimination of illegitimate European competition."

The Plan in Brief

The only effective action can be secured, he said, by "starting at the fountainhead in foreign countries and following through to the American consumers, to see that every legitimate requirement is met, to learn the actual cost of manufacture in the foreign countries, the selling price there and the export sales price."

"The cost of the organization to do this, will be insignificant," he went on to state. "As it will be a protective agency for the entire industry the plan must be adopted by the entire industry and every manufacturer should come in."

Mr. Wise asserted that under the present Tariff Act unfair methods of competition and unfair acts in the importation or sale of imported articles, which substantially injure a domestic industry, are in effect declared unlawful.

Under-valuation, improper classification and dumping of imported paper undoubtedly substantially injure the paper industry; and if it desires protection from these unlawful acts that industry must create an organization which will enable it to secure the protection to which it is entitled.

With knowledge a proper organization will be able to act immediately to prevent the unfair methods or acts which are declared to be unlawful.

It should be apparent that it is impossible for any single domestic manufacturer to maintain an organization sufficient to afford him the protection to which he is entitled; yet such protection is merely a form of insurance which every manufacturer should have.

Under the Wise plan the activities of the organization would be under the direct supervision of legal experts giving immediate attention to any problems which might arise.

An office would be maintained under the direction of a paper expert and the organization would include the necessary office help and experts in the Customs Service so that complete information would be had at all times, not only with respect to actual importations of paper but also covering foreign markets, foreign manufacturers, foreign production, foreign consumption and the paper available for importation into the United States.

At the call of President J. L. Fearing, who acted as toastmaster for the dinner, there was a rising vote of approval of the Wise plan. Practically all those present stood up, only a small minority holding their seats.

Kaltenborn Speaks

H. V. Kaltenborn, of the *Brooklyn Daily Eagle,* who has long been a speaker at paper industry affairs, spoke on "Current Events." From his vast knowledge of affairs that are large and timely Mr. Kaltenborn spoke interestingly. He took up and interpreted with an optimistic spirit the oil scandal, conservation, the reparations question and the stand of the various nations, thereon, Mussolini's success in Italy, the Dawes report. The Dawes report he called the last hope of the salvation of Europe.

Following the speaker a number of entertainers gave their acts, while throughout the evening, there was spirited singing.

The menu served was tasty and varied. Filet Mignon of Beef, a la Rose, with green pleas saute in butter was the piece de resistance while it was garnished with Cherrystone Cocktails, Turtle Soup, William Penn, Celery, Olives, Broiled Sea Trout, Hollandaise, Potatoes, Parisienne, Hearts of Romaine, French Dressing, Fancy Ice Cream, Assorted Cakes, Macaroons, Coffee, Cigars and Cigarettes.

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St. Regis Man On Visit

W. F. V. Atkinson, manager of the St. Regis Paper Company of Canada at Godbout, in the county of Saguenay, Que., was a visitor in Toronto a few days ago. Mr. Atkinson stated that the St. Regis Company have extensive undertakings in progress at Godbout. A power house of 600 h. p., and 500-foot head, is being constructed and will be ready by June 1 generating hydro-electric power. Booms, piers, etc., have been built up on the Godbout River for about a mile and a half. As the pulpwood comes down through the booms it will be lifted by a jack ladder into a V-shaped flume about 7,000 feet long, into which water will be pumped. The logs, as they emerge from the flume, will travel through chutes into 14-foot draft canal steamers, which will take the product to Watertown, N. Y., for use in the company's mills across the border. About 500 feet of deep sea wharf have been constructed at Godbout. The company buys most of its wood from settlers in the district. Several thousand cords of pulpwood will be handled from Godbout during the present season and it is rumored that the St. Regis Paper Company intend putting up a 200-ton newsprint mill at Cap Rouge, Que., and that preliminary steps are now under way.

Baker Tells of Finances and Imports

Secretary Takes Up Vital Subject in Annual Report to the Paper and Pulp Association

Speaking Frankly

Secretary Hugh P. Baker, secretary of the American Paper and Pulp Association, went straight to the heart of the matters that are troubling the pulp and paper industry, in his annual report to the American Paper and Pulp Association at the Waldorf Astoria last week. No attempt was made to sidestep the issues and the discussion was free and open. It touched upon practically everything that has poked its nose above the horizon during the last 15 months.

The financing of the organization, the import problem, and the various departments of the association are all discussed in detail. The report has much of interest for every person connected with paper and pulp making.

THE year ending March 31, 1924, has been one of very definite accomplishment for the Association. This accomplishment has been both along the line of increasingly effective service to the industry but particularly in the direction of changes which promise to put the Association onto a sound financial basis for the future.

The year in the industry has been one of somewhat difficult adjustment to changing economic conditions, and yet the close of the year brings the conclusion that 1923 was pretty nearly a normal year in the industry, in fact rather more normal than any year since 1914. If economists serving the business interests of the country are correct, the paper industry like other great industries of the country, is facing a period of slowly declining prices during which competition at home and abroad will be excedingly keen probably making it necessary to do business on a narrower margin of profit. This will doubtless be a period in which the high cost mill or mine or factory will gradually find itself unable to meet competition with the low cost mill or factory.

It was emphasized in the report of the Secretary last year that if there is ever a time when a trade association should be of service to the manufacturer, it is in a period of difficult business adjustment. The past year's experience has proven this assertion in that the well organized associations have been giving more efficient service to the groups which they represent, and the less well organized associations have felt keenly the demands of their membership for greater efficiency. There is a growing appreciation in industry that a well organized trade asociation stands for definite accomplishments in the industry which it serves, and further that the trade association is in fact a part of American industry and, therefore, must play an increasingly important part in the economic development of the country.

Possibly some of the associations in the paper industry and in some other industries have concluded hastily that business conditions warrant doing certain things that are generally recognized as activities that may lead to difficulties under the law. What a legitimate association may and may not do has been very clearly established, and there is no need today for either a secretary of a trade association or the members of that association pleading ignorance of what may be done under our present anti-trust legislation.

Service by the Association

There are two forms of service given by associations in the paper industry to their members. The first and most effective form is what is called Direct Service; such as, statistical activity, holding of meetings, reports on traffic and transportation and the personal work of the secretary. The second form of service is the representation of the group which the Association serves with other groups in the industry or with other industries, the watching of helpful and harmful legislation which the Association is always in a position to work aggressively for and against, and finally the representation of the industry before the public.

American Paper and Pulp has been able to develop through closer and more harmonious work with affiliated associations, forms of very direct service to the paper industry. Some of the most important phases of this direct service are:

1—Monthly statistical summary of the paper industry.

2—Weekly statistical reports for groups not served by organized groups, or groups without a paid secretary.

3—Monthly statistical reports on imported pulp and paper.

4—Quarterly reports on pulpwood situation.

5—A printed monthly bulletin which in no sense competes with the trade papers, but rather takes the place of form letters or special mimeographed reports.

6—Reports on general economic conditions affecting the entire industry.

7—Special import service dealing with the difficult situation confronting the industry in the way of papers being imported under wrong classification and undervalued.

Emergency Service

Meeting emergency needs in the industry in the way of coal, pulpwood, casein, tariff, etc.

Meeting and Conferences

Arbitration

Assisting mills not served in this activity by affiliated associations in arbitrating difficulties between the buyer and the seller.

Indirect Service

1—Representing the industry—with other industries, with the government, and before the public.

2—Contacts of helpful character with the National Industrial Conference Board, Chamber of Commerce of the United States, Association of Wood-Using Industries, etc.

3—Contacts with foreign countries with purpose of keeping the industry informed on foreign conditions.

Committee Activities

Two years ago the policy was adopted of doing away with standing committees in the Association and their replacement by special committees to do a particular piece of work. The standing committees have been continued only as there seems to be a special work to be done during the year. This policy has proven to be a wise one, in that a standing committee that does not have regular work to do soon comes to feel that it is of little service, and that possibly if the committee is not active the Association, itself, is not active.

Probably the outstanding committee activity during the year, has been the development of an Advisory Committee from the Paper Industry for the Department of Agriculture. This committee is made up of representative men from the entire industry, whether members of the Association or not, and during February held an exceedingly intersting meeting in Washington with Secretaries Hoover and Wallace.

The principal committee activity in the industry itself has been the formation of a Committee on Perpetuation of the Paper Industry of the United States, of which Henry W. Stokes, President of the Association, is Chairman. This committee has been carrying on some exceedingly interesting work.

Woodlands Section

The Woodlands Section was organized in 1920 for the purpose of bringing together executives and their assistants having to do with woodlands. Since its organization the Section has been able to provide the industry with accurate and timely statistics as to the wood situation, and it has increased the effectiveness of these statistics by graphs and charts. The Section has as its purpose not only statistics but it is working to increase the efficiency of woods operations in the industry, to encourage the practice of forestry on timberland holdings, and to provide a medium for gathering and dissemination of information which will promote the permanency of the woods operations of the pulp and paper industry.

Wood is the raw material of a large part of the industry, and it is increasingly important that we should have information of an accurate character as to available supplies of wood, both in this country and in Canada, and how to make these supplies permanent for the industry.

O. M. Porter, Assistant Secretary of the Association, has been Secretary of the Woodlands Section and has developed this work very effectively. His report upon the work of the Section for the year appears elsewhere in this bulletin.

Information Service

This service was organized in 1921 under a special fund contributed to the Association both by members and non members. Warren B. Bullock, a trained newspaper man, was placed in charge and he has made this service of very distinct value to the industry, particularly during the past year.

The industry itself, other national industries and the public are coming to the Association as never before for information as to where various papers may be secured, how papers may be used for new purposes and many other questions. It is important that the industry should have some agency through which this information can be given out, keeping in mind, of course, always that information given is accurate and truly representative of conditions in the industry.

The limited funds assured the Association for 1923-24 makes it necessary to give up the Information Service. A Special Committee on Association Activities and Program, of which Norman W. Wilson is Chairman, has studied the activities of the Information Service fully and believes that these activities have been of great value to the entire industry. Even with the necessity of discontinuing the Information Service this Committee has recommended that the Association carry on an Information service through the regular association channels.

The Paper and Import Situation

In the report of the Secretary for the year 1922, the tendency toward a difficult competitive situation with foreign paper was referred to as follows: "Great quantities of paper are being brought into this country under improper classification and, of course, to the detriment of the paper industry. The industry should have a man who understands thoroughly the importation of paper who could keep close touch with the larger ports to see that paper is brought in under right classification, and secure information as to importations. Such work cannot be done with the present force of the Association."

In the report of the secretary for 1923 reference was again made to the need for an aggressive import service as follows: "A very important piece of work could be done for the industry by the Association having in its employ a man who understands thoroughly the importation of pulp and paper. Every time that a shipment of paper is brought into this country undervalued or wrongly classified it injures the industry. No one can estimate the amount of paper that is being brought in and wrongly classified and undervalued. The Association is keeping in as close touch as it can with customs officials at the port of New York and elsewhere and the specific cases which the customs officials of New York have brought to the attention of the Association in the past six months are clearly indicative of the very great help which could be given the entire industry if this work could be handled in a more effective way. Furthermore, such a man could keep the industry thoroughly informed as to the pulp coming into this country, how much is in warehouses, etc. The value of this information does not need to be enlarged upon —your secretary is so convinced of the necessity of service along these lines that he will continue to emphasize them in the hope that eventually such service may be given—and the wonder will be then that the service was not given before."

The Association has been keeping this import situation before its membership for more than two years not only through annual reports of the secretary but through repeated form letters and in the monthly bulletin of the Association. Your secretary has appeared before regular meetings of the larger affiliated associations to explain the situation and emphasize the necessity for action. Finally, in November, 1923, after repeated efforts to get accurate information by letter, a conference of manufacturers was called at the Waldorf-Astoria. At the Conference some 20 odd mills were represented and the situation was fully discussed and a resolution was passed urging the continuance of the work.

The difficulty all the way along has been that our manufacturers as a whole have not appreciated the emergency conditions which might arise from the constant bringing in of these foreign papers. Complaints have been so general that it has been impossible to take different cases to the government officials concerned. There has been large correspondence carried on in an attempt to get specific evidence of papers wrongly classified and undervalued but too often without success.

After a great deal of work certain cases were taken to Washington, but with little or no direct action because of the lack of evidence that such competition was actually injuring individual manufacturers within the industry.

If we are facing a period of declining prices with keener competition and lower margins of profit, there is greater necessity than ever that the Association work more aggressively in meeting this situation.

The Salesmen's Association of the Paper Industry has emphasized the situation through advertisements in the trade press and at their annual meeting just completed. Out of the agitation and work of this Association for the past two years and with the interest aroused by the work of the Salesmen's Association, it should not be necessary to continue to emphasize the necessity of action. There should be very definite action and that in a way that will meet the situation.

In presenting this situation during the past two years your Secretary has asked that the Association be given a customs expert to assist in the carrying on of the work. This same plan of action was presented before affiliated associations and at the November Conference. The situation became so difficult in January that your officers decided to temporarily give up the work of the Information Service and discontinue the monthly bulletin, and put all of Mr. Bullock's time into the import situation. Results achieved have proven the wisdom of this action. While Mr. Bullock is not a customs expert, his training as a newspaper man makes him of great value in securing needed information. As there has come necessity for technical assistance in the determination of papers, etc., he has gone to W G. MacNaughton, Secretary of the Technical Association of the Pulp and Paper Industry, a technical man who has given very valuable assistance and who is ready to continue this assistance.

Your secretary recommends that the work which the Association has been doing the past two years be strengthened at once by the addition of a customs expert. With the Association machinery already functioning and with the experience which the Association has already had, it seems that the results desired could be achieved at the expense of a single customs expert. When need arises for special legal assistance this could be financed by the groups concerned.

Income Tax Activities

In the report of your Secretary in 1922 and again in 1923, the necessity for aggressive service to the industry along income tax lines was emphasized. Last year your Secretary urged the retention by the industry of an income tax expert. This suggestion was made because of the knowledge of what other industries and other national associations are doing in meeting their income tax problems.

As in the case of the suggestion as to a customs expert, this suggestion as to an incom tax expert was not considered of vital importance to the industry. Therefore, this Association urged the Cost Association of the Paper Industry to take up income tax work as a part of its service to the industry. That Association has been giving some very helpful service along income tax lines. The Cost Association should be supported much more generously by the industry, not only for the service which it may give along income tax lines but for the help which it can give in emphasizing the necessity for satisfactory cost work in the industry.

Contact with the Federal Government

Under this heading your Secretary has discussed in his reports of 1922 and 1923 the close contact which the Association is maintaining with various agencies of the federal government.

Last year it was stated—"It is safe to assume, and many of our manufacturers will assert as the result of more or less expensive experience, that the federal government is continuing with passing years to take greater cognizance of economic conditions generally and of the individual business of paper manufacturers, and all of the other manufacturers of the country. So long as this is the case it would appear to be wisdom for the industries generally to develop more effective cooperation as between the business men of the country and the federal government. To put it another way, there are mighty few arguments against such cooperation."

Through the efforts of the Association the past four years to maintain the right contact with Washington, it is now generally appreciated among the government departments that this Association represents the industry, and when it speaks it speaks for the industry. This has been exceedingly helpful in getting the right consideration for the industry's problems at Washington.

Next Year

Your Secretary counts the past year and the year ahead better years as there comes greater opportunity for service and as he feels that the Association has made its work count for something in the up-building of the industry. As your secretary has become better acquainted with the industry and with the men making up the industry, he has come to appreciate that there are much greater opportunities for service before the Association than in the past, and he hopes that it may be possible to make these greater opportunities for service the means of protecting promoting and perpetuating the industry.

Last year in his report the secretary stated: "The fundamental need for the coming year is for a sounder and more effective method of financing this Association—If the Association is worth while it should be supported in a reasonably effective way, if it is not worth while the Association should be wiped off the slate and forgotten—The Association is worth while and three years of service with you has made me believe tremendously in the industry, in you men who make up the industry and in the Association itself."

The chronic financial difficulties of the Association finally came to a head in the early winter, just past, and your President, Mr. Stokes, took hold of the financial problem in a way that means a better Association.

Early last December the President appointed two Special Committees, one on Finance, of which W. J. Raybold is Chairman and the other on Association Activities and Program, of which Norman W. Wilson is chairman. Owing to the fact that there was a deficit when your secretary came into the Association in 1920 and the fact that most of his service with the Association has been during a period of business depression, it has made it excedingly difficult to meet the increasing demands for service and at the same time get the Association onto a sound financial condition.

You will hear today that Mr. Raybold's Special Committee, with the aggressive assisance of Mr. Stokes and Norman W. Wilson, and in fact of every member of the Association, has been able to raise funds sufficient to put the Association square with the world. This seemed like an impossible task when it was approached in December, 1923, but hard work has accomplished the seemingly impossible task and the Associatoin opened this fiscal year on April 1 without deficit or financial obligation of any kind.

Another phase of the difficult financial situation was the irregular and uncertain method of financing the Association. The report of the Special Committee on Association Activities and Program, which will be presented today by its Chairman, Norman W. Wilson, will indicate the thorough study which this Committee has made of the Association's problems and the solution proposed by that Committee, if accepted by you, will put the Association onto a sound financial basis. In fact the acceptance of this report means a turning point in the life of the Association of very great importance. With direct financial support by the individual mills and, therefore, direct financial responsibility for the Association, we should be able to go forward not only on a sounder financial basis, but on the basis of sounder and more effective service.

The fundamental need for the year 1924-25 in the work of the Association is for a better personal contact between the working force of the Association and its membership. Four years of effort to develop more direct service has gradually brought the secretary and his assistant into closer contact with the manufacturers. This contact should be carried still further, for only as there is a real working contact between the staff and the manufacturers can the Association know accurately the need of the industry and meet those needs as members of the Association feel that they should be met.

Limited funds may prevent the staff from spending as much time in the field as they should spend. The luncheons held in the different papermaking sections last year were very helpful and in the long run are less expensive than it would be for the secretary to spend enough time in any given section to meet the executives who would attend a luncheon in a group. These luncheons should be continued, that there may be discussion of the vital problems in the industry rather more than the problems of the Association.

There are other needs to be met in the work of the Association, but now that the financial burden has been lifted from the Association it should be possible for the Association staff to be more effective in all of their work.

Your Secretary appreciates more than he can express the solution of the final problem of the Association, which has been carried through by President Stokes and Vice-President Wilson. It has been a privilege to work with these men during the past year. Few members of the Association appreciate the time and thought demanded of the officers of the Association. Mr. Stokes and Mr. Wilson particularly have met all of the demands of the Association in a fine, generous spirit that has meant everything to those who are carrying forward the work of your Association here in New York.

The Association, after all, like any organization of men, is what the members make it. Your officers can but assist, and to repeat what has been said in previous reports "How much that assistance (from the officers) will mean to the Association will depend largely upon the way in which you meet, not only the Secretary, but your President and your Executive Committee in the work which they are trying to do for you."

* * *

Seaman Company Moves

On April 19th the Seaman Paper Company of 208 South LaSalle street are moving their general offices to the 10th floor of the new Wrigley Building.

Starting in 1902 as a small paper house, the Seaman Paper Company has grown steadily during the last twenty-two years, until today it enjoys a position second to none in the manufacture and distributon of all grades of paper throughout the entire United States.

In Chicago they have a seven-story concrete warehouse located at 411-23 W. Ontario street, carrying probably the largest stocks of book and other papers in that city.

The new phone number will be State 2100.

The officers and directors of the company are: George M. Seaman, President; A. J. McKay, Vice President and Assistant to the President; J. B. Seaman, Vice President, (New York); D. R. Seaman, Vice President; George D. Jones, Vice President; C. W. Sherman, Treasurer; F. A. Borchers, Vice President and Secretary; F. M. Stephens, Vice President and Sales Manager; J. Poole, Vice President and Assistant Treasurer.

* * *

Elect Officers

In a regular meeting of the Wrapping Paper Association of Chicago held on the evening of April 10th the following officers were elected for the ensuing year:

Jas. S. Danehy, Schwarz Paper Company, president; John Daily, Daily Brothers, 1st vice-president; Leo Altholz, Inslander-Steindler Paper Company, 2nd vice-president; Peter O'Leary, Rauth Brothers, secretary; William Ensweiler, Pomeroy Paper Products Company, treasurer; E. H. Allen, Allen, Ward, Myers and Schwartz, assistant secretary.

Notes of New York Trade

Schedules in bankruptcy have been filled by the Bauer Paper Box Company, Inc., of 440 Lafayette Street, New York. Liabilities are placed at $21,071, and assets at $27,700, main items of which are fixtures and stock $16,000, and accounts $8,500. The principal creditors are the Yorkville Bank, $6,500; John F. Boyle Company, board dealers, $2,269; Marwin L. Smith, $1,727, and Earle E. Cort, $1,613.

* * *

Stuart Henry was appointed equity receiver for the Manitou Paper Company, dealers in wall paper at Broadway and Fifty-seventh Street, New York, on April 7 by Judge Learned Hand in an action filed by M. Francis Hunt, who asserted a claim for $5,000 was not paid. Liabilities are estimated at $71,672, and assets, consisting of paper, real estate, machinery and accounts, at $126,000. The receiver's bond was placed at $25,000.

* * *

An event of Paper Week in New York was a dinner and entertainment given by Albert T. Hicks, Walter R. Hicks and Leonard F. Hicks, of Daniel M. Hicks, Inc., importers of and dealers in paper mill supplies of 200 Fifth Avenue, New York, to a group of their paper mill friends who were in this city for the convention and exposition. The "evening" took place in a private parlor of the Pennsylvania Hotel on April 9, and following the serving of dinner a fine vaudeville program was staged.

* * *

The plant of the Lion Supply Corporation, dealers in waste paper and papermaking rags at 931 Courtland Avenue, New York, was badly damaged by fire early on the morning of April 10.

* * *

Among the visitors in New York during Convention Week was George A. Just, president of the Graphic Arts Exposition to be held in Milwaukee, Wis., this summer, Mr. Just coming to the convention with the paper delegation from the Wisconsin city. He reported that plans for the exposition were progressing rapidly and that Milwaukee is striving to make the event a great success.

* * *

The Lappert Trading Company dealers in papermakers' supplies, has moved from 132 Nassau Street to the National Bank Building, 1819 Broadway, New York.

* * *

The firm of S. J. Fisher, Inc., dealers in paper manufacturers' supplies and specializing in old rope and bagging, is planning to move to larger quarters on May 1 at 263 Front Street, New York. The concern is now located at 309 Water Street, New York.

* * *

According to predictions made in the financial district of New York this week, a plan calling for the reorganization of the American Writing Paper Company will soon be submitted to stockholders of the company. Engineers are working on an appraisal of the property, and the completion of this work is expected to hasten the formulation of a plan.

* * *

A new record of attendance was set at the sixteenth annual banquet in the East Ball Room of the Hotel Commodore, New York, on the evening of April 9 of the Waste Merchants' Association of New York, whose membership comprises practically all of the large dealers, packers and brokers in papermakers' supplies of Greater New York. The 225 members and guests present included quite a few paper and board mill men, who were the guests of the stock dealers. During the serving of a sumptuous dinner a jazz orchestra provided lots of music, and the diners joined in singing many of the popular songs between courses. After dinner a splendid vaudeville show was put on, the performance taking place on a stage erected in the center of the dining room, and the tables being so arranged as to give everyone a direct view of the stage. The cabaret troupe from the Rockwell Terrace Restaurant in Brooklyn, which included vocalists, dancers and a beauty chorus of eight young ladies cavorted on the stage and sang and danced for about two hours. The banquet committee consisted of Walter R. Martens, of George W. Millar & Company, Inc., Alfred J. Moran of the Alfred J. Moran Company and Charles Passanante of the Wilson Paper Stock Company.

* * *

With Marr-McDonnell Co.

The Marr-McDonnell Co., of Mt. Holly Springs, Pa., manufacturers of bond, ledgers and special papers of rag content, who have been quietly building a reputation on high grade papers during the past two years, are sending out to the trade, notices that Byron Weston and Bruce Babcock have become affiliated with the company's interests and will provide the desired personal element, necessary to properly care for the firms' rapidly increasing business.

Mr. Weston comes from the well known Weston family, papermakers, of Dalton, Mass., his grandfather being the original Byron Weston, and his father the late Franklin Weston. Mr. Weston possesses the necessary resuirements to make a complete success in his new connection and already is very favorably known in the trade.

Mr. Babcock needs no introduction to the paper trade, having served the industry in various capacities since 1894 and his well rounded experience will be of great assistance to the Marr-McDonnell Co., whose progress is already being favorably noted by the trade.

* * *

Future For Oregon

The United States geological survey recently reported that the water powers of western Oregon will soon be in as much demand as those of California are today, with the rapid increase in the use of such power and the improvement of long distance electric transmission.

The report dealt specifically with the power possibilities of the Smith, Trask and Nestucca rivers, which are within easy transmission distance of Portland, Oregon.

The total potential power with regulated flow on the three rivers amounts to 21,600 horsepower for 90 per cent of the time and 47,700 horsepowerfor 50 per cent of the time.

The total estimated water power of the United States is 54,000,000 horsepower. Oregon has 6,615,000 horse power or more than one-ninth of this water power. This water power greatly reduces the expenses of manufacturing industries located in the state.

* * *

Plan An Association

At a meeting in Montreal a few days ago of the pulpwood dealers of the Eastern provinces, pulpwood merchants from four provinces took preliminary steps to form a Canadian-wide pulpwood dealers association to protect their trade and insure general Dominion-wide co-operation in all movements aiming at forest protection and improved operating methods. The action of the meeting resulted in the formation of an organization to be known as the Canadian Pulpwood Association. Angus McLean was elected president pro tem and Ralph P. Bell, vice-president and secretary, pro tem. Later on these officers met members of the Quebec Pulpwood Dealers' Association, when it was decided to retain that organization and to co-operate with the Dominion Association.

Papermaking Opportunities in the South

Availability of Raw Material, Power, Markets, Labor and Climate Point to Early Development of the Paper Industry on a Big Scale

By CHARLES A. McKEAND

General Industrial Agent, Seaboard Airline Railway

THE object of the Seaboard Air Line Railway exhibit at the second annual Paper Industries Exposition is to present to those interested in the development of pulp and paper industry, the opportunities to be found in the South for further expansion of the industry.

It would be useless for me to go into a technical discussion of the manufacturing of paper from variuos types of Southern timbers. You are all aware that during the past few years there have been many successful mills launched in the various southern states engaged in the manufacture of kraft papers. You are no doubt aware of the development carried on by the Forest Products Laboratory at Madison, Wis., and by individual paper engineers and chemists for the development of magazine book paper, cardboard, wall board and other types too numerous to mention.

Paper Made From Pine

In our exhibit here we have on display samples of book paper made from a combination of pine and gum and the pulp panel which we have for distribution embraces the processes used in the production of this pulp. It is therefore useless for me to go into an explanation of the processes. I wish rather on this occasion to present to you the broad features of the South from a manufacturing standpoint. In doing so I wish to discuss the following fundamentals: (1) the availability of raw material; (2) power; (3) markets; (4) labor; (5) climate.

As to materials there are twenty-six places located at various points on our rails offering pulp material in sufficient quantities for the location of a pulp and paper mill. By sufficient quantities I am speaking in millions of of cords. I have picked places where there is in sight at least ten million cords contingent to these points figuring future supply.

The average growth of pine in the six states traversed by the Seaboard, namely, Virginia, North and South Carolina, Georgia, Alabama, and Florida, is such that timber will regrow to a pulp size in twenty years. I mean by pulp size those from six inches in diameter up. The manager of the pulp mill at Hartsville, S. C., stated that from a timber tract close to their mill on which an intelligent logging process had been in vogue, his company had taken an average of ten cords an acre, three times in fitfeen years. Almost any of the cut-over pine lands of the Southern states over which lumbering operations have been conducted, offer unlimited possibilities for the regrowth of pine pulp supply. The low marshy lands of our coastal rivers afford a plentiful supply of rapidly growing gum wood and on the hillsides and in the river valleys of the Southern states are found various other types of hard and soft woods suitable for various phases of the industry.

Endless Source of Pulp Supply

Not only will our timbers in the South reproduce more rapidly than in other regions of the United States, thus eliminating the necessity of a mill organization carrying a large timber reserve, but the farms of the South will be found a never ending source of pulp supply; practically every farm in our territory being largely timbered and the farmer will be glad to avail himself of the opportunity during the winter months to cut and deliver to the mill cord wood receiving a cash payment, which will add greatly to his farm income and help him in carrying on a well balanced farming enterprise.

Practically all the smaller mills now existing in the South secure their entire pulp supply in this manner and they have never experienced a lack of a plentiful supply.

Not only does our timber grow rapidly but the yield per cord for the various types of Southern woods is greater than that of Northern woods.

In addition to the plentiful and continuous supply of pulpwood the South offers other materials for use in the pulp and paper industry, such as kaolin and rosin sizing. The kaolin mines of Georgia are among the finest in the world and a great many of you gentlemen present are thoroughly familiar with the clays produced in these mines. We have on exhibit at our booth samples of clay from the famous Dry Branch District of Georgia, the samples having been furnished us by Moore & Munger, operators of these mines.

The naval stores industry of the South produces your rosin sizing. An intelligent turpentining operation on growing pulpwood will increase the revenue per acre of your timber holdings and give you an adequate and profitable crop in rosin, turpentine and rosin sizing. At the completion of such operation, you still have available the original wood for pulp supply.

Power

The second item of importance in this industry is that of power. The South has assumed the leadership during the past few years in the development of her waterpower resources. The streams of the Southern states have a potential seven million H. P. of which only 1,500,000 has been developed. Through a plan of interconnection, the various power companies have formed a super power zone, making it possible to transmit power through these connections from one section of the South to another, thus affording us a quantity of power unequalled in the United States. For heavy load machinery such as is required in the pulp industry, the Southern hydro-electric power offers attractive inducement. At those places out of the power zone but suitable for the location of a mill, because of the accessibility of raw materials, we have through our various Southern ports splendid service for the delivery of fuel oil. The coal fields of Kentucky, West Virginia, Tennessee and Alabama offer an unlimited and un-ending supply of coal for industrial purposes, produced at a figure delivered at the mill which is indeed attractive to the industries. You know that coal delivered at $5.50 to $6.00 a ton is very attratcive in comparison to coal delivered for $10.00 to $$12.00 a ton as in the North.

Markets

You who are keen students of the market problems are fully aware of the movement westward of the purchasing population of this country. Points in the South are closer to the great purchasing centers of the Middle West through the Ohio and Mississippi gateways than are the hills of New England and Canada, and at the same time it is a shorter haul to the Northern markets of the East from various Southern points than it is from the mills of Michigan and Wisconsin.

An item in connection with this is the fact that the rail delivery to the central purchasing sections from Southern points would be those from the East, thus assuring more over rail lines less congested with traffic than those from the East, thus assuring more prompt and efficient delivery at less cost.

The great ports of the South Atlantic and Gulf make possible the shipping coastwise by water of the product of our mill, or the shipping by water to the Pacific coast, thus affording you a decided advantage over the mills located in the East and North, that use a long rail haul.

In addition to the transportation facilities for delivery of your product to the markets of the central East and North, I call your attention to the fact that the purchasing power of the South itself has increased 40 percent in the past ten years and if the curve projected into the future reads aright, the South will see a 100 percent increase in its purchasing power in the next ten years.

Labor

In discussing labor, I am discussing the South's greatest assets. There has grown up an erroneous impression among the Northern people as to our Southern labor. I wish to call your attention to two classes of labor which we have, both of which is especially attractive to your type of industry. First is the white labor, all of which is native born Anglo Saxon, possessing a high degree of native intelligence, true to American principles which predominated this country fifty years ago, and a class of labor which will give you high production and an honest day's work for its wages and be loyal to the organization for which it is working.

In the South a man, such as I have been describing above, gives you two weeks' notice when he is going to quit and if you wish to discontinue his services you give him notice. Compare this, if you please, with the sudden determination on the part of the highly unionized radical type of labor in your Northern mill which decides to lay its tools down and quit without notice.

The labor such as I have been describing works fifty-five hour week in the Southern states. The other class of labor in the South which is attractive for an industry of your type is the negro labor, which would be used in the logging operations and the heavy manual work around your mill. This type of labor under the direction of a man who knows how to handle them will give you good results. I have seen a man from the sunny shores of Italy in a wood yard in New York pulp mill take longer to do a given job than I ever saw a negro in a Southern mill. I think those present representing Southern mills will bear me out in the statement that they have on the whole found this type of labor satisfactory.

Climate

Climate is the fifth fundamental necessary to your industry which offers an attractive Southern inducement, a climatic condition which makes it possible to work the year round. A climatic condition which eliminates the necessity of spending, as in northern and Canadian mills, forty to fifty percent of your coal bill for heating purposes in the winter. A climate which eliminates the necessity of erecting expensive buildings.

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* Presented at the T. A. P. P. I. Meeting in the Paper Show, April 10, 1924.

White Water Economy

New Process of Saving Fibers That Would Otherwise Be Lost—Chemical Coagulation and Sedimentation by the Boothal Process

By **L. M. BOOTH**

Booth Chemical Company
Elizabeth, N. J.

WHITE WATER Economy, What is it? The answer expressed in terms of "the truth, the whole truth, and nothing but the truth" is—"use it all."

By many experienced papermakers this scheme is considered an idle dream or a fond hope. On the other hand there are a number of mills where this procedure has been adopted following a diligent search for possible objections to such a plan.

Stock Lost in White Water

Stated in the simplest terms, the manufacture of paper consists in the separation of solids from the liquid portion of a water suspension of the stock. In common with all processes, perfection has not yet been attained, so that as practised on the familiar fourdrinier or on the cylinder machine, the separation is incomplete. The water which passes through the wire carries with it some of the stock, hence white water is produced.

The long continued presence of the stock in the white water has an unfavorable influence on each of the components, in that the stock decomposes and in so doing, contaminates the water with the products of decomposition. It is therefore under certain conditions unfit for reuse.

Supplemental Process

Since it is apparent that 100 percent efficiency in stock and water separation is not attainable by the paper machine alone, a supplemental process must be sought as a means of further separation.

White water usually carries from 0.83 to 8.3 lb. of stock per 1,000 U. S. gallons, equivalent to 0.01 percent to 0.10 percent consistency. It is unnecessary to conduct extensive research to develop a radically new process, or to experiment with untried principles in order to solve the problem, because white water responds to the same general class of treatment that for years has been the standard method of water purification for municipalities, paper mills, etc., namely coagulation by chemicals, followed by sedimentation.

Simple Sedimentation Inefficient

In many mills, it is the practice to settle by plain sedimentation, such of the stock as separates most readily, and to use this back in the process. This still leaves a relatively large volume of low consistency white water which must be promptly separated into its constituents, stock and water in order to use these to the best advantage.

Fortunately the separation of the stock and water is easily and effectively accomplished by chemical coagulation and sedimentation. According to authoritative works on water purification, the ancient Chinese utilized aluminum hydroxide precipitates for clearing water of suspended matter. This uses antedates the birth of Fourdrinier by thousands of years. It is thus apparent that man knew the principles of handling the white water, long before he had a paper machine with which to produce white water.

An Old Process Modernized

The ancient basic idea has been brought up to date, including the adoption of means particularly adapted papermaking needs. Use is made of a balanced, and complete coagulant whose constituents mutually react. The product of this reaction, aluminum hydroxide, entraps the fiber and other suspended matter so that these may readily settle and be separated from the water in a suitable settling tank.

Boothal Coagulation Process

Besides settling the stock, a freshly made precipitate of aluminum hydroxide has the effect of coagulating colloidal substances such as clay or resin which may thereupon be promptly returned to the paper machine. Because of the speed of handling, there is no opportunity for slime producing decomposition to occur. In some mills using the Boothal coagulation process, cleaner paper is being made than formerly as a consequence of the substitution of clarified white water for the regular mill supply of fresh water for beaters and showers.

Saves Both Pulp and Water

The present state of the art of separation of pulp and water and their utilization in the manufacture of various grades of paper from tissue to boxboard is such that all of the stock furnished to the beaters may be delivered in the form of finished paper. Another important advantage is that by the utilization of the clarified water for showers, etc., it is possible for many mills to increase production without developing additional fresh water supplies. Some manufacturers are confronted with vexing stream pollution regulations. These have no terror for, and are automatically complied with by, those who have found that it is cheaper to save and use both constituents of white paper, pulp and water, than to cling to conservation methods of yielding less than 100 percent efficiency.

The only "save-all" that *saves all* is the system which *uses all.*

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ALBANY COMPANY TO HAVE CANADIAN MILL

A. P. W. Paper Company To Have Mill in Canada to Furnish Pulp To American Mills

THE contract for the erection of the buildings at Sheet Harbor for the Albany Perforated Wrapping Paper Company of Albany, N. Y., has been awarded to the Parsons-Ed Company, of Moncton, N. B.

The A. P. W. Paper Company have been operating three mills in New York state for a number of years. Some time ago, the company sent representatives to eastern Canada to select a site for a pulp mill that would supply pulp for the company's United States mills. After some deliberation, it was decided to purchase the property of the Sheet Harbor Lumber Company which included vast tracts of pulpwood lands, and property fronting on the Atlantic Ocean. A lumber mill and a rossing mill that had been operated by the former owner, was also included in the transaction. During the past winter, preparations were made for the building of the pulp mill.

The main building will be 175 feet in length, and eighty feet in width. It will be of reinforced concrete and brick. The contract to the Parsons-Ed Company also includes the installation of the equipment including the grinding and barking systems. The mill is to be ready for operation early in 1925. The power will be supplied by the St. Margaret's Bay hydro-electric station, an agreement having already been effected whereby the company secures the electric current at a very cheap rate.

In addition to the pulp mill, there will be erected at Sheet Harbor, shipping piers on the water front. From these piers the bulk of the pulp manufactured at the mill will be shipped to the New York state mills. The piers will accommodate steam and sailing craft. On the piers will be constructed warehouses. Other buildings to be erected will include cottages for the employees, but a start on this construction will not be made until about midsummer. The mill will be started this month, the excavation for the foundation having been completed. A special incentive has been offered for the completion of the work either late this year or early next year. The firm of builders having the contract in charge have built a number of important buildings in eastern Canada, but this is the first pulp or paper mill that will have been undertaken by the firm. The A. P. W. Paper Company has several representatives at Sheet Harbor supervising arrangements for the construction work, including R. K. Jones as manager.

Asbestos Dryer Felt Introduced

A New Product By H. N. Hill Being Introduced in the Paper Industry

THE Asbestos Dryer Felt has been perfected to meet the needs of the Paper Industry for a Dryer Felt that would have long life, dry paper more uniformly, and be free from stretching and buckling.

The life of Dryer Felt is limited by certain destroying influences: 1st, the heat of the Drying Cylinders burns the life out of the fibres; 2nd, the felts suffer decomposition due to always running in a moist state; and, besides, one must not overlook the strong pull which finally causes them to tear.

It is evident that a felt composed of a material not attacked by heat and decomposition must have a very long life. Asbestos is such a material, but since it has little strength it much be combined with a texture resistant to pull. The Asbestos Dryer Felt has an asbestos face and a backing of hard twisted, loosely woven cotton yarn. The cotton cloth takes up the pull, and is protected by the insulating asbestos layer from the heat of the Cylinder.

The chief advantage concerning its duration is that the asbestos is not attacked by heat, and therefore the felt is exposed to very little wear.

Canvas Felts suffer most in the middle because the heat of the Cylinder is greatest there, and the Felt is cooled by the air on the edges, consequently they wear out first in the middle and after a certain time the cloth lengthens, forms buckles, and finally folds. The thinner the felt, the more it will fold. Asbestos Dryer Felts are too thick their nature. Besides, the Asbestos Dryer Felt is not attacked by heat and therefore will not lengthen.

Asbestos Dryer Felts are made only in one weight, which is much thicker and heavier than the Canvas Felts used here. This thickness is one of the chief advantages of this Felt. It forms a strong backing for the asbestos, eliminates any tendency to buckle or stretch, and holds the paper tightly against the Cylinders, making a more uniformly dryed sheet.

Asbestos is a very flexible material, which, when moist, becomes smooth and forms a uniform surface. It absorbs water very easily and gives it up again very readily, therefore it dries very quickly. The Dryer Felts become moist, as it is well known, and must be dried again on the Felt Dryer. This moisture is due not so much to actual absorption as to the condensation of the steam in the felt. The Asbestos Dryer Felts are loosely woven so they will pass the steam readily and dry quickly.

The upper surface of the Asbestos Dryer Felt is dressed in such a way that it does not close the pores of the fibre, but the fibres are smoothed so that they have a strong affinity for water and dry the paper well.

Surprisingly long runs have been obtained in Europe, but it is difficult to make a comparison between runs made there and what may be expected here, because they use almost exclusively a heavy *Woolen Felt* that has much longer life than Canvas Felts used here. Woolen Felts have a normal life of about 12 to 18 months, and in exceptional cases from five to six years. The Asbestos Dryer Felts are giving from 50 to 100 per cent. more service than the Woolen Felts, so they presumably should have a life many times longer than Canvas Felts.

The life of felts vary so greatly, even in mills making similar grades of paper, due to various conditions, that results obtained in one mill hardly would be a guide to what might be expected in another mill.

The principle of Asbestos Dryer Felt is correct, and it has been perfected after years of experiment, so that it is actually being used by hundreds of paper mills making practically every grade of paper, from high grade tissue to news and at speeds up to 700 feet per minute.

The Asbestos Dryer Felts are supplied endless, or with ends woven in three tissue layers which are interleaved and sewed together, making a smooth, strong joint.

This is a very simple operation and is unquestionably the most satisfactory way to put on a Dryer Felt.

Measuring

In measuring the Dryers for an endless felt, enough slack should be allowed to get the last roll in place without bringing undue strain on the Felt. The Dryer should be measured with a steel tape or the old Dryer Felt measured from seam to seam.

Top Dryer Felt

All of the Felt rolls must be taken out. The Felt should then be stretched out over the tops of the Dryers. When this is done, the rolls carrying the upper part of the Felt should be put in place by slipping the rolls in between the top and bottom layers of Felt and placing them in their respective brackets. The top part of the Felt, now being held up by the Felt Carrying Rolls, it is an easy matter to press the Felt down between the Dryers and insert the rolls to hold it in place. The Felt can then be tightened up to an easy tension and is ready to run.

Bottom Dryer Felt

All Felt Carrying Rolls must be taken out. The Felt should then be stretched or rolled out under the Dryers. If there is a pit under the Dryers, enough of the Bottom Felt Carrying Rolls should be put in place to keep the upper part of the Felt suspended above the pit. If there is no pit under the Dryers, the bottom Felt rolls should be inserted under the Felt and the Felt pulled up between the Dryers. The Felt Carrying Roll can now be placed under the Dryers, hoisted up and placed in the brackets. This must be repeated for each Felt Carrying Roll between the Dryers. When the rolls are too heavy to be raised up by hand a light chain hoist or rope tackle should be used for hoisting them into place. The bottom roll should be put in last, leaving the most accessible roll, in both top and bottom, Felt until the last one to be put back into place. All Felt rolls should be examined for loose or defective journals before being put back into their respective places.

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Increases Earnings

The Belgo-Canadian Paper Company has been able to increase its earnings since the last of its new paper machines was brought into operation, and it is understood that they are now running at the rate of about 15 per cent on the common shares. This is equivalent to about five and one-half times preferred stock dividends. With its new machines Belgo has a capacity of about 115,000 tons of newsprint a year and is now a nicely rounded-out newsprint producing company.

AMERICAN MILLS NOT TO GO TO CANADA

Paper Manufacturers of the United States Emphatic in their Declaration

IN a memorandum submitted to the Canadian Pulp Wood Commission, pulp and paper manufacturers of the United States interested in the supply of wood from Canada have let it be known that there is very little likelihood of American pulp and paper plants being quickly transferred to Canada through the placing of an embargo on exports of pulpwood. The moving of such plants, it is pointed out, would either involve the scrapping of large investments in the United States, or the duplicating of a part of them in Canada. It is also contended that instead of moving their plants to Canada, American mills would either seek to develop new supplies at home or in Scandinavian countries.

The memorandum also disposes of some very erroneous conclusions as to what may through legislation, be done to remove pulp and paper plants from one country to another. It says: "Pulp and paper mills will be established in the United Sattes and Canada wherever proper sites can be found and proper conditions exist, but the growth of this industry will be the resut of economic laws, not the result of statute laws."

In a summary of the evidence heard by the Commission it is pointed out that for the Dominion as a whole about 90 per cent of the forest area is publicly owned or Crown land; while in the province of Quebec, from which most of the exports of pulpwood go to the United States, 94 per cent of the forest area is held by the Crown. Since in practically all of the provinces the export of wood cut on Crown lands is prohibited, it is pointed out that an embargo would effect less than 10 per cent of the whole forest era, and that the wood now being exported is only from lands held by farmers and settlers, or from lands held in freehold by manufacturers in the United States, or from leases which have been granted by owners in Canada to manufacturers in the United States."

Referring to exports, it is pointed out that the proposed embargo would effect only 1.7 per cent of the total lumber cut, if farmers' and settlers' lands were exempted, as provided by the order-in-council passed last year. Furthermore, considering the fact that this order-in-council exempts from operation of any embargo all contracts made prior to June 15th, 1923, and than for a period of 10 years, the actual percentage of the total wood cut the embargo would apply to, would actually be 1 per cent or less, of the total cut, or somewhere between 100,000 and 150,000 cords per year.

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A. W. Taube Goes with Vernon Bros.

A. W. Taube, formerly with Marquardt, Blake & Decker, will become connected with Vernon Brothers, paper merchants, 66-68 Duane street, New York, and will specialize in the sale of book and coated papers to publishers and printers. Mr. Taube was for many years in charge of the manufacturing of the Frederick A. Stokes Company, publishers, and has therefore a wide range of experience in handling publishers' requirements.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Menominee, Mich.—The Menominee & Marinette Paper Co., has negotiations under way with the city for the purchase of a plot of land, to be used for the construction of a new plant unit, for which plans will be prepared at an early date. It is estimated to cost close to $200,000, including machinery. The present mill will be continued in service.

Brooklyn, N. Y.—The Scandore Paper Box Co., 169 Franklin Avenue, is taking new bids on a general contract for the erection of an addition to its plant, including improvements in the present structure for increased capacity estimated to cost approximately $60,000. William J. Hohauser, 116 West Thirty-ninth Street, New York, is architect.

Troy, N. Y.—The Manning Paper Co., Green Island, near Troy, N. Y., is said to be arranging for the installation of additional equipment at its local plant, including rolls, 24 x 72 in.; roll grinder and auxiliary equipment.

Quebec, Que.—The Gulf Pulp and Paper Co., 71 Peter Street, has plans under way for the erection of a new pulp and paper mill, estimated to cost in excess of $500,000, including equipment. It is expected to proceed with the project at an early date.

Fort William, Ont.—The Great Lakes Paper Co., is arranging an immediate call for bids for the construction of a new paper mill on site selected, consisting of a group of structures, with power house, machine shop and auxiliary buildings, to cost approximately $1,500,000, with machinery. A list of equipment will be available at an early date.

Antioch, Cal.—The Paraffine Companies, Inc., 40 First Street, San Francisco, Cal., is disposing of a bond issue of $750,000, the entire proceeds to be used in connection with an expansion program as arranged for the current year, including plant extensions and installation of additional machinery. The company specializes in the production of additional machinery. The company specializes in the production of building papers, boxboard and kindred products. Contract has been awarded to Fred Stamm, 25 A Street, Antioch, for the erection of an addition to the local mill, to be one-story, 220x300 ft., estimated to cost approximately $60,000. Work will begin at once. Plans were prepared by Leland Rosener, Insurance Exchange Building, San Francisco, engineer.

Kalamazoo, Mich.—The Sutherland Paper Co., has awarded a general contract to Oscar F. Miller & Co., Kalamazoo, for the erection of a new addition to its plant for considerable increase in output, estimated to cost about $100,000, with equipment. Work will be commenced at an early date.

Powell River, B. C.—The Powell River Pulp & Paper Co., has preliminary plans under way for extensions and improvements in its mills and properties, with the erection of a new paper mill unit to cost in excess of $3,000,000, including equipment.

Providence, R. I.—The R. L. Greene Paper Co., Fountain Street, is perfecting plans for the erection of three additional stories to its present building, and proposes to commence work at an early date.

Washington, D. C.—The American Waste Paper Co., Fifth and V Streets, N. E., has tentative plans under way for the rebuilding of the portion of its one-story warehouse, recently destroyed by fire. The reconstruction is estimated to cost $50,000.

New York, N. Y.—The B. & M. Paper Box Co., 372 Broome Street, has leased space in the building at 168 Greene Street, for extensions in operations for the manufacture of paper boxes and containers. Equipment will be installed at an early date.

Long Island City, N. Y.—Fire recently damaged a portion of the plant of the Ravenswood Paper Co., 545-71 Van Alst Avenue. It will be rebuilt at an early date. An official estimate of loss has not been made.

Framingham, Mass.—The Dennison Mfg. Co., manufacturer of paper specialties, has awarded a general contract to the Morton C. Tuttle Co., Boston, Mass., for the erection of an addition to its plant, including improvements in the present mill.

New Companies

Memphis, Tenn.—The Ramier-Hall Wax Paper Co., 1200 Shrine Building, has been incorporated with a capital of $50,000, to manufacture waxed and other special paper products. The incorporators are J. F. Ramier, and R. W. Hall.

New York, N. Y.—The Rising Star Paper Box Co., has been incorporated with a capital of $100,000, to manufacture paper boxes and containers. The incorporators are T. Thorner, J. and S. Siegel. The Company is represented by L. Diamant, 334 Fifth Avenue, New York.

New York, N. Y.—The J. H. Scott Paper Corporation has been incorporated with a capital of 500 shares of common stock, no par value, to manufacture paper products. The incorporators are A. E. Claffey and P. D. Benson. The company is represented by John McLaren, 154 Nassau Street, New York.

New York, N. Y.—The Best Make Paper Box Mfg. Co., has been incorporated with a nominal capital of $5,000, to manufacture paper boxes and containers. The incorporators are M. Schneider and M. Bookspan. Representative: Weinberg & Oltarsh, 158 Rivington Street, New York.

Los Angeles, Cal.—The Gates-Burns Paper Products Corporation has been incorporated with a capital of $200,000, to manufacture paper specialties. The incorporators are John J. Walther, A. E. Gates, and P. J. Newell. Representative: Fred E. Peterson, 611 Story Building, Los Angeles.

Kansas City, Mo.—The Hale Paper Co., has been incorporated with a capital of $10,000, to manufacture paper specialties, and deal generally in paper goods. The incorporators are Virgil A. Hale and R. F. Wood, both of Kansas City.

New York, N. Y.—Rocco de Fina & Sons, Inc., has been incorporated with a nominal capital of $5,000, to manufacture and deal in paper products. The incorporators are R. de Fina, and C. Catalonello. The company is represented by Aaron Morris, 277 Broadway, New York.

New York, N. Y.—Green, Low & Dolge, Inc., has been incorporated with a capital of $30,000, and 450 shares of common stock, no par value, to manufacture and deal in paper products. Incorporators: A. W. Green, F. G. Low and O. A. Dolge. The company is represented by J. F. Condon, 1315 Boston Road, Bronx.

New York, N. Y.—Friedland Brothers, Inc., has been incorporated with a capital of $15,000, to deal in paper goods of various kinds. The incorporators are S. Friedland and J. Lowenbraun. The company is represented by Isidore Lowenbraun, 116 Nassau Street, New York.

Financial

Augusta, Me.—A petition has been filed in the United States District Court for a merger of the Cushnoc Paper Co., and the Kennebec Paper Co., both of this place and in bankruptcy. It is maintained that the consolidation will permit successful operation and will allow the resumption of production at the mills at an early date.

High Bridge, N. J.—Frederick C. Ritger has been appointed temporary receiver for the Tri-State Pulp & Paper Corporation, a Delaware corporation with local mill. An order has been issued to show cause why the receivership should not be made permanent. The company is said to have liabilities aggregating $131,598.43, with book value of assets stated as $118,000. The application for the receivership was made by Frank G. DuBois, secretary and treasurer of the company, and a creditor in the amount of $21,748.42.

Plattsburg, N. Y.—The Saranac Co. has been merged with the Saranac Pulp & Paper Co., under the last noted name.

FORESTRY in the PAPER INDUSTRY

Conducted by J. R. Simmons, Secretary Forester, the New York State Forestry Association

FORESTERS PRESENT PLANS FOR TIMBER SUPPLY

Government Specialists for All Forest Regions Meet at Madison, Wis., to Further the Work

WHETHER or not we agree with them on all points of policy, the findings and recommendations of any group of intelligent men engaged in the growing of timber crops deserve careful consideration, and should be followed with cooperation. The specialists of the United States Forest Service have just met in conference at Madison, Wis., after three years devoted to intensive study on how to prevent depletion of the forests of the country. This is the experiment station forester's day in court, and having had some material part in the conduct of his investigations,—through the setting aside of private tracts for his observation, the submission of private data for his enlightenment, and even the contribution of funds for promotion of his work,—the pulp and paper manufacturer lends an interested and sympathetic ear to the testimony. He will willingly listen to that testimony as given by the forester himself.

Col. William B. Greeley, chief of the government foresters, leads off with the frank and vigorous statement that the measures proposed by the specialists under his charge will, if put into effect, call a halt to the conversion of forests into waste and idle land, and that they will assure the Nation at least a part of the timber it will need in the years to come.

With heavy cutting, destructive processes of logging, the practical certainty of fire in the debris left on logged-off forest land destroying seed or seed trees, and the prevalence of fire in forests of all ages, the forest often either disappears or greatly deteriorates, as the detailed reports for one forest region after another graphically portrayed before the Madison Conference. So far has the process of forest deterioration gone, according to the conference, that no steps that can now be taken will avert a serious shortage of timber during the next several decades, because of a lack of young growing forests. Measures to stop the further conversion of forests into waste unproductive lands, however, were strongly urged by the forestry specialists as the first step toward assuring a future supply of timber.

The recommended measures which have been worked out by Forest Service officials in consultation with timberland owners, lumbermen, and State officials, will be published as soon as they can be put into final form, so that all interested agencies may make use of them.

Control of forest fires was shown in every forest region to be the first practicable step toward keeping forest lands productive. From the Douglas fir region of the Pacific Northwest to the yellow pine forests of Florida, fire following logging was emphasized as the chief enemy of forest regeneration.

In the South, one of the largest and most important forest regions, fire control is practically lacking. In the Lake States, with 57 million acres of forest lands, control is far from effective, and nowhere is it fully developed. Public organization to combat the forest fire evil must, in the opinion of the forestry conference, be greatly strengthened. Timber operators must be required to abate the logging debris menace, to organize their crews for effective fire fighting, and to keep fire from starting in the woods. Lumbering as generally practiced was shown to create conditions of great fire hazard by leaving large quantities of inflammable debris which often ignites and causes highly destructive fires during the logging operations or afterwards.

Equally dangerous to future forest production in many regions, the research specialists showed, is the reduction of the forest by lumbering to the point where there is insufficient seed to reproduce a forest of satisfactory density or where the invasion of brush, weeds, or inferior tree species may prevent the reestablishment of a forest of commercial value. To overcome this destruction of seed and replacement of forest by brush various measures were recommended suitable to varying conditions, ranging from protecting seed in the ground litter in the Douglas fir region so that it can sprout after logging, to leaving seed trees in the Southern pine region, and leaving standing all trees below a given diameter in the California and Rocky Mountain pine region.

The same methods of preventing forest destruction are not applicable in all regions, according to Chief Forester William B. Greeley, who headed the conference. In general in most forest regions forest regeneration is comparatively easy, and with a fair share of help from the public in the way of fire protection and fair taxation of timberlands, the owner of forest land can fairly be required to keep it productive as a matter of public policy.

The measures to prevent forest destruction were supplemented by suggested methods for building up the productivity of second-growth forests by simple forestry methods. These recommendations are intended for timberland owners who desire to grow timber on a fairly intensive scale. Owners and operators in various parts of the country, it was shown, are already beginning to grow timber in order to keep their mills permanently supplied with raw material.

Serious as is the damage and destruction inflicted on young forests by fire, a still greater loss results from improper methods of cutting forests so that natural reproduction is hindered or prevented, said S. T. Dana, Director of the Northeastern Forest Experiment Station at Amherst, Mass. He laid great emphasis on inducing timberland owners to use better methods in harvesting their mature timber so as to permit the young growth to get started.

KILN DRYING APPLIED TO SEED PRODUCTION

Practical Ideas Applied in Various Ways

PRACTICAL ideas worked out during a period of years by men engaged in the lumber and paper industry are continually being applied in unexpected ways in other lines of economic effort. The latest application of a lumber industry method to the science of forestry is the kiln drying process adopted by the Forest Service for extracting seed from the obstinate clutches of the lodgepole pine cone.

Experiments have been in progress for more than 13 years. Beginning in 1910, the government, acting under the Forest Service, began the collection of large quantities of lodgepole pine seed in order to plant up the areas of forest land denuded by fire. The semi-baking method of opening the cones then in use injured a large proportion of the seeds, and was proving decidedly unsatisfactory. C. C. Bates of the Forest Service has shown that the kiln drying method is not only successful in getting out the seed in a proper condition for germination, but that seeds so treated germinate more satisfactorily in many cases than seeds obtained either naturally or artificially without this treatment.

Under the newly approved method the cones are placed in a kiln which has a strong draft of heated air passing through it. This draft causes such rapid drying that the cones themselves are not much heated. Temperatures as high as 200 degrees Fahrenheit may safely be used if the cones are not too green. This heating and drying seems to be of advantage in so ripening the seeds that they will keep in perfect condition for long periods. Seed has been stored for seven years under cool, dry conditions and have been found more vigorous at the end of that time than were the same lot of seeds when fresh.

A sidelight on this subject is the fact that lodgepole pine will produce seed up to a quarter million an acre with comparatively little reproduction resulting. The deficit is laid to the appetite and industry of squirrels.

* * *

Forestry Progressing

A demand for a state forestry law for Florida was voiced by the Florida Forestry Association at its convention in Jacksonville the last of March, when it was voted that the bill which was ignored in the last legislature would be reintroduced and pressed for passage. The naval stores industry was extensively discussed as one of the features of the Florida forestry problem; also the forestry work being done at the Southern Experiment Station, particularly cooperation with the state agricultural station of Florida and the establishment of a large sized tract of slash pine, second growth on which the Federal service will work for the next five years on research problems.

On the same date, the North Carolina Pine Association at Norfolk was discussing forestry problems as seen by the lumbermen, and adopted resolutions endorsing the McNary-Clarke bill, and calling upon the members to press for its passage.

Paper Men Named

Ever since S. T. Dana, head of the new Forest Experiment Station at Amherst, Mass., proposed the creation of an advisory council selected from private enterprises, there has been much speculation as to what men and how many of them the Secretary of Agriculture would eventually appoint. The Research Council of fifteen members has now been named, three prominent paper men appearing thereon: W. R. Brown, president of the New Hampshire Timberland Owners Association; George W. Sisson, Jr., former president of the American Paper & Pulp Association; and R. S. Kellogg, secretary of the News Print Service Bureau, who is also chairman of the National Forestry Program Committee for whose formation the paper industry was largely responsible.

An interesting development in connection with the Amherst station is the appointment of H. B. Pierson, State Forest Entomologist of Maine, and his assistant, J. A. Beal, as temporary members of the staff. This has been made possible through contributions from private owners interested in the work, which have been turned over to the Forest Service as a cooperative fund. The work will continue chiefly in Maine, and will deal principally with the study and suppression of the ravages of the spruce budworm which has killed the pulp timber on thousands of acres of timberland in the Northeast and in Canada in the past few years. Federal forest entomologists will assist under a cooperative agreement also perfected with the Bureau of Entomology of the Agricultural Department. Mr. Dana states that Mr. Pierson's work in these investigations has been and will be of vital importance to the timber interests in Maine, and to the cause of forest conservation. That results of real value have been already attained and are appreciated is shown by the contributions of more than $8,000 which private owners have willingly provided for this work in order that it may go on.

* * *

New York Claims Lead

That New York leads all the states of the nation in the work done for forestry is shown by a recent report by the Empire State Forest Products Association. In 1923 thirty-two states appropriated money for forestry purposes to a total of $5,410,119, while of this amount New York alone expended $2,242,568. Pennsylvania with about $688,000 was second in the list. Detailed showing of expenditures indicates that New York spent for administration, $23,664, while the total cost for the country was $423,125. For fire prevention, New York spent $169,500 out of a total of $1,726,719 by thirty-two states; for insect prevention, $223,174 out of a total of $607,174; for nurseries and planting, $73,320 out of a total of $211,925, and for state forest purchases $752,930, out of $2,441,166, or a million dollars more than all the other thirty-one states combined. To date the state has appropriated $11,500,000 for land for the forest reserve, and a further purchase totaling $5,000,000 is proposed. The association, which includes many of the most prominent pulp and paper mills in the state, points out that as no wood can be cut from this state land, which is now worth at least three times what it cost, the state has an annual loss of 5 percent on the value, or a total of $2,500,000 a year, because of the failure to utilize the crop of timber growth upon this land.

* * *

Minor Changes in Bills

Last week PAPER reported that the national forestry legislation, as expressed in the Clarke-McNary measure, had arrived on the floor of Congress without material disfigurement. Just what changes were made during the progress of the bills through the committees can now be announced with some precision.

One minor change limits the expenditure of the sum of $100,000 to reforestation and timber growing on farms. The original measure provided for the use of this fund for land chiefly suitable for timber production. The change was made at the insistence of Chairman Haugen, who said that, as $2,500,000 was appropriated for general reforestation work, this smaller item should be confined to farm forestry.

Another amendment changes the fourth section to provide for the distribution of tree planting material for farm purposes, particularly for wind breaks, shelter belts and farm woodlots.

The only other change was that the Geological Survey should cooperate with the Secretary of Agriculture in examining and recommending tracts for purchase for national forests, because of the relation of such forests to regulation of the water flow.

* * *

Forest Protection Week

Forest Protection Week for 1924 has been designated by President Coolidge for April 21-27, inclusive. In his proclamation, President calls attention to the appalling losses that occur each year from forest fires, and urges all citizens, either in association or as individuals, to protect all wooded areas from fire. Governors of many states will issue proclamations supplementing the one issued by the President, and Arbor Day in several States will be observed during Forest Protection Week.

Secretary of Agriculture Wallace and W. B. Greeley, Chief of the Forest Service, have many times emphasized the importance of preventing forest fires, about 36,000 of which every year sweep 11,000,000 acres of land. Secretary Wallace has stated that eight out of every ten forest fires result from human carelessness and will not happen once the public is brought face to face with the serious losses these fires cause. These losses fall especially heavy on the American public since the United States uses more sawtimber than all other nations combined.

* * *

Minnesota Cordwood Volume

Director Raphael Zon of the Lake States Forest Experiment Station reports the preparation of cordwood volume tables for aspen and paper birch, and says that the results of this work will be of material assistance to timberland owners in the Lake States region. The paper and lumbering interests have cooperated in the work by setting aside portions of their land for the measurements. The volume tables show the content of average trees of given heights and diameters in double cords of eight-foot wood.

* * *

BROKE WORLD'S RECORD IN NEWSPRINT RUN

Algonquin Company Sets New Mark To Shoot At in Fast Run

THE Algonquin Paper Corporation of Ogdensburg, N. Y., on the 24 hour run which was completed last Saturday morning, broke the world's record in the production of news print paper for one paper machine, producing 102.9 tons of paper. A few weeks ago the same machine which broke the world's record for a 24 hour run made 97 tons of paper in about 23 hours.

The Algonquin plant at Ogdensburg has the largest news paper machine in the world and the world's record made by the machine, manufactured by the Bagley and Sewall Company of Watertown, will give the big mill added prestige.

The world's record established Saturday of last week, after a steady run of 24 hours, will be broken by the same machine at some later date, it is thought by mill officials, who realize that the machine is still new and that when it settles down to real production it will be able to run off a still greater record.

PAPER COMPANY SUES TO RECOVER $299,000

Malone Paper Company Charges Breach of Contract Against Van Dyke Company

TRIAL of the supreme court suit of the Malone Paper Company against the T. H. Van Dyke and Co., Inc., will be held in Jefferson County instead of Franklin County according to papers filed in the county clerk's office last week.

The plaintiff seeks to recover judgment of $299,000, charging that the defendant is responsible for a breach of contract made in 1913 for the purchase of 25,000 cords of pulpwood. In their complaint, the Malone Paper Company points out that they stood ready to buy the pulpwood and because of the failure of the Van Dyke Company to deliver according to contract, the business of the paper concern was seriously hampered and damage amounting to nearly $300,000 was incurred.

The suit was started in 1919 through McCartin, Alverson and Cornwall of this city. The plaintiff is now represented by Attorney A. Raymond Cornwall due to the other two members of the firm having died. The defendant is represented by Kilby, Norris and Smith of Carthage.

According to the contract, the defendant was to have furnished 5,000 cords of pulpwood to the plaintiff each year for a period of five years. The complaint cites that the Van Dyke Company only delivered but 5,701 cords although plaintiff was willing and stood ready to accept shipments according to the conditions of the contract. The price of the wood was stated to be $12.50 a cord. On October 15, 1915, certain provisions of the contract were changed but this in no way interferred with the acceptance by the plaintiff, only changing the number of carloads to be shipped weekly.

The wood was to be cut on the G. T. P. Railway in Quebec and shipped directly to Malone. All of the pulpwood was to be of high quality and subject to inspection.

G. H. Van Dyke, vice president and general manager of the defendant corporation, signed the contract. He lives in Colebrook, N. H. The concern was represented locally by the former Summerville-Ellsworth Pulpwood Co., Inc., of this city.

The trial will no doubt be held during the May term of supreme court.

* * *

Hess Is Chairman

Herman M. Hess, of Hess & Densen, 129 West 20th street, New York, has accepted the chairmanship of the Paper Box Manufacturers Group in the Home Service Appeal of the Salvation Army for a maintenance fund of $512,500 for its work in Greater New York during 1924.

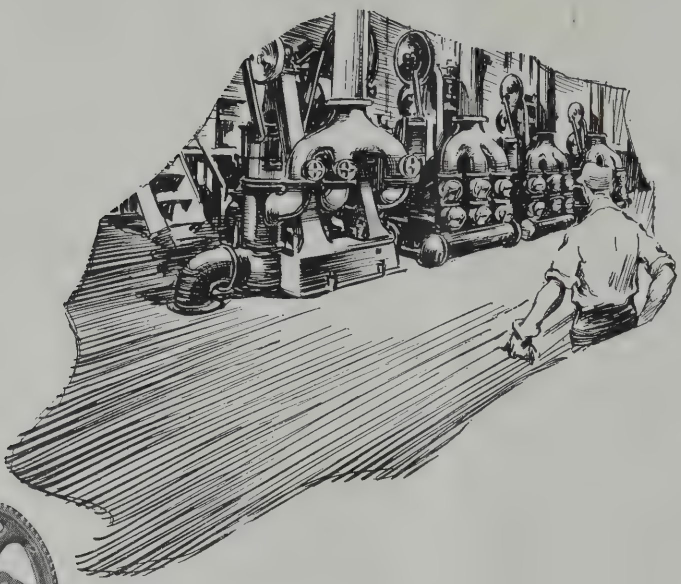
Mr. Hess will appoint a committee to assist him in raising a generous proportion of the Budget and will call a luncheon meeting in the near future, during which the work of solicitation among the members of the Paper Box Manufacturers' Trade will be planned.

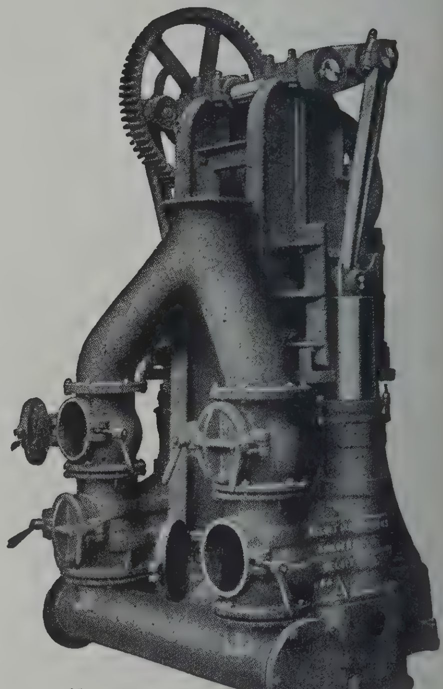
* * *

By-Products of the Forest

Fully one-half of the 470 millions of forest land in the United States is not suitable for grazing, and the other half should be grazed only after full precautions are taken to protect the young tree growth from injury, according to C. R. Chapline, government grazing expert. Eighty-five million dollars worth of meat and wool are produced yearly from herds of cattle and sheep on the National forests. Grazing must therefore be regarded as highly important economic use of the forest, although secondary to timber growing.

The *Efficiency* Pump for Paper Mills





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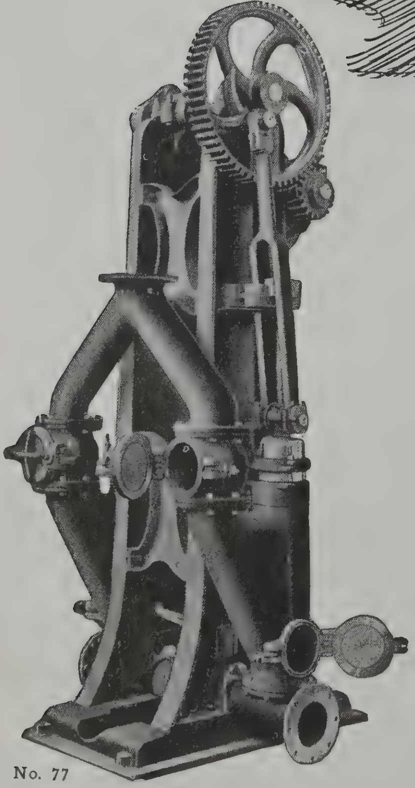


No. 77

BELOIT pumps are called "heavy duty" pumps because they are sturdy and strong. They are built for continuous 24-hour service and are gluttons for hard, steady work. They are regarded as the present-day *efficiency* pump for paper mills.

On our triplex pumps you will find forged steel crank shafts instead of cast steel. Our locomotive type connecting rod (regular equipment on our heavy-duty pumps) takes up the wear on crank and wrist pins while pump is in operation. The self-aligning feature prevents undue strain on cranks or frames.

If ever a part does become broken or worn out after years of hard usage, their construction is so handy that the repair can be effected easily and quickly, without the necessity of buying a considerable portion of a new pump.

Thousands of experienced paper makers the world over know that Beloit pumps "deliver the goods."

It will pay you to turn first to BELOIT.

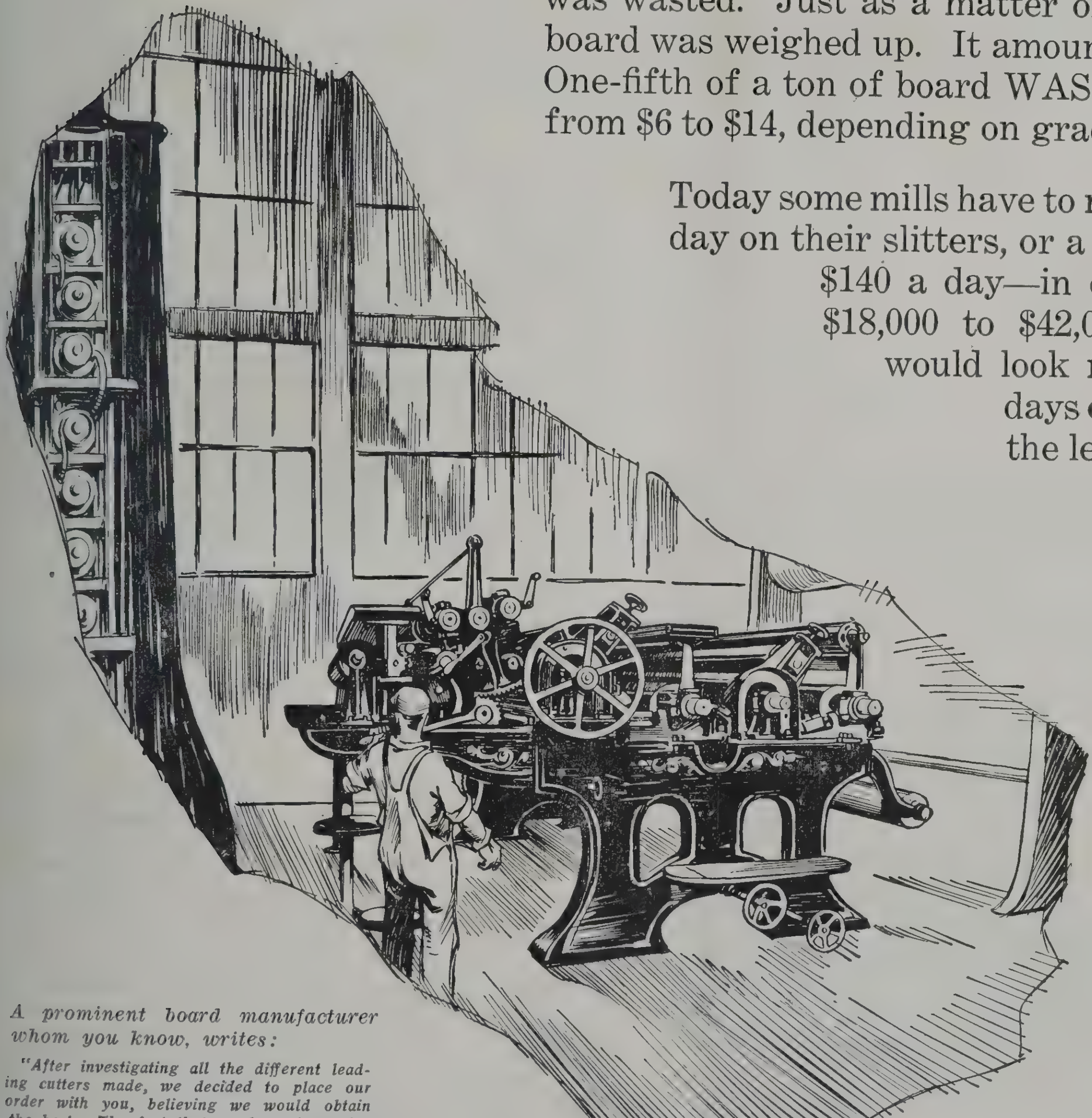
Beloit Iron Works **Beloit, Wis., U. S. A.**

Established Since 1858

Save $18,000 to $42,000 Annually

ONE of our representatives went into a board mill recently and stood at the slitters when widths were being changed. The sheet had been broken down while the slitters were re-set and by the time this was done a large quantity of board was wasted. Just as a matter of information, this board was weighed up. It amounted to 420 pounds! One-fifth of a ton of board WASTED, or in dollars, from $6 to $14, depending on grade of board.

Today some mills have to make ten changes a day on their slitters, or a loss of from $60 to $140 a day—in one year a loss of $18,000 to $42,000. This amount would look mighty good these days on the credit side of the ledger, would it not?



The ***Beloit Duplex Slitter*** *is arranged so that the sheet is NOT broken when changing widths. Simply swing a lever and the job is done—with perhaps four sheets thrown away at the cutter.*

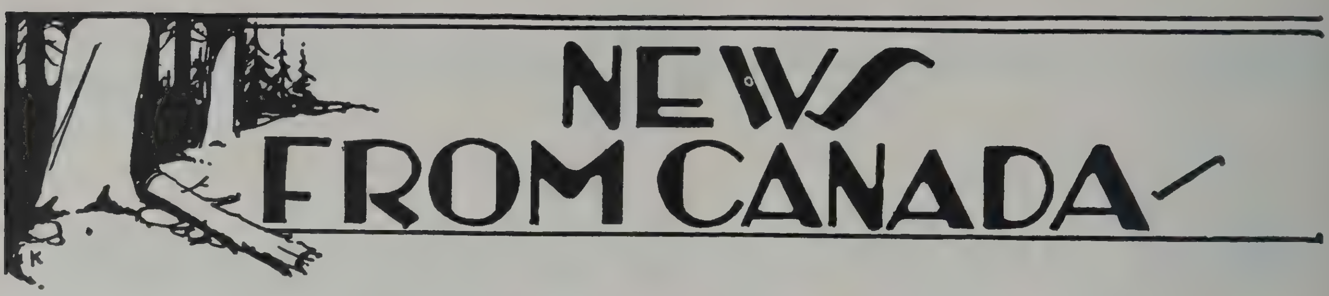
Can YOU afford to be without this attachment NOW?

A prominent board manufacturer whom you know, writes:

"After investigating all the different leading cutters made, we decided to place our order with you, believing we would obtain the best. The fact that we have from time to time, ordered these cutters, making five in all, demonstrates that they are working to our utmost satisfaction."

Beloit Iron Works **Beloit, Wis., U. S. A.**

SINCE 1858 BUILDERS OF BOARD AND PAPER MILL MACHINERY



NEWS FROM CANADA

MYSTERY SURROUNDS RESIGNATIONS OF TWO INSTRUCTORS

Proposed Embargo Is Blamed for Resignations of Forestry School Faculty in Canada

CONSIDERABLE mystery surrounds the resignation of the faculty of the forestry school attached to the University of New Brunswick. Professor B. E. Claridge was the first to announce his intention to quit the school. His resignation was quickly followed by that of his superior, Professor V. P. E. Pulling. The question that is asked is "What was the cause of the two resignations?"

In some quarters, it is held that the proposed embargo and the sentiment in favor of the embargo on pulpwood exportation from Canada to the United States, have been responsible for the two resignations. At the University of New Brunswick, it is believed that sentiment favors the embargo, as an effective means of conserving Canada's pulpwood. It is known that both forestry professors came from the United States to take charge of the school at Fredericton, N. B., and both could be hardly expected to favor such a move as an embargo on pulpwood shipments to the United States. Professor Pulling who was in charge of the school is a graduate of the New York State School of Forestry at Syracuse. He will return to that school as a member of the teaching staff. Professor Claridge who is a graduate of the Yale School of Forestry at New Haven, will go to the Hammermill Paper Company of New York, as a forester on the company's property along the Gaspe coast. He will be established at Matane, near the provincial line between Quebec and New Brunswick. Both men will leave the University of New Brunswick School of Forestry late in May, at the close of the current term.

The embargo question has aroused considerable feeling in some of the forestry schools in Canada. It is felt by some of the university authorities that the heads of the forestry schools in conjunction with Canadian colleges should be Canadians because of the importance of the pulpwood embargo question. Who will succeed the retiring staff of the University of New Brunswick School of Forestry has not been announced. Indications are that a cleavage exists in other schools that will result in resignations at the close of the present academic year. Sentiment in favor of the embargo seems to be growing among Canadians. If the present Canadian government is defeated at the next election, the supplanting administration has promised to introduce the embargo on pulpwood.

The Pulpwood Commission appointed by the Canadian government has finished its labors but it is not expected that the decision will be announced before the first of May, or perhaps later. For some time past the commission operated in two sections, one holding sittings in the western provinces and the other section confining its attention to the eastern provinces.

The claim is made by the pre-embargo faction that most of the evidence adduced before the commission at the many hearings has been given by persons interested vitally in the shipment of pulpwood from Canada to the United States. Spokesmen for the pro-embargo faction claim that representatives of United States pulp and paper companies testified in favor of the abandonment of the embargo as the imposing of an embargo would be highly injurious to these companies.

The Canadian Pulp and Paper Association has placed itself on record as in favor of the embargo as the logical means of conservation for Canada's pulpwood supply. The Canadian Forestry Association has also been registered for the embargo. The largest of the pulp and paper manufacturing concerns, controlled by Canadian and British capital have pronounced in favor of the embargo. Price Brothers, one of the biggest of pulp and paper manufacturing firms has been working vigorously for the embargo. Sir William Price, head of this concern, has been speaking before civic fraternal and legislative bodies in favor of the embargo.

One of the leaders in the fight for the embargo is F. J. D. Barnjum of Annapolis Royal and Montreal. Mr. Barnjum was a Liberal in politics but when the present Liberal administration at Ottawa refused to introduce the embargo without first sending a commission on the road for investigation purposes, he aligned himself with the Conservative party and delivered speeches at two special elections both of which resulted in defeats for the present administrations, in constituencies that had previously sent supporters of the present government to Ottawa. Mr. Barnjum is President of the McLeod Pulp and Paper Company, operating a mill at Milten, N. S. He is also the owner of large tracts of pulpwood lands in eastern Canada.

* * *

Buy 13 Airplanes

C. R. Mills, Assistant Provincial Forester for Ontario, speaking at a meeting of fire rangers in Sudbury, Ont., announced officially that the Ontario government had purchased thirteen airplanes for forest fire protection purposes, and that seven of these 'planes would have their headquarters at Sudbury, as compared with four last year. A complete repair and parts maintenances stores would be established at Sudbury also. It was also announced that the proposed reduction in the staff of the chief fire rangers would be reduced by about 40 per cent. From the trend the discussion took it was apparent that veteran chief fire rangers are far from convinced that the airplane and radio are of any great value in forest fire protection. The telephone, it was agreed, is still and will continue to be the chief method of communication. The advent of the airplane and radio, and consequent heavy expense is blamed for the cutting down of the fire ranging staff.

CANADIAN NEWSPRINT PRICES CHANGE

Cut of at Least $5 Per Ton Are Made Regarding July Prices

IT is difficult to distinguish the real news from the propaganda with respect to the probable price of Canadian newsprint after the 1st of July. Predictions have gone so far as to predict a second cut within the year. There are some reasons that would seem to warrant the first prediction, but few, if any at all to warrant the second. There is, however, an impression that the Canadian newsprint industry in its expansion has possibly outrun demand. There is now being installed in northwestern Ontario the thirteenth machine that has gone in since the 1st of January, 1923, with an increase in the production of 1,000 tons daily, or over 300,000 tons a year. This comes perilously near equalling 25 per cent of the total Canadian production. To absorb all this requires quite an increase in consumption, and the question was bound to arise, is the demand equal to the increased supply.

Another weakness in the Canadian situation is to be found in the fact that the mills are becoming dependent more and more on the market. In 1919 out of total exports of newsprint amounting to 13,248,542 cwts., the United States took 11,880,069. In 1920 it took 12,583,349 out of a total of 14,272,513 cwts.; in 1921 it took 13,376,836 out of a total of 15,112,586; in 1922 14,106,128 cwts. out of a total of 15,138,327. In 1923 the United States took 18,836,245 cwts. out of total exports of 20,130,466; but during the last year the process of being narrowed to the American market has been intensified, for during the first 10 months the United States took 18,743,500 out of total exports amounting to 19,020,728 cwts.

There is no doubt that much of the reasoning as to the probable increase in the general demand has been based on the assumption that there would be a marked continuous increase in the demand from the United States, and that this would continue to assert itself even if the newspapers did not actually require much more newsprint. It has been assumed that the low cost of production in Canadian mills would render it unprofitable for some mills on the American side to continue operations, and that the mills over here would get the business thus dropped. While some American mills are being closed, still it is not as easy for all of them to do so as it is for some others. The International can readily convert some of theirs into power plants, but as soon as some others cease to make paper they close down altogether. The result is that American mills are not being put out as fast as new newsprint machines on the Canadian side are coming in.

On the other hand it is said that a short interest in the stock market is responsible for much of the talk about probable price reductions. If such is the case it has chosen a good time to affect the market for paper stocks certainly fell off following some of these reports. It is understood that the paper producers have not as yet given a great

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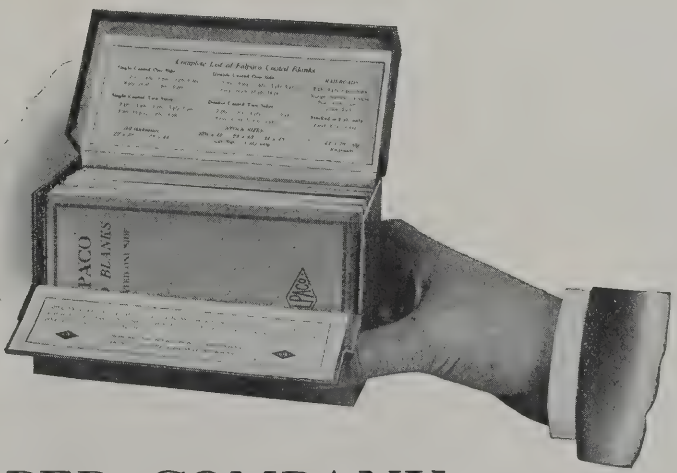

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deal of consideration to the question of prices for the second half of the year, and that for the very good reason that their contracts have over two months yet to run. At the same time it is true that the year began with a surplus production of 40,000 tons of newsprint uncontracted for. As this has to find a market it is a disturbing factor.

Speaking generally the demand from the United States is holding up remarkably well. Recent paper mergers over there have not lessened, but have increased the demand for paper, and as far as can be judged at present this will continue until the end of the year. The Canadian industry generally is very confident of the future, that is taking a long range view of things; for it knows that it has the raw material, that it has the water powers that go to make production cheap and that the publishing industry is steadily expanding. But it is also recognized that the rate of expansion reached in Canada during the last year cannot be maintained, and that soft spots in the market will be met.

* * *

Merger Negotiations Again

The merger negotiations looking to the coming together of several important pulp and paper enterprises in the St. Maurice district, Quebec, are apparently coming to life again. For a time they seemed to have died though at times there were stirrings indicating that they were not quite extinct. It is understood that two plans are being considered. One of these contemplates a working agreement between nearly all the companies in the St. Maurice district each retaining its present identity; while the other plan contemplates a real merger. At present the former seems to be most favored.

From reliable information it is gathered that several of the companies operating in the St. Maurice district are not any too well supplied with timber in close proximity to their mills. It is true that they have large reserve limits, but for the most part these are in other parts of the province, and not conveniently, or as profitably, located as could be desired. For this reason a working agreement along the lines suggested is proposed. This would not only mean better working conditions, but co-operation with large companies such as Price Brothers and the Brown Corporation, which might be expected, would have the effect of stabilizing the price of pulp and paper.

The proposed arrangement would assure to all concerned an ample supply of pulpwood at uniform prices which would apply to wood whether drawn from the north shore of the St. Lawrence, or from the Gaspe limits; from up the St. Lawrence, or from the St. Maurice district. It is believed that the Quebec government would be favorable to such an arrangement, for the more the pulp and paper industry is stabilized the better for the provinces as a whole. It should not be difficult for the companies to work together, for even now their logs are floated under common control.

* * *

Plan for Power Dam

The Continental Wood Products Company of Elsas, Ontario, has prepared plans for a power dam that will be required for a new kraft pulp mill of 75 tons capacity to be built at Elsas. The saw mill will be doubled in capacity in order to supply material for the kraft mill.

* * *

Confirm Wilson's Addition

The addition of L. R. Wilson to the board of the Abitibi Power & Paper Company was confirmed by a recent meeting of the directors following the annual meeting. He has a long record of service with the company, first as secretary and more recently as general manager, and he brings to the board a splendid general knowledge of the practical side of the company's operations.

Returns After A Year

C. E. French, of the Howard Smith Paper Mills, has returned to the Toronto office after nearly a year spent in the interests of the company in South America where he established in the various Latin countries satisfactory business connections in the shape of substantial orders for Standard Mill Watermarks and other grades such as blotting, bristols and Patent Coated Folding Boxboard. Mr. French found that the greatest tonnage of paper in South America was coming from Germany and Scandinavia. The explanation of this is, he said, that the standards of Latin America are on a very different plane from those of North America. The German and Scandinavian standards he found to be similar to the demands of the Latins, so that in that respect the road is already paved for Made in Germany, or Scandinavian paper. "Pride in one's paper, such as we in Canada have," he said, "is most certainly not very marked, the desire being to obtain the cheapest sheet possible, with little regard to quality. There are, however, a number of firms, usually run by Europeans, who have cultivated a demand for high grade papers, and it was from such firms that I was able to obtain some very satisfactory orders." Mr. French had a number of interesting experiences, including an eight-hour airplane trip from the Carribean Sea to Bogota, the capital of Columbia. After his return to Canada Mr. French received the congratulations of many friends on his marriage, a few days ago, to a popular St. John, N. B., lady.

* * *

Operating Fast

The Nipigon Corporation, Limited, at Nipigon, Ont., is operating at full capacity in its groundwood plant with three lines of grinders. All the equipment has been thoroughly re-set. The company reports that they purchased all their pulpwood requirements locally this season, the groundwood finding a ready market both in Canada and the United States. The labor situation, the company reports, has presented some difficulty as skilled help is practically unknown in the Nipigon district.

* * *

Mill Closes Down

The Frazer pulp mill at Millbank, N. B., closed down recently for a short time in order that repairs might be made. The company is installing a power plant of its own, the Bathurst Company, which has been supplying hydro power being unable to continue the service. It is expected that the new power plant will be in operation by May 1. Both warehouses of the company on the north and south side of the river are filled with pulp awaiting the opening of navigation for shipment.

* * *

Change Head Office

The head office of the Belleville Paper Mills has been changed from Belleville, Ont., to Montreal. The mills manufacture straw and chipped board, pleated carpet linings, etc.

* * *

O'Donnell Disappears

It was announced in the Ontario Legislature a few days ago that J. L. O'Donnell, Crown Lands Agent at Hearst, Ont., had disappeared and there are discrepancies in the books amounting to several thousands. O'Donnell was under bonds, stated Honorable James Lyons, Minister of Lands and Forests.

* * *

Plan New Building

Plans are now being prepared for a new forestry building to be erected this summer in connection with the University of Toronto. The structure will be on St. George Street, Toronto, and will cost about $100,000. The building will be approximately 50x40 feet and it will be such that it will accommodate the whole faculty of forestry. The present building will be continued as a botany building.

Weakness In Newsprint

The Financial Post of Toronto has the following to say on the Canadian newsprint situation.

"Already there are evidences of weakness in the newsprint market and it is anticipated that market prices will slump before the end of the year. The rapid increase in production has overtaken the increase in consumption. However, most of the Canadian newsprint mills have their product sold for the first six months of the year at least, and many of them for the entire year. After that even weaker conditions may develop in newsprint, it is felt by many in the industry. Investors in the newsprint stocks may take these indications as a unfavorable market factors, as the moment, that may have a tendency to prevent any substantial improvement in the newsprint stocks. But there is nothing in the situation to make any holder of newsprint shares worried. The Canadian mills are, on the whole, able to produce newsprint at much lower costs than American mills and the companies are financially strong enough to stand any strain until increased consumption of newsprint, and the conversion of many United States mills to power plants or high grade paper plants relieves the situation."

* * *

Off To Australia

A. L. Dawe, manager of the Canadian Export Paper Company, has left for Australia. His company, which acts for many of the largest of the Canadian mills, has an agency in Australia and sells considerable paper there. It is said that while his visit has no special significance, still as for some time efforts have been made to have Canadian newsprint enter that Dominion on the same conditions as that from Britain does, it is quite possible that Mr. Dawe may do a little missionary work. Canadian mills would like to get back a share of the Australian market.

* * *

Iverson Dies

John Martin Iverson, superintendent of the kraft plant of the St. Maurice Paper Company, Three Rivers, Que., died a few days ago after an operation. For over a year he was suffering from cancer of the stomach and in the last two months the malady had grown worse. Mr. Iverson was 61 years of age and was born in Norway. He received his education there, where he became an expert in the making of kraft paper. He was formerly associated with the Canada Paper Company at Windsor Mills, Que. Eight years ago he entered the service of the St. Maurice Paper Company, having previously been connected with the Wayagamack Pulp and Paper Company. He is survived by his wife, two sons and three daughters.

* * *

Expect Report Soon

The Canadian government expects that the Pulpwood Commission will report its findings in time to enable action, if necessary, to be taken upon it during the present session of Parliament. This statement came recently in response to questions asked in the House of Commons. The reply said that the Commission had taken evidence in all part of Canada, and it was not expected that further hearings would be necessary. It had been instructed to make a thorough inquiry, and was expected to exercise its own discretion in doing so, and its conclusions were looked for before the end of the session.

* * *

Unusual Production Made

During March the Spanish River Pulp & Paper Mills has an average daily output of 698 tons of newsprint, there having been several days when over 700 tons were reached. This means that the mills have been running capacity, and there is every prospect of this continuing.

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Vacuum Paper Machine Dryer

Outstanding Advance in Methods of Drying Paper Is Marked by Development of Minton Vacuum Paper Machine Dryer

By OGDEN MINTON
Greenwich, Conn.

THE first improvement of large importance in the art of papermaking was marked by the advent of the Fourdrinier paper machine, with which papermakers everywhere today are familiar. Surprising as it may seem, pictures and cuts of the first Fourdrinier type of papermachines show them to have been quite similar to present day type of papermachines.

Some of the oldest machines had suction boxes, couch rolls, felt presses, and a bank of dryers. The author of this article has talked with a veteran papermaker who told him of building and keeping fires going inside the "cans" as he called the dryer cylinders. It was not a far step from the fire to steam within the dryer cylinders, and the addition of dryer felts was a natural development in view of the necessity of passing the paper over a large number of dryers and of keeping the paper in tight contact with the dryer shells.

By way of improvement of the modern machine, it would appear to be advantageous to raise the temperature of dryer shells to a much higher temperature than is commonly done, and thereby to dry paper more rapidly and with fewer dryers. But it is not possible safely to raise the pressure of the steam (and therefore the temperature) much over 50 lb. because of the insufficient strength of dryer cylinders. Also papermakers have learned that high temperatures injure the fibers of the paper and that paper dried at a high temperature is not as strong or so good in many ways as when dried at lower temperature.

Seals for Vacuum Paper Machine Dryer

It occurred to the author that some way could be found of drying paper at low temperatures and yet drying it rapidly. The only method he knew of was to dry it under a high vacuum. Accordingly he set out to develop a Vacuum Paper Machine Dryer. The problem soon simmered down to a method of getting paper into and out of a vacuum chamber continuously without breaking the vacuum. The manner of applying heat to the paper after it was once in the vacuum was simple, as present drying equipment could be used for this purpose. The problem then was to devise an ingoing, and outgoing, seal that would allow the paper to pass into, and out of, a vacuum chamber, in which chamber present drying equipment could be placed.

Many different forms of seals were experimented with. The first successful seal was a mercury column, through which the paper passed into, and out of, the machine. As far as sealing was concerned, the mercury seal performed perfectly. Mercury, however, was found to be difficult to handle, easy to lose, and expensive. Eventually a seal not having the disadvantages referred to was perfected. The drawings No. 481, 482 and 483, showing this seal illustrate how simple the latest type of this seal has really become

The great problem was to make the seal so efficient as to keep air from entering the vacuum chamber where it rapidly expanded and became costly to pump out. After working with seals of many different kinds, it was learned that to allow water to leak into the vacuum chamber was not at all objectionable since the water was needed for the condenser and eventually had to be supplied anyway. The present type of seal takes advantage of this fact. Instead of allowing air to leak into the vacuum chamber, water is allowed to leak in, after which it is led directly to the condenser.

The present seal consists of two bronze covered rolls, with special sealing rings at their ends, a rubber covered roll with similar sealing rings at its ends, and a cast iron housing equipped with grooves into which is placed rubber tubing ¾ inch in diameter, with a ¼ inch hole in the center. Water is supplied as a sealing medium and also acts as a lubricant to the rubber. The two bronze rolls as shown in the drawings, have one side immersed in water. Water leaks past the rubber tubes into the vacuum chamber, but because the vacuum holds the rubber tubes tight against the roll and the housing, the quantity of water that thus leaks past the tubes is very small. The second rubber acts much like a window wiper and wipes the roll dry so that its surface coming in contact with the paper is at all times dry and clean. If the proper kind of rubber is used, water forms almost a perfect lubricant and the friction is so low that it is not an important factor.

Mechanical Considerations

An examination of the accompanying drawings of vacuum papermachine dryers disclose the ingoing and the outgoing seals, the cast iron chamber, the series of dryers, felts, with felt carrying rolls including hand and automatic take-up rolls and hand and automatic guide rolls. The construction of the seals is clearly shown in the drawings. Ball bearings are fitted on all the sealing rolls. By taking out nine cap screws on each side frame of the seal and eight rubber tube holding plugs the side frames, together with the three sealing rolls, may be lifted off the machine as a single unit, exposing the entire inside of the seal and allowing it to be inspected and cleaned, and the rubbers changed, if necessary. By simply taking off the caps over the ends of the rolls and loosening the nuts over the ball bearings, the side frames can be taken off and the entire seal dismantled, making the rolls readily available for regrinding or recovering should there be need of either.

The cast iron chamber is made in unit construction. A study of the cuts will show that each dryer has two side frames, both of which are identical, and one cover plate. If the dryer happens to be a top dryer this cover acts as a top piece, and if it happens to be a bottom dryer this cover acts as a foundation plate. By unbolting one front section, a dryer may be slid out the front of the machine for repairs with little more effort than in the present type of machine. Any felt roll can be removed by unbolting the false frame in front and back and sliding the roll out through the opening so formed, an operation quite as easily performed as in the present type of dryer unit. The sections of the chamber are made of cast iron, suitably ribbed for strength and stiffness, and have surfaces planed where they bolt together. These sections can all be stacked in a planer and a whole group planed at one setting of the planer.

The cut of the assembled dryer bearing and stuffing box shows the method of bolting the bearing housing to the side frames. By means of two small jack screws on the front and rear frames, the dryer roll may be set absolutely on the correct centers. The ball bearings and housing assembled is then placed and bolted, after which two special dowel pins, with nuts on their ends to facilitate removal, are put in holes drilled through the bearings housing and the front or rear frames as the case may be. These dowel pins insure that the bearing, if taken out ofter the original assembling, will necessarily go back in exactly the same place and the dryer roll will be on its correct center line. This is important not only so that the paper will draw well through the machine, but so that the driving gears will always run on correct centers and the teeth mesh on their

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* A paper presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, April 8, 1924.

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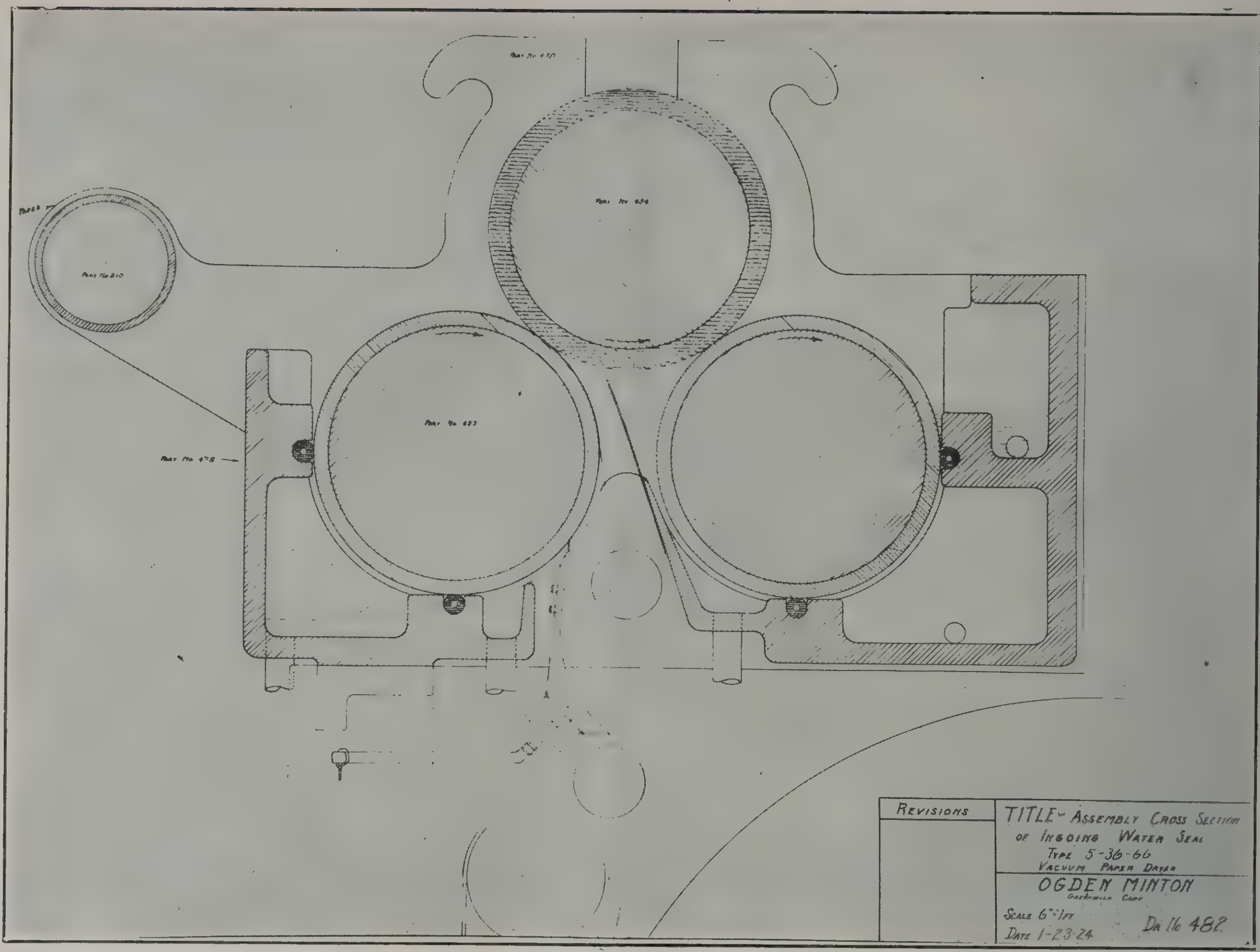
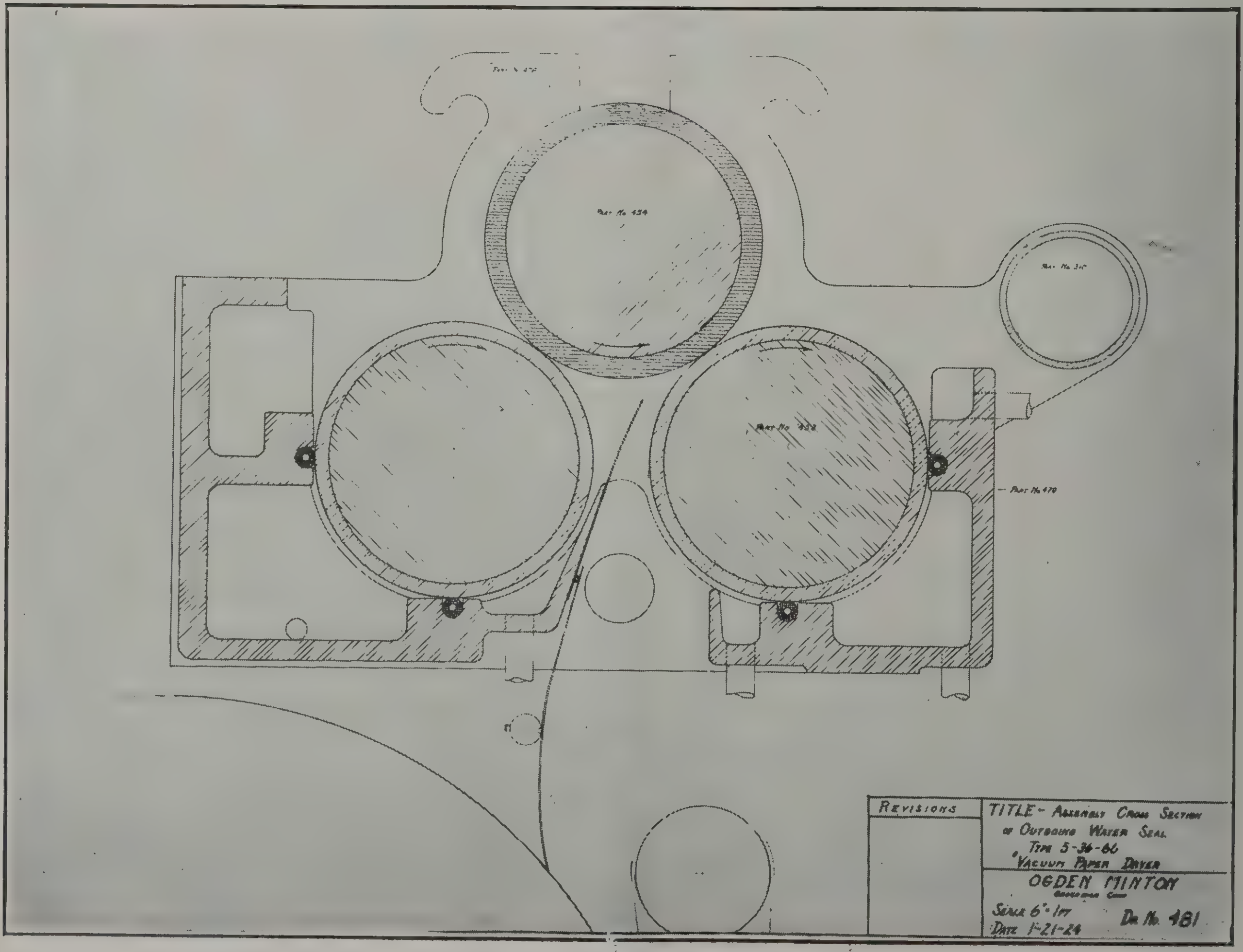


Ingoing Seal—Cross Section



Outgoing Seal--Cross Section

true pitch circles, thereby making for long life and quiet running gears with little back lash.

Drawing No. 488 of the stuffing box shows an oil pipe leading to an H section bronze ring placed between the different groups of packing. This not only lubricates the stuffing box, adds life to the packing, and cuts down the loss due to friction, but it also insures that there will be no air leaks. The oil pressure is slightly greater than atmospheric pressure because of the head of oil from the tank to the bearing, which is sufficient to cause oil to force back the atmosphere, and leak outwardly as well as inwardly. The oil that leaks inwardly lubricates the ball bearing, and when it reaches a certain height it flows off through the overflow pipe to a small pump, which pumps it back to the original tank. There is a check valve in this line to prevent air leaking back. The quantity that leaks outwardly has been found to be very small. It can be run to a small pump and pumped back, if desired, or it can be collected in a drip pan, which has been found entirely satisfactory. This construction insures a total absence of air leak around the stuffing boxes and affords perfect lubrication.

The cut of the ball bearing housing shows the ball bearings being held in place on the rear of the machine so that there is no end play. The bearing on the front of the machine is not so held. This allows the dryer shell to expand and push the front ball bearing back or forward in cooling off in heating up. This expansion in a very wide machine is considerable and in the very widest machines provision is made for the front bearing to slide very easily in the housing by other means than shown in this cut. The ball bearing races are ground out slightly larger than standard bearings to allow for expansion due to heat.

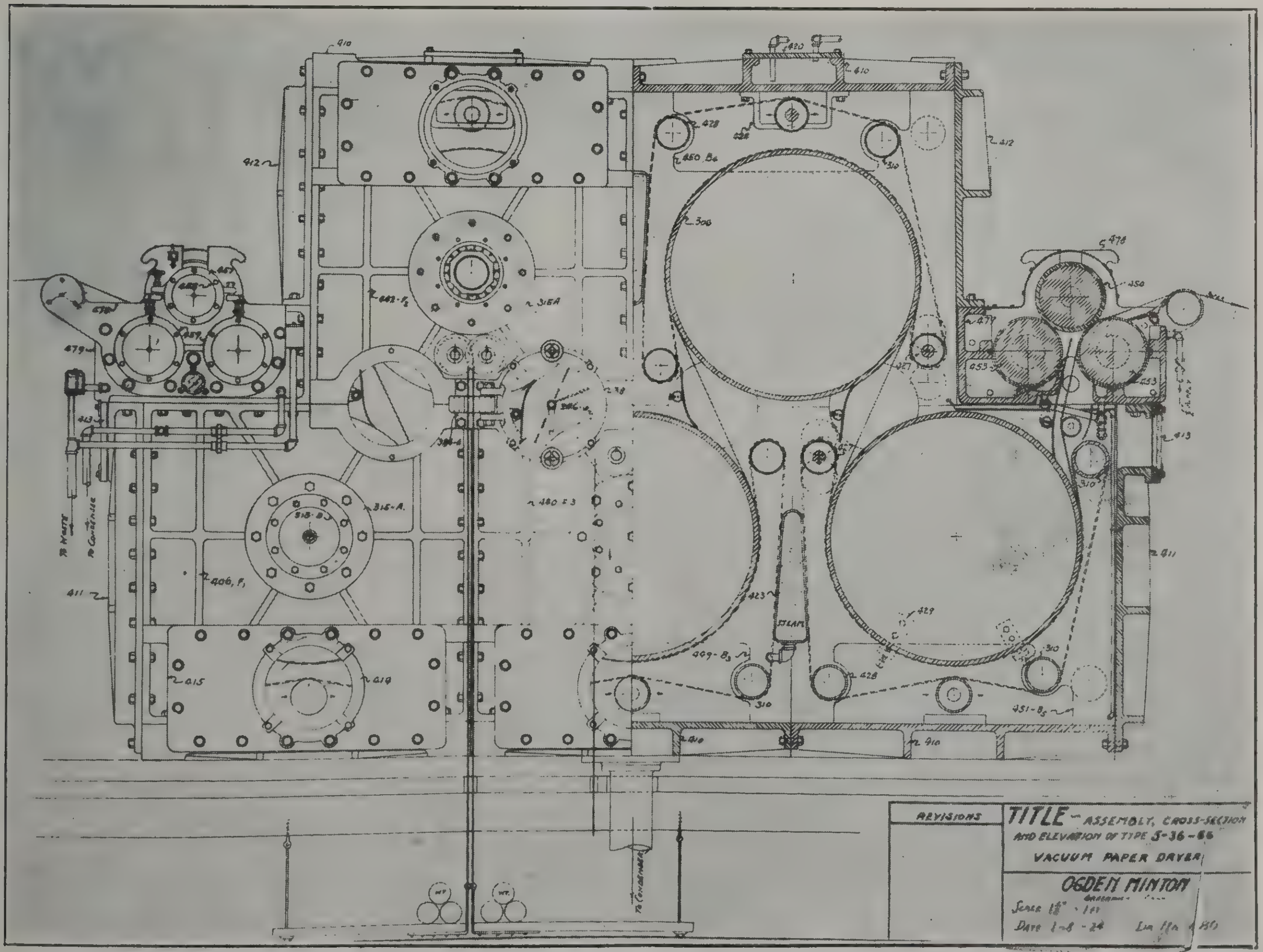
All dryers, felt carrying rolls, and seal rolls, are balanced statically and dynamically so that vibration is eliminated.

Working of the Automatic Guide Roll

As the entire machine is enclosed in the cast iron chamber it is necessary to be certain that the automatic guide roll operates with certainty. Drawing No. 484 shows how this has been accomplished. The automatic guide roll consists of a shell mounted on ball bearings fixed on a stationary shaft. This shaft is pivoted at one end, the other end, which is mounted on a small ball bearing, moves forward and backward, the bearing running on a guide. The guide actuating roll has a stationary shaft on which the shell is mounted and on the front end there is a separate piece, also mounted on ball bearings. This is made to pull the guide roll by means of a small bronze cable, when the felt runs up on this part. A spring pulls the guide roll backward when the actuating roll is not pulling it forward. Because of the ball bearings and this special design, the guide is very sensitive and holds the felt within close limits. Due to the fact that, when the dryer felts are not properly made, they sometimes tend to run off one way, or the other, and, get to a point beyond the control of the automatic guide a hand guide has been included in the design.

Drawing No. 485 of the automatic stretch roll shows clearly how this operates. The operating shaft is taken out through a stuffing box in the side frame. A steel cable goes down under the floor to which weights are suspended to obtain any desired tension in the felts. There are two of these weight suspension devices, one on each end of the automatic stretch roll.

Because of the unit construction of the machine, the following standards have been adopted to facilitate manufacture and to attain better proportions and machine design advantages. For machines up to 90 in. wide, a 36 in. diameter dryer is used; for machines from 90 in. to 160 in. wide, a 48 in. diameter dryer is used; and for all machines



Vacuum Paper Machine Drier, Assembly Cross-Section and Elevation over 160 in., a 60 in. diameter dryer is used. Designs have been made, and stress and strain diagrams, and weights figures, for a machine 240 inches wide. The total weight of the complete vacuum paper machine dryer is slightly less than that of the present standard type of dryer of the same capacity. Of course, the vacuum paper machine dryer unit has comparatively fewer dryers.

Felt Dryers

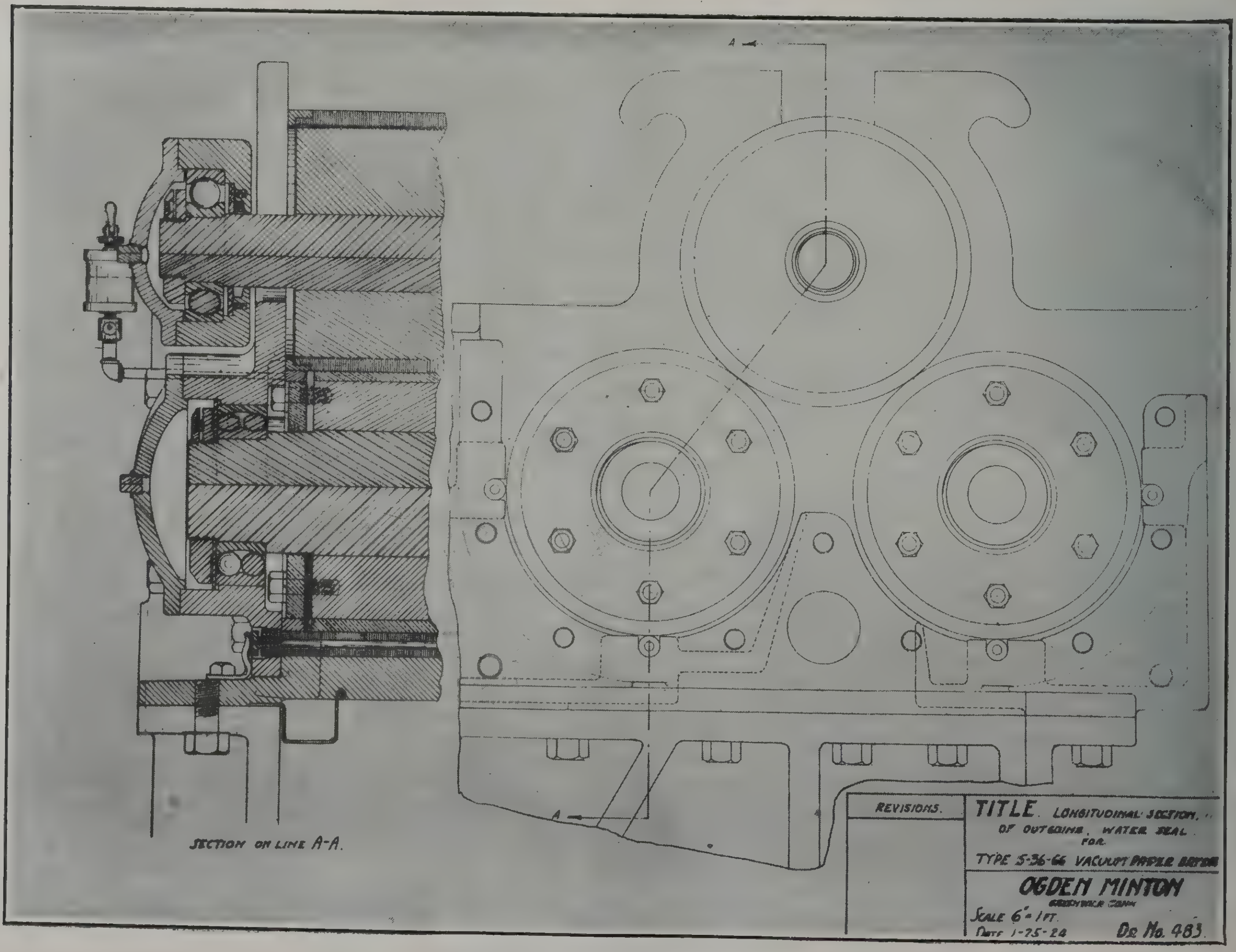
Felt dryers of the cell type were installed for a time in the test machine for experimental purposes. Vapor leaving the sheet of paper and passing into the felt remains vapor and passes on through the felt to the vacuum chamber. It can not condense to water, for to do so it must give up its latent heat, which is impossible since the temperature of the surrounding vapor, of the felts, and of this vapor is exactly the same unless there is a difference of temperature there can be no exchange of heat units. The only useful function felt dryers could possible perform would be to warm up the felt and conduct heat units to the paper. But felts are poor conductors of heat and have capacity to absorb little heat from the felt dryers for transmittal to the paper. This is a very different phenomenon than that which occurs in the present standard type of paper machine dryer, where the vapor from the sheet passes into the felt and condenses, causing the felts to run damp, thereby retarding the drying, and making it necessary to equip the machine with felt dryers.

Changing Dryer Felts

Cross section drawing No. 480 of the type 5-36-66 Vacuum Paper Machine Dryer (5 dryers, 3 inches in diameter, with a 66 inch face) shows individual dryer felts on each dryer. These individual dryer felts were put on this machine so that the dryers could be compensated (run at slightly different speeds) in order that high grade paper might be dried without being stretched. To accomplish this result each succeeding dryer is run at a speed slightly less than the preceding dryer. With this adjustment paper the equivalent of loft-dried paper is produced. When individual felts are used, the endless woolen type is preferred. The felt-carrying rolls are so designed that they may be removed through the front windows. It is not a difficult task to replace a felt, but it seldom has to be done. The life of woolen dryer felts in this type of machine is extremely long, because of the low temperature to which they are exposed, to the slow speed, to the ball bearing rolls which relieve the drag, and to the fact that never get wet. Cross section drawing No. 491, of the larger dryer section type 15-48-120, shows simply one upper and one lower felt, since this machine, being designed as a book-paper machine, is not compensated. From this latter machine, felt dryers have been eliminated, for reasons explained heretofore. The felts on Type 15-48-120 may be changed in the same manner as in the present type paper machines, except that the door shown at the end of the vacuum type of machine must first be opened. This door may be opened in less than five minutes time and replaced in another five minutes on even a larger machine. In other words there is a delay of only 10 minutes over present methods which delay is but a small proportion of the total time in changing a dryer felt on a wide machine.

Passing Paper

When the first vacuum paper machine dryer was being designed apprehension was felt that passing the paper through the machine might present much difficulty. Accordingly, specially designed, complicated steam doctors



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were included in the original design. These worked splendidly. But when the machine was first started up, someone neglected to turn the steam into the doctors. Nevertheless, the paper was seen to pass through the machine just as desired. As soon as this was observed the paper was broken down and repassed through the machine. Each time it automatically threaded itself. Needless to say the complicated steam doctors were promptly removed. A study of this situation revealed the fact that, because of the high vacuum, the atmosphere in the vacuum chamber was not sufficient to deflect the paper. Without intending to do so, the old physics experiment of a penny and a feather falling at the same speed in a vacuum tube had been reproduced. Upon leaving one dryer the paper travels straight to the next dryer. It has no tendency to crumble up. Of course, the paper must have sufficient speed to give it momentum to jump the pass. This speed has been found to be about 200 ft. per minute. The faster it travels, the more certain is it to make the pass. A piece of cardboard about nine inches wide and four feet long is passed through with the paper, to help it make the first few passes, since the paper, near the wet end of the dryer, has little body and tends to cling to the dryer shells. The cardboard pieces pass through the machine with the paper, and out through the outgoing seal and may be used over and over again. If cardboard does not happen to be available any dry piece of paper, folded over a few times, answers the purpose just about as well. The cardboard strips, however, serve another purpose in that they fold the end of the paper over and place it in the bite between the rubber and bronze roll of the ingoing seal, and minimize the danger of a machine tender getting his fingers caught in this bite, which has made it possible to place a guard at this point to prevent accidents. After starting the paper into the ingoing seal, the paper threads itself through the machine and out through the outgoing seal, where it is taken and passed through the calendar, size tub, or to the reel, as the case may be, in any manner desired. The worst that can happen is for the paper to miss a pass, in which case it falls back and is carried by the felt around the next bottom dryer, skipping the top dryer. In this case the paper is broken down at the entrance and repassed through the machine. Doctors on each dryer prevent the paper from wrapping around a dryer.

Removing Broke

The vacuum paper machine dryer is fitted with doors, in each of which there is a glass window. These doors can be quickly opened, and are so located that they are directly in front of the pass. A little study of the drawings will show that when these doors are opened a space is provided through which the paper may be speared off in case of failure of a dryer doctor or the snapping off of the paper resulting in its wrapping around a dryer, just as it is now done on standard paper machines. These doors give just about the same size opening as there is between the front frames on a standard paper machine dryer and broke may be removed in the same manner as at present. Paper however, never breaks on a dryer section till it becomes partly dry. It has much elasticity when wet, so that it will stretch rather than break. But in the vacuum paper machine dryer, after the paper has become slightly dry it will pass of its own accord. To demonstrate this fact, the author went to a good deal of trouble to make a device to break paper inside the dryer., But because of delicate control all through the machine, a break is a rare occurrence in a vacuum paper machine dryer.

Process of Drying Visible

The inside of the vacuum paper machine dryer is fitted with electric lights, making the entire inside of the machine visible. The several doors with glass windows, allow the process of drying to be watched. The vapor coming off the paper is a true vapor. There is no fog to obstruct the vision and to a stranger to the vacuum process it looks as though there is no drying going on. The paper, when passing through the machine, may be watched. It is an interesting sight to see it, automatically and of its own accord, pass from dryer to dryer and finally out through the outgoing seal to the atmosphere.

Control of Drying

The boiling point of water at 28 in. vacuum is 100° F. The temperature of paper on the dryer in the vacuum can never exceed 100° F. until it becomes absolutely dry. For water cannot exist, as water, but must turn to vapor at any temperature above 100° F at a 28 in. vacuum. This fact gives a very low drying temperature, which can be varied at will, up or down, depending on the amount of vacuum. When the vacuum is changed, and this may be done quickly, the drying conditions are instantly changed. There is no delay in bringing about the change as in the case of standard paper machine dryers where changed drying conditions are dependent entirely upon raising or lowering the temperature of the dryers, by increasing or decreasing the pressure of the steam within the dryers and then waiting for them to heat up or cool off, as the case may be. Drawing No. 489 shows the automatic vacuum control. In this device there is a glass tube, one end of which is immersed in a small tank of mercury and the other end fits into a special pipe fitting made from an angle valve. One end of the angle valve fitting is connected, by a pipe, to the vacuum chamber. There is a small steel rod, with a needle point on the end, going down into the glass tube. The valve stem packing gland packs this against air leaks, but allows the needle to be raised, or lowered, in the glass tube. As the vacuum increases the mercury rises in the tube until it comes in contact with the needle, which makes an electrical contact through a relay and battery (as shown) and a wire from the battery into the mercury. This relay in turn operates a solenoid controlled valve, allowing air to leak into the vacuum chamber, thus preventing the vacuum from increasing further. The solenoid controlled valve has another valve attached to it, which can be operated by hand in case of failure of the solenoid, and also to regulate the size opening for the air to leak into the vacuum chamber. This device can be made to control the vacuum within .002 inches. By raising or lowering the rod with the needle point in the glass column, any amount of vacuum may be selected and maintained automatically and thereby control the rate of drying as previously explained. This rod may be operated by a device which operates directly from the wetness or dryness of the paper, in which case the control is entirely automatic. This last feature is not shown in the drawing.

Seeking Reliable Data

Much data is being collected by skilled engineers who have recently given the subject of drying a great deal of thought and eventually reliable data will be obtained. The difficulties are great, however, and after the data are all at hand it is going to be quite a task to make assumptions from this data as to just what takes place. Such questions as, What happens to the sheet of paper passing from dryer to dryer? will have to be answered. Does water actually evaporate in the pass? If it does evaporate it must get its latent heat from somewhere to do so. Where does it get it? The temperature of the various dryers increases as we approach the dry end. How then shall we get an average figure of evaporation? Many such questions can be asked and in the present state of the art it is quite impossible to answer these questions entirely satisfactorily.

Some difficulty has been encountered in explaining the phenomenon of evaporation at temperatures under 212° F., but the following helps to an understanding. Under a vacuum of 28 inches of mercury for example, the steam tables indicate the temperature of evaporation to be practically 100° F. and the quantity of water in 1 cu. ft. of vapor to be 0.002851 lb. The humidity table indicates that 1 cu. ft.

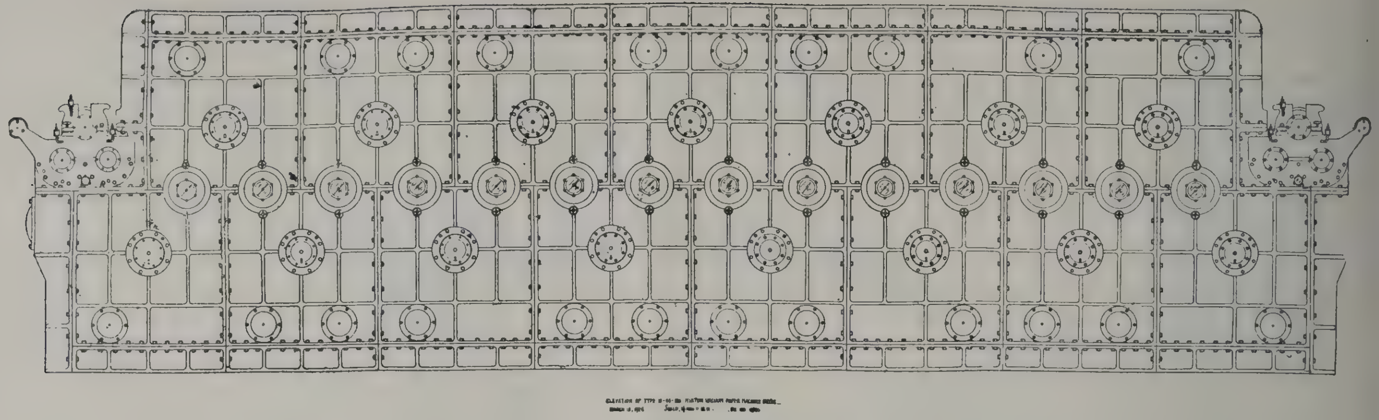
Ledger Accounts in String

Five hundred years ago the ruling Incas of Peru required their subjects to deposit all grain in community warehouses. From these it was reissued as needed and the government took its percentage as a tax. Printed income tax forms and business receipts on paper were unknown, but each tax-paying citizen was recorded on a string suited to his station in life.

Rather crude and uncertain, the ways the Peruvians had of recording their transactions years before the three little caravels of Columbus made their painful way to the West Indies. The advantages of our civilization were impossible under such circumstances.

Our higher standard of living could not be maintained today if it were not for generous quantities of paper and efficiently operated printing presses.

Hammermill Paper Company
Erie, Pennsylvania



Elevation of Vacuum Drier for 230-in. High Speed News Machine

of free air at atmospheric pressure will at 100° F. hold just 0.002851 lb. of water. The two are equal. In other words the vapor pressure (the weight of water vapor per cubic foot) is the same in the vacuum as in the free air, and, as we have previously shown, it is the vapor pressure that controls the drying or evaporation.

There is obviously a limit to which the temperature of evaporation can be lowered by means of absorption of the water vapor by air. Moreover, the lower this temperature is, the less economy will result from the drying operation because of the large quantity of air that absorbs heat as explained above. Again the entering air has to be sufficiently dry to be efficient in absorbing moisture. The ideal condition of course would be to have the entering air entirely free of moisture but this of course cannot be had. Also if the temperature of the entering air were above the temperature of evaporation the air would then give heat up to the paper and the drying rate would be still further increased but the economy would again be lessened, since a large quantity of heat would be absorbed in raising the temperature of the air.

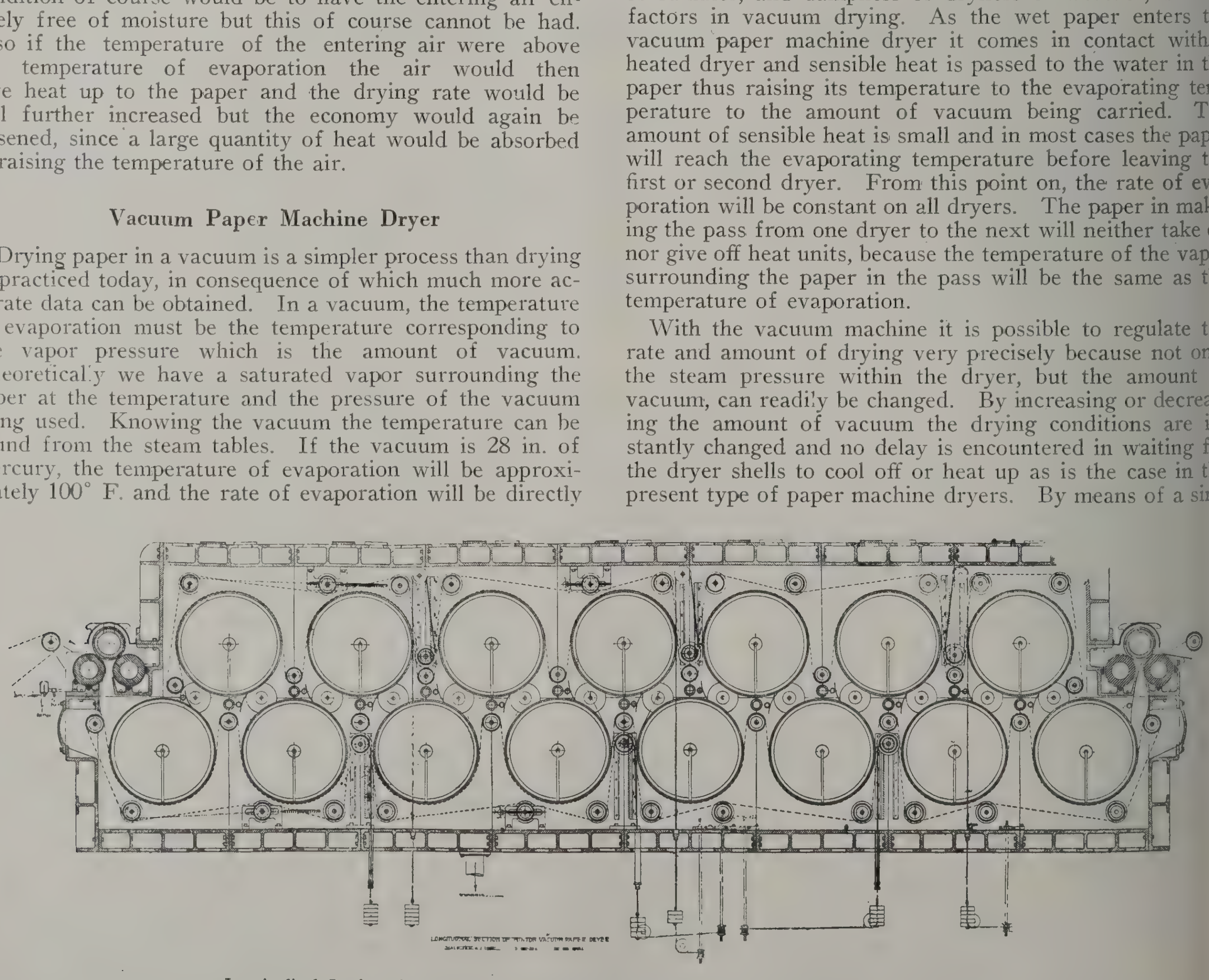
Vacuum Paper Machine Dryer

Drying paper in a vacuum is a simpler process than drying as practiced today, in consequence of which much more accurate data can be obtained. In a vacuum, the temperature of evaporation must be the temperature corresponding to the vapor pressure which is the amount of vacuum. Theoretically we have a saturated vapor surrounding the paper at the temperature and the pressure of the vacuum being used. Knowing the vacuum the temperature can be found from the steam tables. If the vacuum is 28 in. of mercury, the temperature of evaporation will be approximately 100° F. and the rate of evaporation will be directly proportional to the difference between the temperature of the steam in the dryer and the temperature of evaporation, all other factors being considered equal, such as condition and tension of dryer felt, thickness of dryer shell, oil or grease film on inside of dryer, and surface of outside and inside of dryer shell.

As to Vacuum Drying

In vacuum drying, the rate of drying and the thermal efficiency are absolutely independent of weather conditions since the paper is not dried in the presence of air but in a vacuum and at a temperature which is maintained constant regardless of the outside temperature or humidity. Winter or summer, and dampness or dryness of weather, are not factors in vacuum drying. As the wet paper enters the vacuum paper machine dryer it comes in contact with a heated dryer and sensible heat is passed to the water in the paper thus raising its temperature to the evaporating temperature to the amount of vacuum being carried. The amount of sensible heat is small and in most cases the paper will reach the evaporating temperature before leaving the first or second dryer. From this point on, the rate of evaporation will be constant on all dryers. The paper in making the pass from one dryer to the next will neither take on nor give off heat units, because the temperature of the vapor surrounding the paper in the pass will be the same as the temperature of evaporation.

With the vacuum machine it is possible to regulate the rate and amount of drying very precisely because not only the steam pressure within the dryer, but the amount of vacuum, can readily be changed. By increasing or decreasing the amount of vacuum the drying conditions are instantly changed and no delay is encountered in waiting for the dryer shells to cool off or heat up as is the case in the present type of paper machine dryers. By means of a sim-



Longitudinal Section of Vacuum Drier for 230-in. High Speed Machine Showing Single Top and Bottom Drier Felts

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The Company is also the manufacturer of the INTERNATIONAL CORE with PATENTED STEEL CAP specially designed to resist torsional strains.

ple but effective device, the amount of vacuum can be automatically regulated to within 2/1000 of an inch. It is feasible to connect this control with another device whereby the moisture content of the paper, leaving the dryer will regulate the vacuum. Thus the papermaker may be relieved forever of the uncertainty of how wet or how dry his paper is going into the reel, absolute uniformity of moisture being assured. This makes for a considerable saving as the news papermaker can leave just 10 percent of moisture in his paper and get paid for it. As it is now the papermaker dries his paper below ten percent as a margin of safety because of the fact that he cannot control his moisture per cent very close since his drying is dependent upon weather conditions and since his control of drying temperature is limited to his control of the steam pressure which control has a very considerable lag.

Thermal Efficiency High

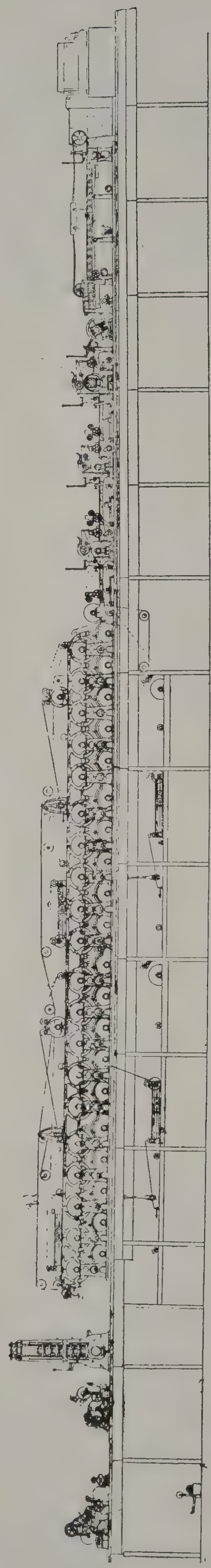
The thermal efficiency of vacuum drying must necessarily be high, almost 100 percent. The dryers being enclosed in a high vacuum (which acts similar to a thermos bottle) only give up heat to the paper which is in contact with them —no air is present to absorb and carry away heat units. If for instance a vacuum of 28 inches of mercury is carried the drying temperature or temperature of evaporation will be about 100° F. and the vapor given off will be at this same temperature. The vacuum case will therefore be at this temperature. If, as occasionally happens on a hot day in summer, the temperature of the air in the machine room should be over 100° F. the vacuum dryer would actually take a small amount of heat from the atmosphere of the room and the machine would be apparently over 100 percent efficient.

Making Calculations

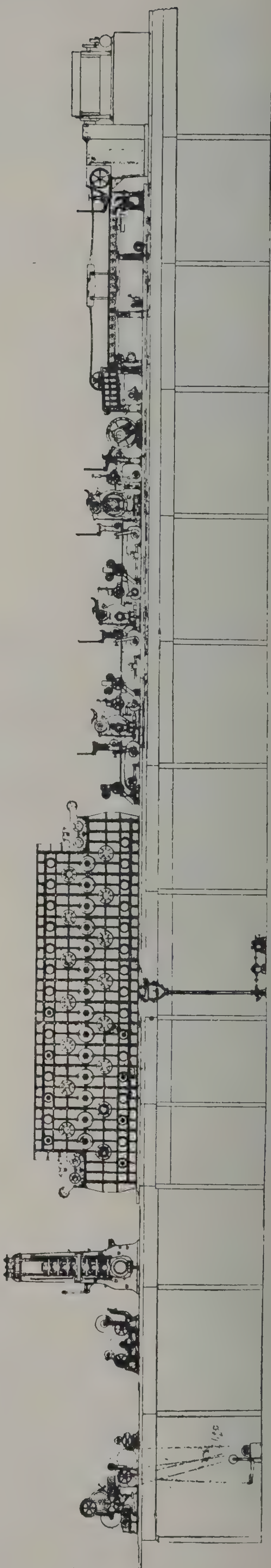
Considerable emphasis above has been put upon the fact that the rate of drying depends on the difference between the temperature of the steam inside the dryer and the evaporating temperature of the water in the paper. In calculating the size and number of dryer rolls this fact is important. If, in designing a new paper machine, the moisture content of the paper and the rate of evaporation of the moisture be known, the number and size of dryers necessary can readily be calculated. Also the theoretical number of heat units necessary to complete the drying process can be determined. In theory these figures, applicable to the vacuum process, can be arrived at with a good deal of accuracy but allowance must be made for such factors as the smoothness of the dryer service, quality, thickness and tension of felts, thickness and material of dryer shells, and surface of inside and outside of dryer. These factors, however, are the same as are met with in atmospheric drying.

Low Drying Temperature Improves Paper

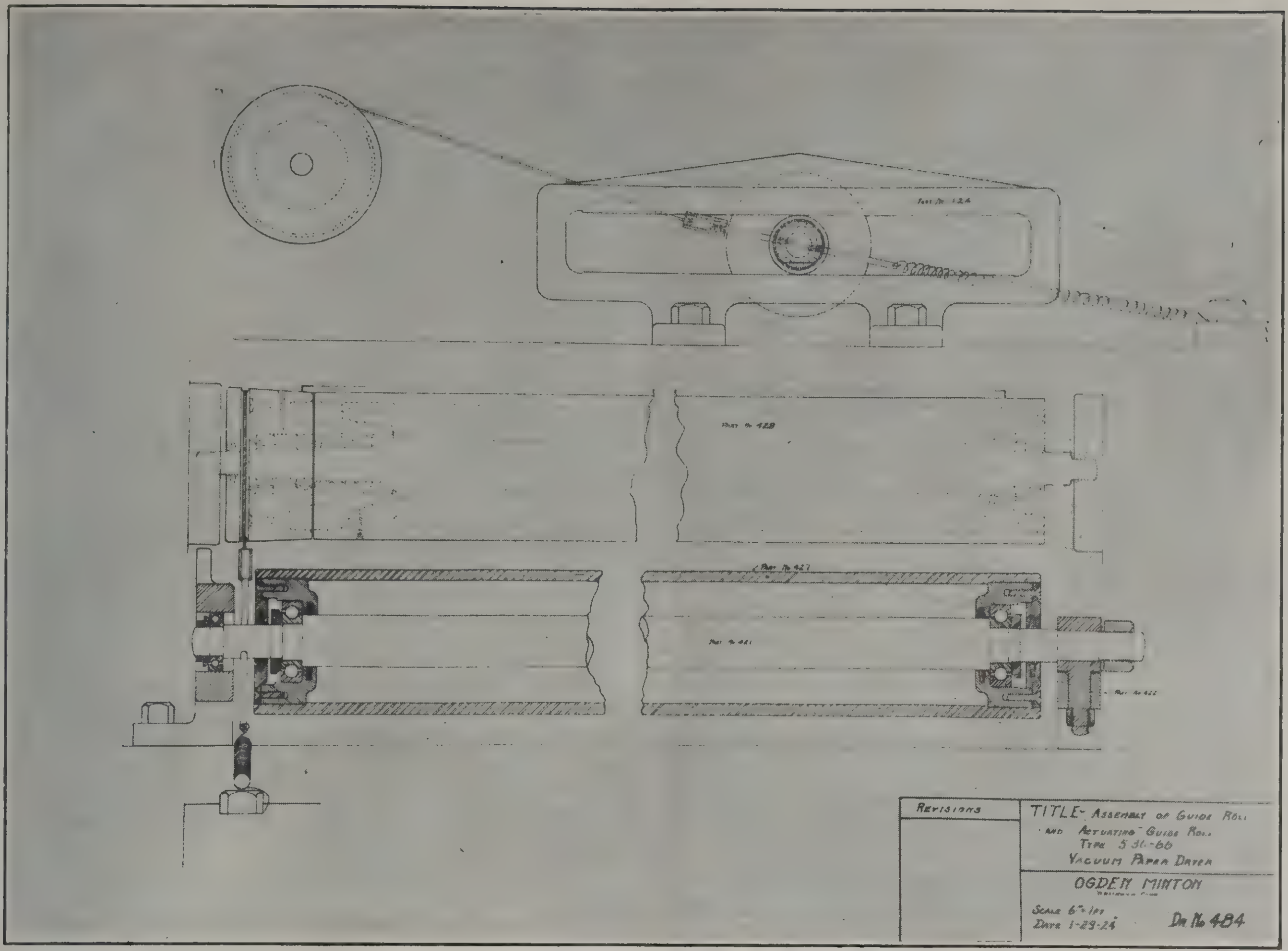
It is conceded by almost all modern papermakers that a low drying temperature improves the quality of the paper in strength, degree of sizing, brightness of colors or tints and the ability of paper to age without turning a brown faded color when exposed to light for any long period of time. When paper is dried in a vacuum paper machine dryer under a vacuum of 28 in. of mercury the paper can never reach a temperature over 100° F. which temperature is no greater than the temperature of some of the hot days of summer. The fibers of paper dried at this temperature are not scorched or burned. The low drying temperature will not turn the size in the paper to starch or fade delicate colors or tints. It is impossible with the data now available to say just how much stronger or better paper will be when dried at this low temperature but in some cases the added strength and quality undoubtedly will be considerable. This is particularly true of paper made of the cheaper grades of stock such as groundwood. Thus the papermaker can use cheaper stock and make the same or a better quality of paper.



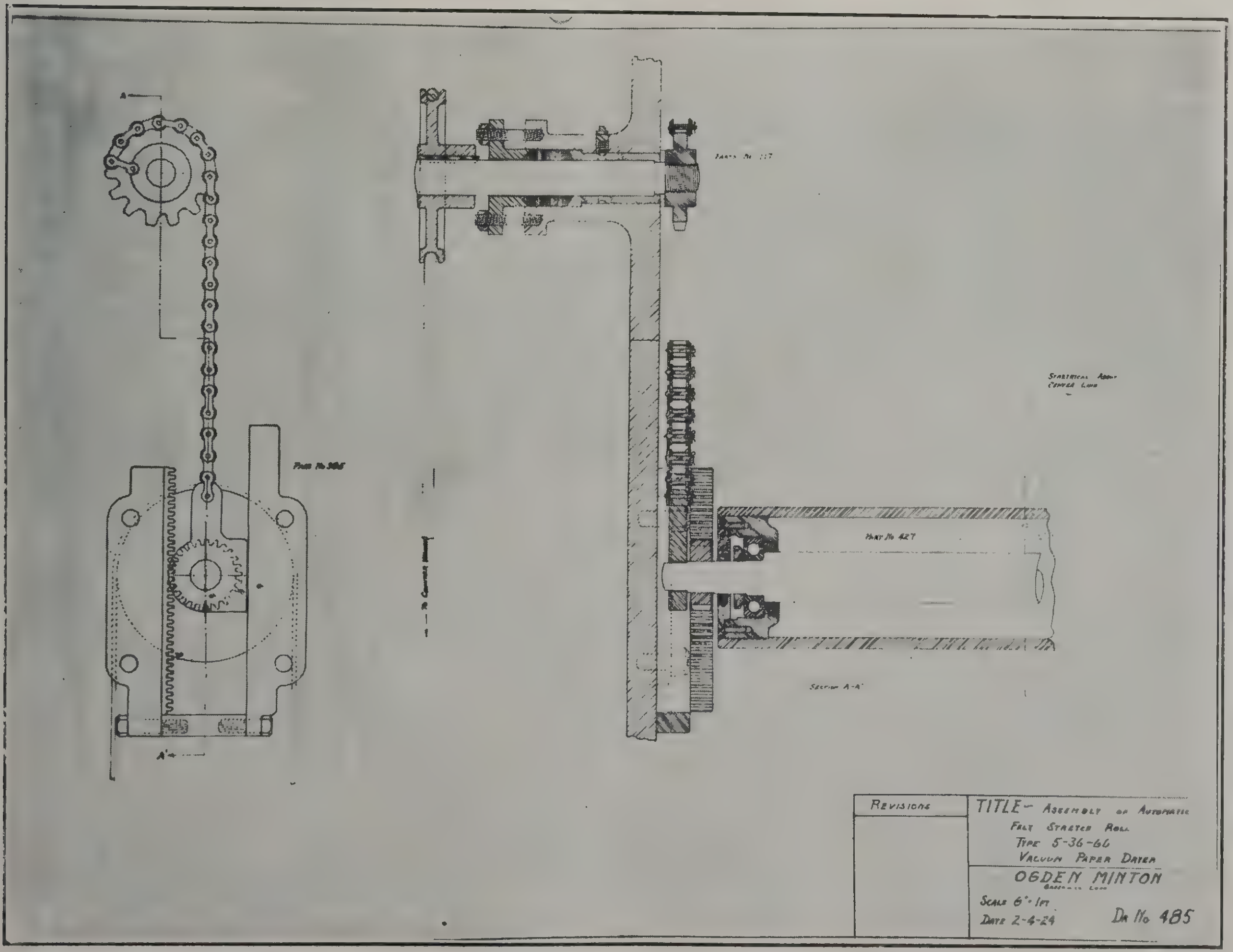
Elevation of Complete High Speed Paper Machine—230 in. Wide of Standard Design



Same Machine as above with Vacuum Driers



Felt Guide Roll—Longitudinal Section



Automatic Felt Stretch Roll

Number of Dryers Required

The number and size of dryers necessary to a drying machine in part depends upon the percentage of water to be evaporated from the paper. In referring to this percentage, 70 percent wet shall be taken to mean that the web contains 70 percent water and 30 percent of bone dry stock. Table I has been prepared to show the quantity of water necessary to be evaporated to produce one pound of paper both bone dry and 8 per cent wet. (Some papermakers work upon a bone dry stock basis and some upon an 8 percent wet stock basis.) Incidentally it may be pointed out that this table shows the importance of having the wet presses perform properly. There is a certain percentage of wetness of stock that is most economical, considering cost of press felts against cost of steam, but this is a percentage that each papermaker must determine for his own particular paper machine in the light of cost of felts and cost of steam.

TABLE I.

Wet water %	Bone dry stock %	Water evaporated per lb. bone dry paper Lb.	Water evaporated per lb. 8% wet stock Lb.
75	25	3	2.68
74	26	2.85	2.55
73	27	2.70	2.404
72	28	2.57	2.294
71	29	2.45	2.174
70	30	2.33	2.07
69	31	2.23	1.972
68	32	2.12	1.871
67	33	2.03	1.788
66	34	1.94	1.7
65	35	1.86	1.625
64	36	1.78	1.556
63	37	1.70	1.484
62	38	1.63	1.422
61	39	1.56	1.36
60	40	1.50	1.30

From tests, the papermaker can determine the percentage of wetness of paper stock going to the dryer. This percentage known, the amount of water to be evaporated to produce 8 percent wet paper can be determined from Table I. For illustration let it be assumed that the paper stock is at a temperature of 65° F. and is 69 percent wet (nearly an average for newsprint.) Table I indicates that 1,972 lb. of water is to be evaporated for each pound of 8 percent wet paper to be made under these conditions. Table No. 1, line No. 2, indicates the temperature of evaporation and line No. 7 the total number of B. T. U.'s necessary to evaporate 1 lb. of water. This latter figure multiplied by the number of lbs. of water gives the total B. T. U.'s necessary to produce 1 lb. of paper. Assuming the paper to be dried in a vacuum paper machine, the calculation is as follows:

Temperature of wet stock..........................65°
Vacuum ....28 in. mercury
Temperature of evaporation ....100° F.
Total B. T. U.s necessary to evaporate 1 lb of water..1070.6

Then from Table I.

Wetness ....69 percent
Water to be evaporated............1.976 lb.

Then 1070.6 x 1.976 = 2,116.50 B. T. U.'s necessary to produce 1 lb of 8 percent wet paper.

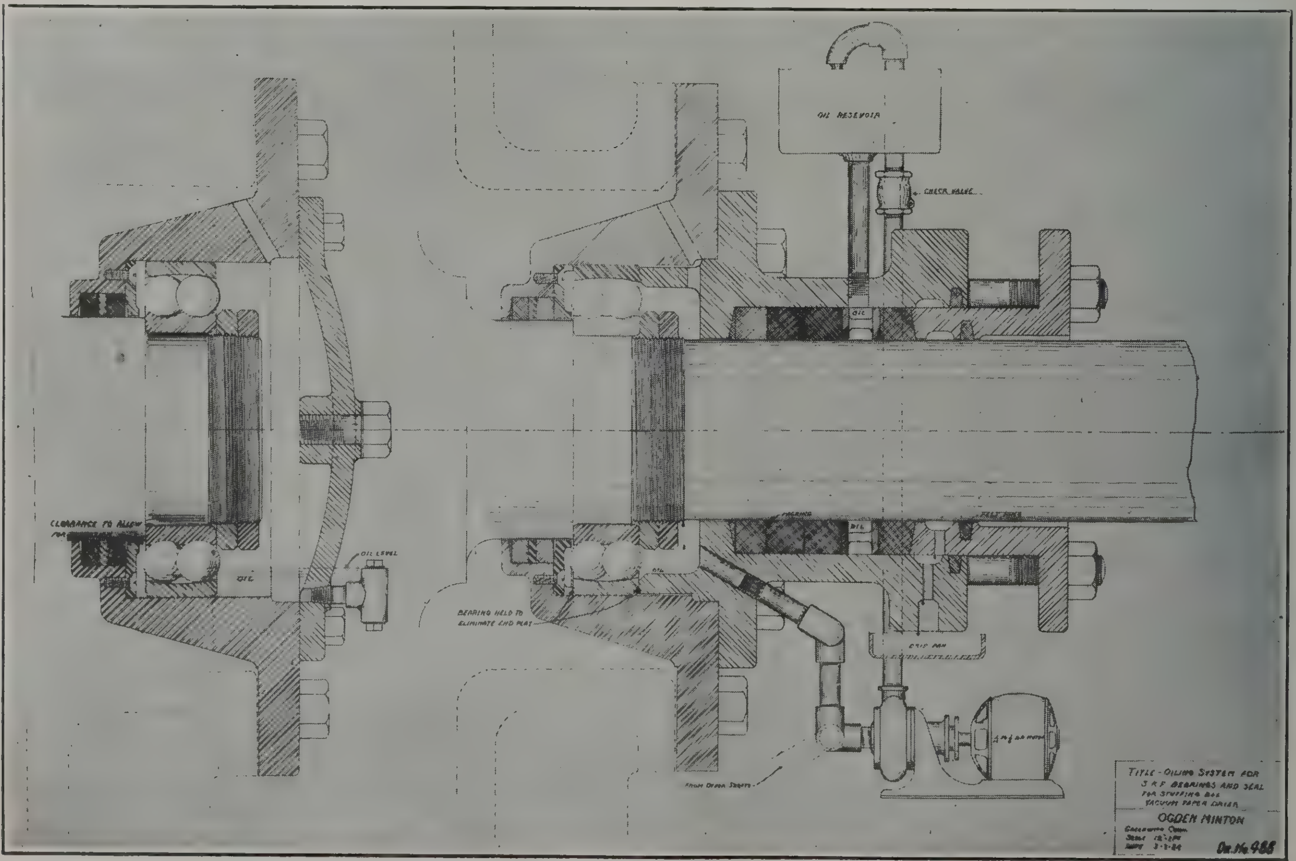
The negligible amount of sensible heat necessary to raise the actual paper stock from 5° F. to 100° F. has been purposely disregarded.

Each pound of steam at 5.3 lb. pressure contains 960.0 B. T. U.'s of latent heat which is given up to drying paper.

Then $\frac{2116.50}{960.0}$ = 2.203 lb. of steam at 5.3 lb. which is necessary to produce 1 lb. of 8 percent wet paper with 100 percent thermal efficiency.

Some Mill Data

A vacuum paper machine dryer will very nearly attain the results indicated by these calculations. One of the best known, best managed, and most modern newsprint mills in Canada is understood to use 3.5 lb. of steam per lb. of paper. Its steam costs $0.65 per 1,000 lb. The mill in



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question makes 100,000 tons newspaper per year. This data affords the basis for an interesting calculation:

Steam used per lb. of paper....................3.25 lb.
If dried in a vacuum paper machine dryer,
Steam used per lb. of paper....2.203 lb. theoretical
Say 2.25 lb actual
Saving of steam per lb. of paper..............1.00 lb.
100,000 x 2,000 lb steam = 200,000,000 lb of steam

$$\frac{200{,}000{,}000 \times \$0.65}{1{,}000} = \$130{,}000$$

per year saving in steam alone

Practical Considerations

It is an interesting calculation to show the amount of water vapor that has to be absorbed and carried away by means of air from a machine room equipped with two large high speed news machines. Assume a case, and there are such, of a machine room with two machines capable of making 10 tons of paper on each machine every 24 hours. Assume also that the paper going to the dryers of these machines is 70 percent wet, which is a fair figure. Then for every pound of paper made there is (see Table I) 2.07 lb. of water evaporated:

100 tons x 2,000 lbs. x 2.07 = 414,000 lbs. of water evaporated per 24 hours and for the two machines there would be 828,000 lb. of water evaporated per 24 hours. It is no wonder that an elaborate ventilating system is necessary to take care of this amount of moisture, and it is not surprising that heat losses are so great, when considered from this standpoint. The vacuum paper machine dryer will evaporate this moisture at almost 100 percent thermal efficiency and then return practically all of the heat used for evaporation, in the form of water at 90° F. for use in the beaters and flowbox, which in the winter time in a northern mill is an important item.

Savings

In estimating the saving in steam that will be brought about by changing from a standard dryer section to a vacuum paper machine dryer, each individual case has to be considered on its own merits. Some dryer sections are much more efficient than others. In some cases the cost of steam is much less than in others. The percent of saving of steam per pound of paper made is of course more attractive to the mill making the cheaper grades of paper. For if the vacuum paper machine dryer saves a certain amount of money per ton and the price per ton is low, the saving is relatively large, whereas if the price per ton be high the saving in steam would appear of relatively less importance. On any low priced paper such as news, board of various kinds, or pulp the saving in steam alone can be shown to make it profitable for the papermaker to replace his present dryer with a vacuum paper machine dryer. Take for example a news machine making 100 tons of paper per day. We have:

100 tons per day x 300 day = 30,000 tons per year.

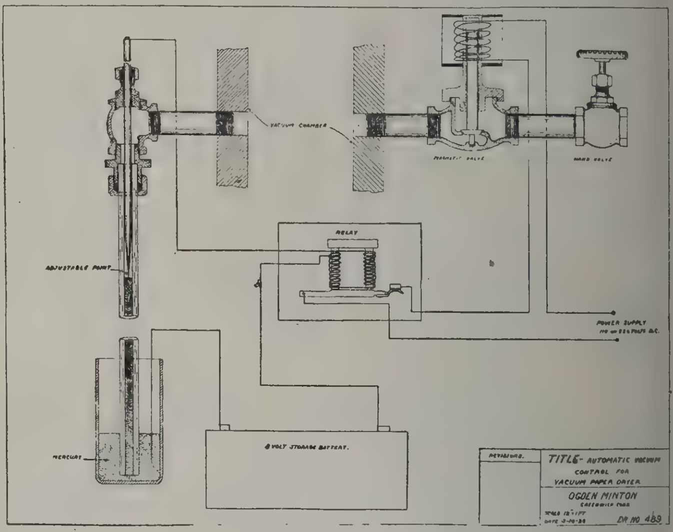
30,000 tons x 2000 lb.=60,000,000 lb. of paper per year. We have shown previously that the saving is 1 lb. of steam per lb. of paper made, and when an average is taken the year around, including winter weather, this figure is very conservative. If steam costs 60c per 1000 lb. which is an average figure for northern mills we have:

$$\frac{60{,}000{,}000}{1000} \times .60 = \$36{,}000$$

saving per year in cost of steam. This is the interest at 6 percent on $600,000,000. An estimate of the cost of a vacuum paper machine dryer for a machine of this type would be under $100,000, showing a considerable saving. Add to this, the saving due to the fact that all of the heat units used in drying the paper are returned in the water at 90° in the hot-well for use in the beaters and the flowbox, which in winter are needed and must be supplied, and the saving in steam per lb. of paper would be more nearly 3 lb. than 1 lb. On a year round average it can be shown that the saving in steam would average close to 2.5 lb. making the saving figure $90,000, instead of $36,000 as shown. In this case the vacuum paper machine dryer would pay for itself in one year. To the above savings there must be added the savings in cost of felts, lubrication, floor space occupied, and the improved quality of paper. This last item will be considerable. More groundwood may be used in the furnish and less sulphite pulp and the same strength paper made. Still there is to be taken account of savings due to lowered power and surely the improved working conditions are an item of considerable value, as in some instances the vacuum paper machine may be operated with fewer men.

Working Conditions

In the opinion of the author one of the best features of the vacuum paper machine dryer is that the machine room will be free from the moisture and heat and the machine so shortened that working conditions will be very greatly improved. The distance from the last wet press to the calendar or reel will seem ridiculously short. Drawing No. 492 shows the comparison of a 230 in. news machine, with standard dryers, and with a vacuum paper machine dryer. This particular machine has a comparatively low temperature of evaporation and the vacuum paper machine dryer is longer and contains more dryers than ordinarily would be the case. Many machine rooms of which the author knows are very oppressive places in which to work on a hot day in summer. The humidity is just about 100 percent and the temperature very high.



Automatic Control for Vacuum

Conclusions

In closing the author would like to add that the results obtained have come about after six years of intensive work on his own part and those associated with him. The development work was of a pioneer nature. Data had to be collected as the work proceeded. Much of this data could not be found in text books and was obtained only after a great deal of original research. Experiments were carefully and scientifically carried out and the results tabulated. All of this required considerable time and a lot of patience and perseverance. The machine design called for careful study as the pressure due to the atmosphere is high and stress and strain diagrams had to be carefully made of all parts. These calculations have been proved and demonstrated as correct in the dryer which has been built and subjected to the most rigid tests. The cost of this work has been large. Many models were made and two full size dryers were built, torn down, and rebuilt several times, before the present perfected commercial type was evolved. An attempt was made, with only partial success however, to keep the work being done from receiving publicity until the perfected dryer was ready to demonstrate its possibilities in a commercial manner.

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Dictionary of Papermaking Terms

Names and Terms Used in the Paper Industry—Titles and Definitions of Sizes and Finishes of Paper and Paper Products

A SUBCOMMITTEE of the Committee on Simplifications of Paper Sizes appointed by the Bureau of Standards in 1921, known as Sectional Committee on Definitions, of which Clarence J. West is chairman, has prepared, in collaboration with Fred A. Curtis, formerly chief of the Paper Section of the Bureau of Standards, the accompanying dictionary of papermaking terms, whic was released for publication early in the year. In reprinting the matter PAPER has subjected it to a certain amoun of condensation whereby redundant, foreign and obsolet terms have been eliminated so as to improve the dictionar for reference and consultation by manufacturers.

A

Abrasive Paper. A good grade of manila wrapping paper, in many weights, coated with glue and an abrasive material such as sand, crushed quartz, garnet, emery, carborundum, etc.

Absorbent Paper. (a) A general term representing a class of papers that are spongy, loosely felted and bibulous in character. This class of papers includes blottings, matrix paper, fiber paper and towelings.

(b) A loosely formed sheet for absorptive purposes; stock in the beater is cut quickly with roll down hard and with minimum suction and pressure on the machine; soft rags, soda pulp and cotton linters are used.

Acid Proof Paper. Paper which has been treated to resist the action of acids or acid fumes; paper so treated is generally wood manila, kraft and rope wrapping.

Adding Machine Paper. Machine finished book paper cut into rolls about 2.5 inches wide; used with adding and computing machines.

Address Label Paper. A specially prepared, light-weight, colored flat writing, usually yellow, for use in addressograph machines.

Advertising Stickers. Small pieces of book or writing paper, upon which an advertisement has been printed or lithographed; gummed on one side for adhesive purposes; generally a gummed label paper.

Air-Dried Paper. Paper which, having been immersed in a tub of a solution or emulsion made of animal hide cuttings glue, starch, tapioca flour, Irish moss, or other vegetable substances, and passed through squeezing rollers, is, in a continuous web, carried in festoons, hung over moving slats or carried over a series of driven revolving carrying rolls or carried over a series of revolving slatted drums and dried by circulation of air, controlled as to temperature and humidity, while subjected to more or less tension; subsequently wound again into rolls before finishing.

Album Paper. Cover paper made in solid colors, particularly in black and gray; designed primarily for making up albums for photographers. A soft surface which will take paste without cockling is essential; it must be free of impurities which would discolor the print.

Alkali-Proof Paper. (a) A paper which has been made or treated to resist the corrosive action of alkalis. (b) Paper that is specially dyed with colors that are not affected by alkalis.

Amber Laid. Referring to a laid sheet of amber color. However, a laid paper is made in other colors than amber.

Angle. A term used to denote the shape or angle of a sheet cut to special shape, such as envelope papers. An English term.

Animal Sized. A term applied to any fine paper, sized with gelatin or glue, either in the beater or tub-sized; in general only high grade writings, bonds, ledgers, etc., are animal-sized. The purpose of the operation is to improve the quality of the sheet as to strength, ink resistance, writing surface, erasing properties, etc.

Announcement. Fine stationery of various qualities and finishes; made of rag and chemical woodpulps.

Anti-Acid Manila. A strong manila wrapping paper, specially treated to resist the action of acids; sometimes used for insulating purposes. See Acid-proof paper.

Antiquarian. A size of paper 31 by 53 inches.

Antique Book Paper. Book paper, possessing bulk and with an unfinished or uncalendered surface.

Antique Cover Paper. Uncoated paper, possessing bulk and with an unfinished or uncalendered surface.

Antique Finish. Paper, not highly finished and possessing bulk and "tooth"; a soft bulky pulp such as soda pulp, and soft rags, are often used; finish obtained without the use of the machine calenders. The term is generally applied in connection with book, cover and drawing papers and bristol board.

Anti-Tarnish Paper. Papers made of sulphite, sulphate or jute; they are used as wrappers to keep a metal enclosure from rusting or tarnishing; generally kraft, wood, manila or tissue. Sometimes a waxed paper. The paper must be free from sulphur compounds, acid and alkali.

Anti-Tarnish Tissues. Wrapping tissue paper used for protecting polished metal goods; is supposed to be free from any chemicals that produce a tarnishing effect on silver, brass, etc.

Appearance. The effect upon the sense of sight, resulting from observation of the color, finish and formation of papers, cardboards or boards.

Art Covers. Special decorative cover paper, used for announcements, greeting and valentine cards and the like.

Artificial Leather. Paper having the appearance of leather; made of rope, leather clippings or duck cloth, then treated and embossed; used as a cover paper, for covering books, upholstering furniture and finishing the insides of automobiles.

Artists' Illustration Board. High grade pasted bristol, solid or filled, especially finished and suitable for pencil drawings, pen sketching or water color work.

Art Paper. Double coated book paper, with a highly polished surface; used for printing from fine screen halftone cuts; an English term seldom used in the United States.

Atlas Paper. Paper suitable for printing, engraving or lithographing maps and atlases.

Asbestos Paper. Building papers mad wholly or principally of fibrous asbesto and used as a preventative against fir and for insulating purposes.

Atlas. A size of paper 26 by 36 inches.

Automobile Storage Bags. Large, speciall constructed bags made of sulphite, sulphate or rope stock; used as a coverin for automobiles while in storage.

Automobile Tire Rolls. Paper wrapper for tires; used by manufacturers for protecting individual tires; usually kraf paper in rolls 2 to 10 inches wide, 8 to inches in diameter.

Azure Laid. Writings of a particular shad of blue; made of soda, sulphite and rags a laid dandy roll is used, in imitation o the laid or chain used in making hand-made paper.

Azure Wove. Same as azure laid withou the laid mark.

B

Backing Boards. A term descriptive of a board, made of pasted chip (mixed pape stock); used for backing mirrors or furniture and for partitions between drawer in furniture to prevent dust from goin from one drawer to another.

Backing Paper. Papers which strengthe the flong or mold of alternated sheets used as a mold for stereotype work; the paper must paste down easily; it is generally brown in color.

Back Lining. A paper glued to the backbone of sewed books to bind better the signature and to keep the backbone of the book proper free from the backbone of the cover.

Baggage Tags. Strong manila or colored tag, made with eyelet, generally used for identification of personal baggage, while en route or in storage; the kinds of papers used are document manila, tag board, tough check, etc.

Bag Liners. A general term applied to paper used within bags for additional protection to the contents; the chief requirement is that the paper shall be strong enough for that purpose.

Bag Paper. Paper commonly used for making bags; the chief requirement is that it shall be strong enough to carry the contents of the bag; the kinds of paper used are tissue; bogus manila, glassine, kraft, paraffin, rope, vegetable parchment, wood manila, sulphite wrapping, etc.

Baking Cups. Specially constructed cups, made of sulphite wrapping paper and sometimes used as a liner for baking utensils.

Baling Paper. Any heavy paper used for covering bales to protect contents; may be reinforced with cloth fabric (cheese cloth) which is pasted to one side after it has been coated with asphalt, or it may be crinkled, corrugated or treated with asphalt.

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Bandage Paper. Absorbent paper, similar to toweling, and generally crinkled. It is used for bandaging and is generally made of bleached sulphite pulp.

Bank Note Paper. A strong durable and pliable bond paper, made of cotton and linen rags and used for currency purposes.

Banks. **(a)** High class machine writings, which are very strong and thin; made of rags or chemical woodpulps. **(b)** A high grade bond paper, somewhat resembling bank note paper.

Barber-Dried. Indicates a method of drying paper; after tub-sizing the moist paper is passed over small solid revolving rolls, festoon fashion, permitting of modification and control of tension, and dried by means of heated air; from the name of inventor.

Barber's Head Rest Paper. Paper, in rolls, used in connection with barber's chairs; usually cheap machine-finished book, news or an absorbent paper resembling toweling.

Barrel Liners. Papers used to line barrels; the chief requirement is that the paper shall be strong enough to carry the contents; it may also be crinkled or creped to conform more nearly to a standard size barrel; it may also consist of two layers of creped kraft with a layer of asphalt between.

Basis Weight. A term used to indicate the weight of an individual sheet of paper, in terms of the weight of a ream of that paper; the unit of basis weight is the pound and the standard ream size should be 25 by 40 inches. The sizes of different classes of papers on which basis weights are now dependent are as follows:

Book	25 x38	500
Bristol	22.5x28.5	500
Cover	20 x26	500
Writing	17 x22	500
Blotting	19 x24	500
Tissue	20 x38	480
News	24 x36	500
Wrapping	24 x36	480

Beaming Paper. A water finished kraft used in the manufacture of silk. Made in 24 by 36, 480, from 140 to 200 pounds.

Bedstead Wrapping Rolls. Rolls of 30-lb. kraft or waxed paper, 2 to 4 inches wide and 3 inches in diameter, used for wrapping brass or iron beds for shipment and storage.

Beer Plaques. A combination or solid chip board, usually lined, printed and cut into plaques for display and for advertising purposes.

Bells, Paper. Bells made of white or colored tissue paper, formed into bell shapes and used for decorative purposes.

Berry Boxes. Boxes of specified capacity, made of hard-sized single manila-lined chip board.

Berry Pails. See Berry Boxes.

Bible Paper. Light weight opaque printing paper, in which strength and opacity are the chief characteristics; special care is given to the preparation of the stock; rags and chemical woodpulp are used, as well as a large proportion of special filler; used originally for bibles; generally basis 30 pounds or less in weight.

Bill Paper. Writing or bond papers, suitable for commercial bills, statements, notes, bills of exchange, acceptances, etc.

Bill Straps. A general term applied to strips of paper used to fasten currency notes into packages, sometimes colored to denote different denominations of bills; the kinds of paper used include kraft or manila wrapping, bond or ledger paper.

Billing Machine Paper. Flat writings or bond papers, suitable for use on billing machines; sometimes in rolls, using several colors with carbons. Chemical woodpulp generally used.

Binder Board. Cloth board, made from mixed papers and low grade rags; used for book covers.

Binding, Lantern Slides. Passe-partout or gummed black cloth for covering the edges of glass lantern slides.

Biscuit Caps. An English term applied to thin white machine glazed papers used for making various sized bags for confectionery and similar trades.

Biscuit Paper. Paper used to wrap cartons and to line boxes of biscuits; light weight sulphite or kraft paper, either machine glazed or finished on both sides, is used as well as a decorated machine glazed paper.

Black Line Paper. Paper for reproducing line drawings, etc., in such a manner as to produce the lines in black rather than in white as is the case with blue and brown print paper. A well made writing paper is chemically treated to reproduce the drawings.

Black Photo Paper. Cover paper for photographic purposes; generally duplex and made of black stockings; used for protection of camera films.

Black Wrapping Paper. See Black photo paper.

Blank Book Paper. A paper suitable for use in the manufacture of blank books; book, flat writings, bonds, ledgers, news and No. 2 manila are used according to the grade desired.

Blankets, Paper. Large sheets of paper for covering purposes; sometimes waterproofed to resist moisture; wood manila and vegetable parchment are used.

Blanks. A group of cardboards which may be coated or uncoated, pasted or non-pasted, made in standard thicknesses with white or colored liner, the middle being of a different stock from that of the liner.

Blasting Paper. Paper used by miners for making a container to hold black powder, when put up in narrow width rolls, 6 or 9 inches wide, weighing 4 to 6 pounds to the roll; an extra heavy drab water-finished wood manila or sulphite wrapping paper is generally used.

Bleached Manila Lined Chip Board. Box board with good bending quality; made with chip base (mixed papers), with a bleached manila liner (manila clippings bleached); used principally for folding.

Blotting Paper. A paper used chiefly for absorbent purposes; blotting papers are generally used for absorbing ink or for conversion by chemical processes.

Blue Print Paper. Paper for sensitizing for use in sun or photo copying; light to medium substance; hard, sized, tub-sizing with animal gelatin preferable, surface firm, to be little affected by moisture; fibers long and flexible, to give good folding and wearing qualities, and strong when wet; finish smooth, not slippery, to insure even spread of solution; free from chemicals detrimental to the sensitizing solution, particularly those of an oxidizing nature; now made in many grades, more or less true to type may be treated with other solutions to print colors other than blue.

Boards. Papers made on a multicylinder or wet machine principally from waste paper, woodpulp, straw and cheap rags; the chief characteristic of this class of papers is rigidity or stiffness and they are generally heavier than the other classes of paper.

Bogus. **(a)** Wrappings and cardboards; denotes contents to be of inferior or low-grade stock. **(b)** Denotes re-manufacture from old papers, producing a sheet of similar characteristics, but generally having less strength and varying in appearance when used singly; generally understood to be made of No. 1 mixed papers.

Bogus Bristol. Cardboard made of over-issue news, or mixed papers with a white or colored liner on each side, sometimes vat-dyed, in most cases calender stained, used for tickets and advertising.

Bogus Manila. An inferior grade of manila paper, generally of old manila papers re-manufactured. Also frequently applied to a rag or bogus paper which has a yellowish tint.

Bogus Wrapping. Coarse cheap wrapping paper, usually gray in color and having little strength; made from mixed papers; also known as rag wrapping, gray rag or gray wrap; used for wrapping when covering, not strength, is essential.

Bonbon Cups. Small receptacles, made in the form of cups, of sulphite bond or ledger paper.

Bonds. Writing paper of light to medium substance made on fourdrinier machine; hard-sized, either tub or engine; may be loft, air or machine dried, carrying moderate glazed or unglazed (dull) finish; closing pebbled to obliterate open or cloudy formation incident to long fibers; originally designed for uses when strength and durability are essential, such as government bonds, legal documents, wills, life-insurance policies, etc. Now made in many grades, fairly true to type, to meet more general needs, particularly in commercial work, such as letter heads, business forms, checks, etc. (May be all rag, mixed rag and chemical pulp or all sulphite pulp.)

Bookkeeping Machine Paper. Usually an all-sulphite sheet, sold in rolls for use in different sorts of bookkeeping machines. The size of the rolls is perhaps the most distinguishing feature.

Book Lining. **(a)** A book paper, either machine finished or super-calendered; used to line strawboard or chipboard. **(b)** Used as a fly leaf, half of which is pasted to the cover of the book; it is also called case lining when the covers of books are called "cases."

Book Paper. Uncoated printing paper, made of various finishes and generally used for printing books and magazines. (May be mixed soda and sulphite, or re-manufactured paper.)

Book Wrapper. Paper used to wrap books of any description for protection; may also be applied to printed book paper, used as covers on novels; usually made of sulphite wrappings.

Boot Board. Especially hard boards, prepared from mixed papers or long fiber; used for the insoles and heels of shoes; frequently toughened by addition of pulped leather clippings.

Bottles, Paper. Bottle-shaped containers made of heavy waxed stock or pulp board; made in standard half pint, pint and quart, with round bottom to conform to requirements of milk bottle filling machines; used for milk and cream only.

Bottle Wrapping Paper. Paper used for wrapping bottles to prevent breakage and to avoid exposure to light. In some cases the sheet is clipped or stamped to hold its shape; generally an indented wrapping paper with either fine or coarse indentation; sometimes a cheap tissue.

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Bottle Caps. Paper disks made of mechanical pulp and sulphite (pulp board), used as crowns or covers for milk bottles; stock similar to that used for paper milk bottles; usually waxed or paraffined.

Bottle Packing Paper. A wrapper suitable for packing bottles in cases or cartons; usually an indented chip, or strawboard to provide a cushion for the protection of the bottle.

Bowl Paper. An English term referring to paper suitable for the manufacture of calender rolls.

Bowls. An English term applied to calender rolls when made of paper. See Calender roll paper.

Bow-Wave Finish. A fancy two-toned ripple finish in stratum formation, produced by a plater.

Box and Barrel Layers. A pulp or chipboard, used as separators between layers of different commodities packed in boxes, barrels or other shipping containers.

Boxboard. Boards made on a multicylinder machine and used in the manufacture of paper boxes and cartons; may be made of mechanical pulp, sulphite, sulphate, straw or mixed paper stock.

Box Cover. Light-weight decorative cover paper, used for covering and decorating boxes; usually lighter in weight than ordinary cover paper; may be coated. See Box enamel.

Box Enamels. White or colored coated paper; used for covering boxes; coated on one side only and very highly glazed.

Box Stay. A narrow strip of strong rope, kraft or wood minila paper, gummed on one side; used to reinforce the corners and edges of paper boxes; sometimes cloth lined.

Bread Labels. Small labels, made of book paper, printed or lithographed; used as distinguishing mark on bread or bread wrappers.

Bread Wrappers. Sheets of light weight wrapping paper almost always waxed and in two styles. **(a)** Self-sealing and **(b)** so-called "dry" waxed. In the case of paper of class **(a)** the paper is so waxed that the major portion of the wax lies on both surfaces of the sheet, so that when two sheets are pressed together and heated the surface wax melts, causing the sheets to become sealed together. Papers of class **(b)** are so waxed that the major portion of the wax is driven into the interior of the sheet and the paper feels dry. This class of wrapper must be sealed by adding melted wax, as the wrapping is being done. Practically all bread wrappers are printed before they are waxed.

Bright Enamels. An English term applied to enameled or coated papers, coated on one side only; finished with a high polish produced by calendering and brushing; used for labels.

Bristols. Certain types of cardboard of six one-thousandths of an inch in thickness or more; made either on a fourdrinier or multicylinder machine; usually made solid but may be filled; three classes of bristols are generally recognized, fourdrinier bristol, cylinder bristol and wedding bristol; the last being a pasted sheet.

Brown Print Paper. A paper treated with chemicals sensitive to light to reproduce, in brown and white, drawings or sketches.

Brush Finish Coated Paper. A kind of paper, coated on one side, either single or double coated, used principally for cigar labels; the brushing of the coating previous to the calendering produces a smooth, even and more brilliant surface.

Browns. An English term referring to brown wrapping paper such as rope browns, air-dried, cylinder-dried, etc.

Brush Matrix. A matrix mat, molded by being beaten over printers' type with a stiff bristol brush. See Matrix paper.

Buckskin Board. A cheap inferior board, made of mixed papers, old rags or kraft pulp on a multicylinder machine; used for automobile panel boards and chair seats. See Cloth board.

Buff Printings. An English term referring to buff colored printing papers.

Buggy Board. A heavy board or pasted chip, made of mixed papers; used for backing in buggy seats and, when covered with leather, for dashboards. See Cloth Board.

Building Paper. A class of thick, bulky papers made of old stock (rags, wool, mixed papers, etc.) and sometimes mixed with asbestos, used in general construction work; may be converted into such products as roofing and tarred felt, etc.

Bulk. A term applied to designate the thickness of a specified number of sheets of book paper.

Burlap-Lined Paper. A waterproof sheet, made of kraft wrapping, about eighty pounds in weight, coated on one side with asphaltum over which ordinary burlap of 4, 6, 8 or 10 ounces weight is placed; used as a wrapper of great strength for hides, leather, machinery, etc.

Butchers' Manila. A kind of yellow-tinted-manila wrapping paper, made of mechanical and sulphite pulp; well-sized; used for wrapping meat; paraffined or oiled paper is sometimes used for the same purpose.

Butchers' Wrapping. See Butchers' manila.

Butter Cartons. Boxes for holding butter; made of white patent-coated solid manila or of solid manila and single manila-lined chipboard; usually waxed or paraffined.

Butter Dishes. Tray-shaped receptacles, made of waterproof chipboard; used by retail grocers to hold butter or lard delivered to customers.

Butter Paper. Paper used for wrapping butter, lard or similar greasy material; paper must be greaseproof; generally a vegetable parchment.

Button Board. Vulcanized or hard fiber used in making buttons; cut to special shapes and covered with cloth. This term is sometimes used for button card.

Button Card. A light-weight bristol, white or colored, plain or coated, used to sew buttons on for display and merchandising.

C

Cable Paper. Paper used for wrapping cables for insulation and protection; after wrapping, cable is sometimes covered with cloth and varnished; a strong manila or kraft is generally used.

Cake Board. Pulp board, single manila lined chip board, or patent coated board, used to place cakes on after baking; also as layers between rows of small cakes shipped in bulk.

Cake Boxes. Boxes made of solid manila board, or single manila lined chip; used for protecting cakes.

Cake Circles. Disks cut out of white sulphite bond paper and used in cake-making at the bottom of a pan.

Cake Laces. White sulphite bond paper, cut on edges to resemble lace designs; used for ornamental purposes in serving sweets or cakes.

Calf. A more or less embossed paper, colored to suit fancy to imitate leather; used for bookbinding. See Artificial leather.

Calendered Paper. Any paper with surface glazed by means of calenders; does not include plate-finished but refers to machine or English finished, supercalendered, friction glazed, etc. May be sheet or web calendered.

Calender Roll Paper. Soft paper made of rags, wool or flax waste, used for the manufacture of calender rolls; cut into disks and bolted together under high pressure, then turned on a lathe and polished. Sometimes called bowl paper.

Cambric Paper. Writing paper impressed with a design resembling cambric cloth; produced by plating; used for correspondence.

Cambridge Bible Paper. Trade name for a grade of bible paper; originally referred to the paper used in the Cambridge edition of the Bible.

Camerograph Paper. A sensitized paper used in the reproduction of records.

Candle Paper. Bogus wrapping or chipboard about 14 to 16 points in thickness; used in the manufacture of Roman candles and fireworks.

Candy Bags. Small bags, usually made of white laid sulphite bond; also made of specially strong white laid book; used in retail sale of candy.

Candy Pails. Pails or buckets, the larger sizes of which are made of solid fiber container board; small size pails made of patent coated or single manila lined chipboard; used as containers for candy.

Candy Wrappers. See Candy paper.

Canisters, Paper. Receptacles or cases of chipboard, strawboard or manila lined chip; used as a substitute for tin cans.

Cans, Paper. See Canisters.

Cap. An abbreviation for foolscap; also refers to a size of writing paper, 14 by 17 inches.

Cap Board. Board suitable for use as caps for bottles; made of mechanical pulp and sulphite. See Bottle caps. See Cap stock.

Caps, Paper. A manila or rope paper, used in the manufacture of paper caps for use in toy pistols. Also see Bottle caps.

Cap Stock. **(a)** Plain straw cap stock, made of well-sized strawboard. **(b)** Colored cap stock, made of a straw base, one side vat-lined with colored manila made of manila clippings. See Cap board. See Bottle caps.

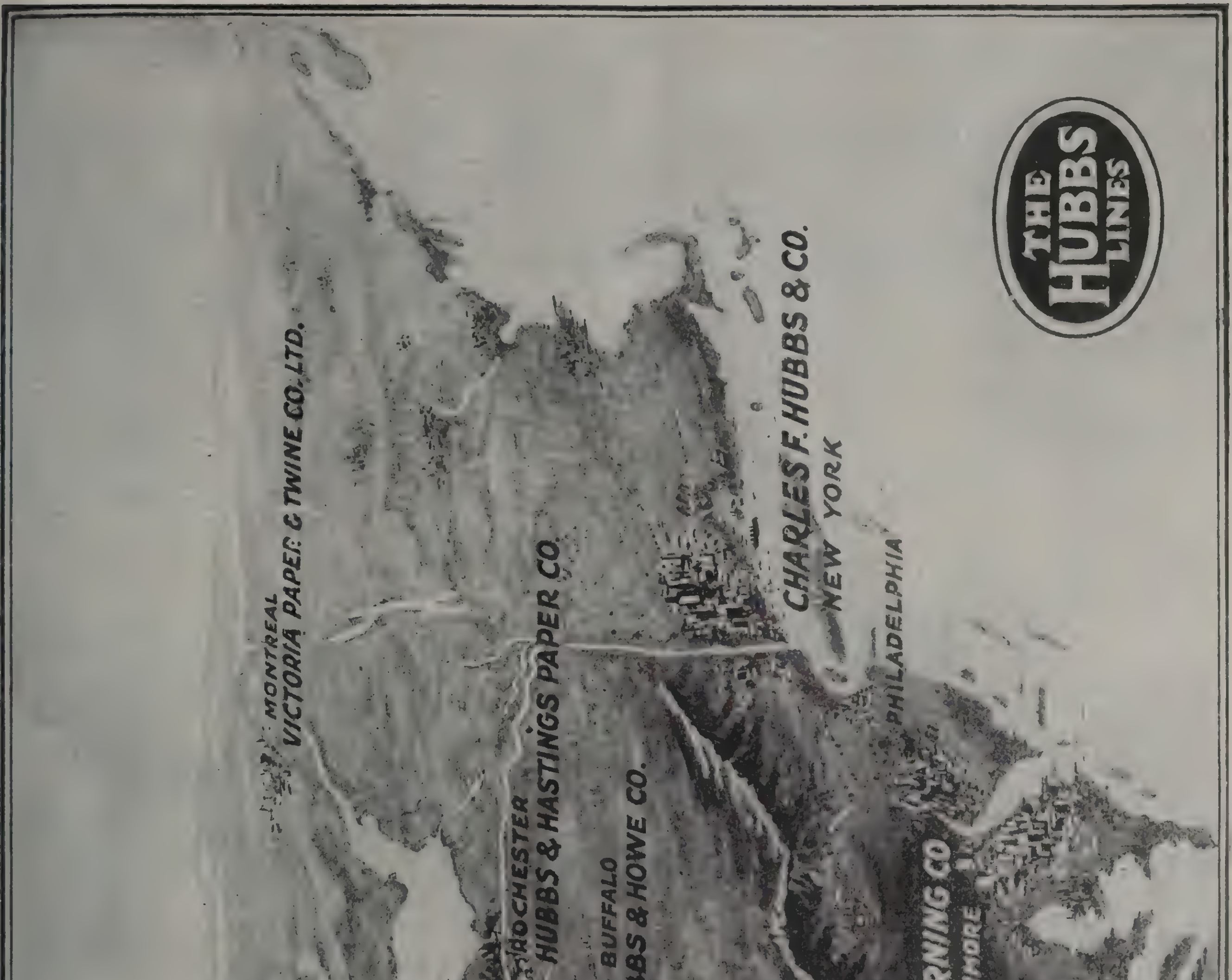
Carbolic Paper. A paper impregnated with stearin and carbolic acid; used as a special wrapper.

Carbon Paper. Tissue of 4, 5½, 7 and 10 pounds weight (20x30, 480) coated with carbon and some oily or wax medium; used with pen or pencil or typewriter for making duplicate copies; may be coated one side or both; may be colored black, blue, purple, etc. Coated two sides used for sales books; lighter weights, coated on one side, used for varying numbers of copies, the lighter weight being used when a large number of copies is desired.

Carbon Tissue. Tissue paper of 4, 5½, 7 and 10 pound weight (20x30, 480), of close texture, smooth surface, free from pin holes and used principally as the basis for carbon paper. This paper is generally made of rags, manila and jute or sulphite.

Carborundum Paper. See Abrasive paper.

Cardboard. Heavy papers (bristols and blanks), made on fourdrinier or multicylinder machine or by pasting two or more plies together, either by hand or machine, and may be coated or uncoated. The characteristics of these papers are that they are generally stiff, relatively thick, and are suitable for various kinds of printing or engraving.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Card Index Bristol. See Index bristols.

Card Middles. A cheap board, used as a filler in making cardboard; may be made of mechanical pulp or of over-issue news; also used for gaskets on tin cans.

Cards. Cardboard cut to small sizes for commercial use. See Index bristol. See Wedding bristols.

Car Lining. Wrapping paper used by millers, grain dealers, salt companies, etc., to line or cover the bottom and sides of box cars to prevent leakage; applicable to any grade used for this purpose.

Carnival Novelties. Paper articles, made of white and colored light-weight paper, usually tissues, for use at carnivals and festivals.

Carpet Felt. See Carpet lining.

Carpet Lining. Soft, thick and spongy building paper, plain or indented, used for inserting between floor boards and carpets.

Carpets, Paper. Rugs or carpets woven from sulphite and kraft wrapping paper which have been cut into narrow strips, twisted into twine, stained and waterproof.

Carpet Yarns. Yarn or twine made of light-weight kraft and sulphite paper; produced by cutting rolls to narrow widths and twisting as twine, stained and waterproof. See Carpets, paper. See paper yarn.

Carriage Panel. Heavy cloth board, used for roofing railway and other cars and, to some extent, for automobile parts.

Carry Bags. A bag made of strong wrapping paper, with handle, for use in carrying small purchases of merchandise; generally of rope, manila or kraft paper.

Car Sign. A coated cardboard; usually refers to a special size of 22½ by 42 inches; commonly used for street car advertising. See Railroad board.

Carton. **(a)** A container, with cover attached, made of patent coated, good bending quality of board, or manila lined chip. **(b)** A container, with cover attached, made of jute liner and corrugated strawboard or of solid fiber container board. Used for packing, shipping and storage of small articles.

Cartridge Paper. **(a)** Manila wrapping paper, from 50 to 80 pounds in weight, sometimes waxed on one side; used as containers for dynamite or other explosive material. **(b)** A three-ply paper, pasted in a particular manner and used to make shotgun shells.

Cash Register Paper. Small rolls made of white book, writing or bond paper; used in connection with cash registers to indicate data in regard to sales.

Case Lining. **(a)** Kraft or bogus manila wrapping of 20 or 30 pound stock, single sheet coated with asphaltum, duplex sheet coated in center, and single sheet coated and backed with cotton fabric; used for the protection of contents of wooden shipping cases or for the protecting of machinery, electrical apparatus or other metal goods against moisture. **(b)** A general term to designate a paper used for lining cases to protect the contents; applicable to any grade used for this purpose. See Waterproof wrapping.

Cash Sales Pads. Small blocks of paper, with printed form; used by merchants for records of sales; may be made of newsprint, book, writing or bond paper, in various colors and weights.

Casing Paper. Paper used for lining shipping cars. See Case lining.

Cassie. A term used to describe the few outside sheets of a ream of good paper, from the French **casser,** to break or waste.

Catalog Envelopes. Envelopes made of manila, kraft or white paper of size suitable to enclose pamphlet or catalog.

Catalog Newsprint. A kind of light-weight newsprint; used principally for directories and mail order catalogs.

Catalog Paper. A light-weight opaque printing paper or newsprint, made of sulphite and soda and sometimes mechanical pulp; used principally for mail order catalogs and directories; better grades, even up to enamel papers, are used for special catalogs requiring the use of fine screen cuts.

Cellophane. A product, made of a specially treated paper or pulp, somewhat resembling glassine; made from a bibulous waterleaf similar to that used for artificial silk or vegetable parchment.

Cellucotton. A trade name for a crinkled or creped, unsized pulp or tissue; run over a roll to a desired thickness and cut into small packages of desired sizes; used as a substitute for absorbent cotton.

Cellular Board. Corrugated strawboard with liner of chipboard on one or both sides. See Corrugated container board.

Cement Sack Paper. A heavy rope, jute, kraft or sulphite wrapping paper, made to possess unusual strength; used in the manufacture of bags for cement, lime, etc.

Chain Mark. One of the wider parallel lines of a laid watermark. See Laid.

Chair Seat Board. A sulphite (Mitscherlich) pulp board, highly compressed to give rigidity; suitable for seats in chairs, etc.

Chalk Overlay Paper. Heavy, hard-surfaced paper, coated with chalk and used by pressmen in making ready halftones.

Charcoal Drawing Paper. Light-weight laid, rough-finished drawing paper; used for charcoal sketches.

Charcoal Kraft. Strong kraft wrapping paper; used in the manufacture of bags for holding charcoal.

Charlotte Russe Caps. Receptacles for various desserts; made in cup form, of white lined board or heavy sulphite bond.

Chart Paper. Writing paper which is firm, closely knit and hard-sized; medium to heavy substance; stock thoroughly beaten, without excessive hydration, to avoid excessive stretch under changing climatic conditions; surface smooth without gloss; good erasing quality; suitable for pen and ink charting, duplicating and lithographing.

Check Book Cover. Lined board of various grades, used as a cover for checks; a cloth-covered tag board is often used for this purpose; a tag board with one liner of imitation leather, embossed, is also used.

Check Folio. A size of paper 17 by 24 inches.

Check Paper. Writing paper in light tints of a variety of colors; wove; high finish; peculiarly adapted to lithographic printing of checks and similar forms; may or may not carry "safety" feature.

Check Royal. A size of paper 19 by 26 inches.

Chemical Fiber Paper. A paper made entirely of chemically prepared woodpulp.

Chemical Filter Paper. A specially prepared filter paper for analytical work; made from selected stock and carefully washed with hydrochloric and hydrofluoric acids.

Chemical Manila Writing. A manila writing, made from chemically prepared wood fiber in place of hemp fiber. See Railroad writings.

China Board. See Thick china.

Chest Protector. A device worn on the chest as a protection against cold; made of strong manila wrapping paper of heavy weight, cut to suitable shape and size.

Cheviot. A light-weight, decorated cover paper for covering and decorating boxes.

Chip Board. A cheap board, made on a multicylinder machine from mixed papers; may be combination (filled) or solid. **(a)** Combination chipboard is a board having a chip base or center and lined on both sides with a higher grade of stock and possessing a smoother surface. **(b)** Solid chipboard is a board made entirely from mixed papers with no liner or coating.

Chip Filled. A board having a chip base or center and lined on both sides with better stock and with a better surface.

Chip, Solid. A board made entirely of paper stock or mixed papers, on a multicylinder machine.

Chip Stock. Pulped mixed papers, used for chipboard and various combination boards; pulp not chemically treated.

Chocolate Dividers. Heavy, solid newsboard, colored chocolate; used in the packing of candy, as dividers between layers.

Chocolate Layer Board. See Chocolate Dividers.

Chop Holders. Decorative wrappings of novelty paper, generally white; used for garnishing the bones of lamb or mutton chops, etc., when served.

Chromatic Paper. A mottled paper used chiefly as a cover paper.

Chromo Paper. A heavily coated printing paper, used in chromo-lithographing; the surface is somewhat dull and more absorbent than an art paper.

Cigar Boxes. Boxes made of pasted chip, binders or jute board, for cigars; may be made of solid mill bristol.

Cigarette Tissue. Tissue paper which is unsized, of close texture and free from pin holes. Generally made from rags or ramie, and used principally as a wrapping for tobacco in the manufacture of cigarettes.

Cigar Holders. Containers or holders, made of heavy manila, sulphite bond or board into a form suitable for carrying and protecting cigars.

Cigar Label. A brush-finished coated paper used in the manufacture of cigar labels.

Circles. A term used to apply to paper, cut in the form of circles.

Clay Coated Manila Board. A manila combination board, coated one or both sides with clay, colored or white.

Cloth Board. A heavy cheap solid board, made on a wet machine from mixed papers and low grade rags, with or without the addition of tar; rigidity and compactness are important factors in the quality of this kind of board.

Clothing Box Board. A board, made of mixed papers, or mixed with sulphite or kraft pulp for additional strength; used for boxes for clothing and suits.

Cloth Lined Paper. Any paper backed with cloth; a high-grade coated paper, backed with strong cloth; used by overall manufacturers for tagging and for maps and tickets where strength and resistance to wear are essential.

Coarse Boards. A term used for certain grades of boards to distinguish them from higher grades, known as bristols and cardboards.

Coated. A term applied to any paper, board or cardboard to which has been applied a coating of any character or substance.

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Coarse Papers. A term used for certain grades of papers to distinguish them from the higher grades, known as flats, bonds, ledgers, book and cover paper; usually applied only to wrappings and tissue.

Coated Blanks. Coated cardboard, pasted or unpasted, made in standard thickness with white liner and middle of different stock from that of the liner; used for all kinds of printing and lithographing work for calendars, cutouts, advertising cards, etc.

Coated Boxboard. A high-grade patent or clay coated board, for folding boxes; with a news, manila or white back; also solid manila.

Coated Cover Paper. A kind of cover paper on which a coating of clay has been applied by means of glue or casein; may be dull or high finish.

Coated Litho Blanks. A mill blank, made from mechanical pulp or over-issue news, lined on both sides with book paper and then clay coated on one or both sides and given a high finish by calendering.

Coated Paper. A general term applied to any paper to which a coating has been applied, such as coated book, cover, metallic paper, etc.

Coated Printing Paper. A term indicating a group of papers on which a coating of clay, or other similar mineral material, has been applied, using glue or casein as an adhesive generally; either dull finish or highly glazed by means of supercalenders.

Coated Cover Paper. A cover or body paper, made with good folding qualities and usually made of varying quantities of rags and sulphite pulp; suitable to having applied thereto a single or double clay coating on both sides.

Coating Paper. Print paper, made of mechanical pulp, pulp from old magazines, sulphite, soda and rags. Also called backing paper when used for wall paper and paper coated one side; used as a base for coating.

Cockle. The pucker naturally or artificially produced in paper during the drying process.

Coffee Bags. Heavy strong bags of manila, kraft or sulphite wrapping; made in special shape for use in packing coffee in small lots; bags are usually lined with glassine, parchment or paper impervious to moisture in order to retain the flavor of the coffee.

Colletype Printings. An Eglish term applied to thick papers or boards, made of rags or a mixture of rags and esparto; surface generally a little rough; must be fairly hard sized to resist the damp surface of the jelly used in printing.

Combination Board. Boards made of more than one grade of beater prepared stock in one process of operation; vat-lined and clay-coated boards are included in this group.

Combination Boxboard. See Combination board.

Combination Cardboard. A cardboard, made with a center or filler of material inferior to that appearing on the surface.

Commercial Blottings. An absorbent paper, made from soft cotton rags, cotton linters or soda pulp; stock beaten quickly with sharp tackle; this kind of paper may be absorbent on one or both sides.

Commercial Tissues. Grades of tissue paper used for general commercial wrapping purposes; distinguished from tissues prepared and used for special purposes.

Computing Machine Paper. See Adding machine paper.

Commercial Writings. Writing papers commonly used in ordinary business transactions and for advertising purposes, as distinguished from specially made or prepared fine grades for specific uses or for conversion into finished articles for resale.

Condenser Paper. A light-weight tissue, made from cotton or linen rags or sulphite; free from pin holes and electrically conducting particles; about 0.0005 inches thick; used in electrical condensers.

Cones, Paper. **(a)** A drinking receptacle of tag board or ledger paper, waterproofed; used at soda fountains. **(b)** A cheap chipboard; made up into the form of cones, for novelties and for holding candy.

Construction Paper. Cover papers with soft surface and of many colors; used for cheap mounts and construction of objects by children in kindergarten education.

Container Board. A built-up board, consisting of jute liner for the outer plies and mixed paper or corrugated strawboard for center; used for making shipping containers which must meet a certain bursting strength for railroad classification requirements.

Container Liner. A combination or vat-lined board, strong and with good bending qualities; used as the outer liner of pasted or combined container board in the manufacture of boxes for shipment by freight or express; generally required to meet a certain strength test to comply with railroad classification rulings.

Copying Tissue. A term applied to a group of tissue papers which are slack-sized, soft in texture and of considerable strength, for use in letterpress work or for special manifolding purposes, such as for railroad waybill copying.

Cores, Paper. Tubes or rolls, made of strawboard, chipboard or molded mechanical woodpulp used as a central support for a roll of newsprint, toilet paper, toweling, etc.

Core Stock. Chip or strawboard wound to a desired thickness in the manufacture of paper cores, for use in rolls of paper, etc.

Cork Paper. A heavy rope or manila paper, surfaced with a mixture of glue and powdered cork; used for packing glass, fragile articles, etc.

Corrugated Board. A converted board, consisting of a corrugated sheet of 0.009 point strawboard or lined either one or both sides with plain straw, chip or manila.

Corrugated Container Board. A built-up board, having a corrugated center of 0.009 strawboard and lined with jute or test chipboard; the liners are fastened to the strawboard by means of silicate of soda; used in the manufacture of cartons for shipping purposes.

Corrugating Paper. A term applied to paper which is to be corrugated or molded into a series of rounded ridges; generally applied to strawboard and chipboard for use in the manufacture of corrugated container board.

Cotton Batting. A term applied to a light weight, blue wrapping paper, used as a wrapper for absorbent cotton and cotton batting; generally made of sulphite stock.

Cotton Sampling. White, manila or colored wrappers, made of jute, rag or chemical woodpulp; used for the display of staple cotton. See Sampling paper.

Couche Paper. A coated one-side enameled book paper; used for printing and lithographing high-grade labels.

Cotton Linters. The short fiber adhering to the cotton seed after the staple cotton has been removed by ginning; used for upholstering and nitrating purposes; now used to a considerable extent in bleached pulp form for papermaking.

Counter Board. A pulp board, specially treated; made on wet machine and run through four stacks of calenders; used for making shoe counters.

Counter Roll. Rolls of paper of any grade to indicate that the diameter and width of the roll are such that it may be placed in a rack, mounted on a counter; the diameter of counter rolls is generally 9 inches.

Cover Paper. A general term applied to a class of papers which are used principally for the protection of stitched or stapled literature, photographs, etc. These papers are generally in colors and are relatively strong and heavy and available in many finishes and fancy designs.

Cracker Shell Board. A term generally applied to filled news, when that grade is used to make cartons for the retail sale of cakes and crackers; made of a mixed paper or chip center, with a liner on both sides made of old newspapers; generally treated with sodium silicate on both side before being made into cartons.

Crash Finish. A finish resembling a coarse linen fabric; applied by plating process.

Crayon Paper. A drawing paper; generally a high class, heavy rag paper, tinted or plain colors; glazed on one side only; used for crayon and sepia drawings, water colors, etc.

Cream. A term indicating the very light tints of brown.

Cream Laid. An ordinary writing paper of creamy color; made on a laid wire mold or with a laid dandy roll.

Crepe Paper. A general term descriptive of an effect simulating crepe; effect is produced by crowding the wet sheet on a roll by means of a doctor; sulphite pulp is generally used; sometimes mixed with mechanical pulp; example—paper napkins and towels; also used, especially in colors, for decorative purposes.

Crepe Tissue. See Crepe paper.

Crinkled Paper. Paper that has been crinkled by an embossing process.

Crinkled Tissue. See Crinkled paper.

Cross-section Paper. A writing or bond paper, ruled both ways of sheet with parallel lines at equal distances; better grades are of good map paper of smooth surface, with lines engraved.

Crown. A size of paper 15 by 19 inches.

Crushed Finish. A fancy coarse ripple finish, applied by plater press.

Cup Paper. A printing or writing paper suitable for making paper cups; made of waxed, unwaxed or treated offset book, bond or ledger.

Currency Straps. Thin strips of kraft, manila or dry-finish sulphite wrapping, half an inch to an inch wide; used for bonding currency; in some cases ledger papers in various colors are used to distinguish the various denominations. See Bill straps.

Cushion Board. See Corrugated board.

Cuspidor Paper. Spittoons, molded and compressed from double-faced manila board or hard fiber stock.

Cut Cards. Small pieces of bristols; used in commercial work for personal business cards and for advertising purposes.

Cutlery Paper. A light-weight brown or white anti-tarnish paper; used for wrapping cutlery and silverware.

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Cyclostyle Paper. Tissue and waxed paper used for cyclostyle work. See Stencil paper.

Cylinder Bristol. A bristol board, made on a multicylinder machine by combining, by pressure when moist, two or more thicknesses or layers; may be either solid or filled; commonly called mill bristol; a one-process sheet.

Cylinder-dried. A term applied to the process of drying paper, by passing it over internally heated iron rolls; process differs from pole, loft or air-drying in that moist paper is in contact with heated iron rolls or cylinders.

D

Deadening Felt. Felts used in construction for deadening sounds and under hard surface floor coverings as a protection against uneven floors. They may also be used as insulation against heat or cold.

Decalcomania. A paper having a book paper base, sometimes duplex, specially prepared and coated with dextrin and starch on which designs are printed for transfer purposes in ceramic work.

Deckle-edge. The rough, uneven edge of paper as formed in a hard mold or by the deckle strap on a machine.

Deckle-edge Paper. Paper made to simulate hand-made paper, by leaving untrimmed the rough edges produced by the deckle or by a jet of water; by a special method the rough edge may be produced on the machine on all four edges.

Decorated Blottings. A commercial blotting of solid color, on which pulp of a different color has been sprayed during the process of manufacture to decorate and to add to its attractiveness.

Decorated Boards. Any board, having been decorated with a design, either lined or printed on the board itself; example, oakgrained jute board.

Decorated Cover Paper. A kind of cover paper that has been decorated with a design produced by embossing or any other process; may be coated or uncoated; may be decorated during or after manufacture.

Demy. A size of paper, 16 by 21 inches.

Detail Drawing Paper. A manila-colored drawing paper, slightly rough or grained, for detail or working drawings from which drawing is transferred to tracing cloth or paper.

Designers' Pattern Paper. Kraft or manila wrapper, used in pattern work; plans are laid on the floor and structure built to the plans; paper should be strong.

Diapers, Paper. Napkins of soft white tissue paper, made more or less absorbent; used as the name implies.

Die Wiping Paper. A heavy wood manila wrapping paper, highly finished, in rolls; used for the cleaning of dies or plates.

Dirt. The small particles of foreign matter appearing in a sheet of paper; not necessarily earth matter but also such as particles of metal, rubber and vegetable matter which have passed through the screen with the stock.

Dishes, Paper. Receptacles made to resemble different clay product dishes; made of chip board and tag board; may be waterproof.

Dobby Board. See Binders board.

Document Board. A heavy solid board, made of rope, jute, sulphite or mechanical pulp; used for file folders, freight car records, etc. See Document Manila.

Document Envelopes. Envelopes manufactured especially for enclosing documents, pamphlets, etc.; unusually made of heavy manila stock.

Document Files. Document manila, cut to desired sizes for special uses in the filing of documents. See Document manila.

Document Guides. Separator guides in filing cabinets, made of document manila and cut to sizes required.

Document Manila. **(a)** A heavy solid board of rope, jute or sulphite pulp; also a heavy rope wrapping paper; used for various purposes in connection with documents.

(b) A term usually applied to sizes of paper, 24 by 36 inches or larger.

Double Cap. A size of paper, 17 by 28 inches.

Double Coated. A paper or board, having a heavy coating (not necessarily two coatings); especially adapted for use in printing 200-line screen cuts.

Double Coated Printing Paper. Printing paper, coated on one or both sides with a heavy coating of clay and used for printing or lithographing from fine screen cuts.

Double Demy. A size of paper 21 by 32 inches.

Double Demy, Oblong. A size of paper, 16 by 42 inches.

Double Double Cap. A size of paper, 28 by 34 inches.

Double Elephant. A size 27 by 40 inches.

Double Feather Edge Straw Board. A strawboard having its edges thinned to permit its use in small tubes or rolls, so that when pasted, it will have a smooth pasted surface, without a perceptible ridge.

Double Flat Foolscap. A size of paper, 16 by 26 inches.

Double Folio. A size of paper, 22 by 34 inches.

Double Manila Lined Chip Board. A chipboard, having a vat-lining of manila on both sides.

Double Manila Lined News Board. A news-filled body stock, with manila liner on both sides.

Double Medium. A size of paper, 23 by 36 inches.

Double Medium, Oblong. A size of paper, 18 by 46 inches.

Double Royal. A size of paper, 24 by 38 inches.

Double Thick Cover Paper. A term applied to a heavy cover paper, made of two sheets of regular weight cover paper, pasted together.

Drafting Paper. A high grade drawing paper; finish slightly higher than ordinary; surface very hard; extra hard sized; adaptable to pen and ink work as well as pencil; erasure superlative; ink must not spread when applied to erasure; used for original drawings of permanent record.

Drawing Board. A heavy bond or bristol board, made by pasting together three or four sheets of paper with hard smooth surfaces and pure white color, but often India color; used for pen and ink drawings to be photographed, from which printing plates are made.

Drawing Paper. Writing paper of close texture; firm surface; not unpleasant to the touch but with sufficient tooth or grain to take quickly lead pencil marks; finished slightly, without sheen or gloss; good erasing quality; hard sized.

Drinking Cup. A receptacle used for temporarily holding water; made in rigid cup form, or flat, resembling small envelope; made of bleached sulphite, generally paraffined on one side; essentially a ledger or offset book paper.

Dry Felts. See Saturating felts.

Druggists Wrapping. Small rolls of wrapping used by druggists; term is generally applied to a white and colored sulphite bond; sometimes a wood manila; may be specially decorated.

Dry Finish Sulphite Wrapping. Sulphite wrapping paper, made wholly or principally of sulphite pulp, with an unglazed surface.

Drying Paper. Strong tough bag or woodpulp paper of medium thickness; unsized and absorbent; used for letter press, copying books and similar purposes. See Interleaving Paper.

Dryproofing Paper. An absorbent lightweight paper or tissue; used for making first proofs of printing or plates.

Dull Finish. A term used to indicate a smooth surface which lacks shine or gloss; a low finish; applies to coated paper to indicate a natural finish without calendering or gloss.

Duplex Blotting. A commercial blotting, made by pasting together two sheets of plain blotting of different colors; both sides are absorbent, thus differing from enameled blottings.

Duplex Board. Board made on a multicylinder machine, having different colors on the two sides.

Duplex Paper. A term applied to paper having one color on one side and another color on the other side; sometimes applied to machine glazed paper because of the high finish on one side and the rough finish on the other; also applied to a paper made of two layers of different stock or material.

Duplex Wrapping. A wrapping paper having surfaces of different distinctive colors or a glazed surface on one side and a rough finish on the other, such as a machine glazed wrapping.

Duplicating Paper. Light-weight writing papers, such as onion skin and manifold papers, used for duplicating purposes.

Dynamite Paper. See Blasting paper.

E

Easel Board. Any heavy board or blank suitable for easel purposes; patent coated folding box board most commonly used.

Egg Case Filler Board. A board used in making egg carriers; strawboard filler used for domestic use; filled pulp board used for export shipment.

Eggshell Book Paper. A book paper possessing a finish resembling that of an eggshell; somewhat similar to antique finish.

Electric Board. A hard fiber board; used for insulating purposes such as electric switch blocks and boards, etc.

Elephant. A size of paper, 23 by 28 inches.

Emery Paper. See Abrasive paper.

Emperor. A size of paper, 48 by 72 inches.

Enameled. A general term descriptive of a surface produced by a coating with clay or some mineral, like zinc white, and highly polished; such as enameled book, cover, blotting, etc.; used for box covers, for fine line halftone work and for illustrative printing.

Enameled Blotting. A commercial blotting paper, to which a coated or enameled paper has been pasted, thus forming a smooth and solid surface for printing and lithographing; coated side is not absorbent; used largely for advertising purposes.

Enameled Post Card. A medium weight cardboard single or double coated one or both sides; used for souvenir postal cards and similar work where high finish is desired.

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End Papers. The several odd sheets, placed at front and back of the binder in books; generally called fly leaves.

Engine-Sized. A term applied to papers that have been sized in the beater; usually refers to the use of rosin size; the fibers are sized before being formed into the sheet of paper.

English Finish Book Paper. Book paper, finished on the paper machine with a surface between that of the machine-finish and a supercalendered finish; a high machine-finished book.

Engravers' Bristol. A high grade bristol the quality and finish of which is especially suitable for engraving.

Engravers' Proving Paper. A kind of double-coated, one side, highly polished book paper; used principally for taking proofs of engraving.

Envelope Paper. A general term, descriptive of paper suitable for making envelopes; should be strong, opaque for commercial purposes, with good folding endurance and writing surface, and lie flat without curling; manila, rope, kraft, writing, bond and ledger papers used for this purpose.

Esparto Paper. A term given to paper, generally of European manufacture, made in whole or part of esparto pulp; specially adapted for printing and magazine purposes.

Expanding Envelopes. Envelopes made of heavy strong wrapping paper, possessing folding endurance; constructed to permit an expansion in the enclosure space, similar to a bellows; used for filing legal briefs and documents.

Express Wrapping. A general term applied to a high water-finish sheet of heavy wrapping paper; used for wrapping large and bulky packages; grade depends upon the strength required; it may be a bogus, or wood manila, a sulphite or a sulphate.

Extra Fine Writing. An extra grade of fine writing, firmer and stronger, even at a slight sacrifice of beauty.

F

Facing Paper. Light-weight paper, such as fancy covers, book and manila; used to paste on a board filler to give smooth and attractive surface.

Feather Edge Deckle. Papers made with a thickness tapering from that of the body sheet to edge; used on fireworks papers so that when rolled, the outer edge will paste down smoothly.

Featherweight. A general term indicating light weight, used in connection with such papers, as light-weight bulky book paper, thin opaque writing paper made largely of soda pulp and light-weight tissue.

Feel. A term referring to that characteristic of a sheet of paper which is obtained by contact with the fingers; it is an empirical method of judging the finish and general quality of paper.

Felt Browns. A term sometimes applied to carpet felts.

Felts. A group of bulky, rough and cheap building papers, ordinarily distinguished from sheathing papers in that they are more loosely formed and thicker.

Felt Side. The smooth side of a sheet of paper, as distinguished from the wire side; refers to the side of the sheet which is not in contact with the wire during manufacture.

Fender Board. A board made of hard fiber or rag stock; used as a wood substitute; also used by woolen mills in their presses when finishing cloth by the press process.

Festoon Dried. Air-dried, by means of a method wherein the paper is hung in a single continuous web, in short festoons or loops on traveling poles or slats, moving through a loft or drying room; controlled for temperature and humidity; subsequently seasoned and conditioned before finishing. This term is applied to the drying of paper after coating, to wall paper after printing and to roofing felt or paper after saturation or coating.

Fiber Board. A board, made wholly or largely of primary fiber stock, giving a product that is tough, pliable, waterproof and capable of being molded; used chiefly for shoe counters and inner soles.

Fiberoid. Heavy rope wrapping used for extension envelopes.

Fiber Panels. Panels made of cloth board or hard fiber.

Fiber Paper. A loosely used term, referring to paper made of long fibered sulphite or sulphate pulp; also refers to hard or vulcanized fiber.

Fiber Rugs. Rugs made of grasses, straws or twisted paper.

Fiber Shipping Containers. Cartons made of jute board and other similar stock; either solid or corrugated.

File Backs. A piece of tag board or document manila; used as a protection or backing for a file of correspondence or forms attached to it.

Filled Jute Board. A combination board, vat-lined with jute, sulphite or sulphate pulp, having for a filler a grade of stock, inferior to its surface. See Combination board.

Filled News Board. A board having a news stock liner on both surfaces, with a filler of some other stock. See Cracker shell board.

Filled Pulp Board. A board lined on both surfaces with wood pulp facing and with a chip or news stock center.

Filler Board. The center of any mixed paper or chipboard, where the liner is of different stock than the body.

Filter Paper. A porous, absorbent paper, used for filtering liquids, for drying crystals, etc. Ordinarily made of rags or chemical woodpulp, but better grades made of selected rags; quantitative filter paper is acid-washed (hydrochloric and hydrofluoric acids).

Fine Papers. A class of high-grade papers, such as bonds, linens, ledgers, writings, etc.; distinct from coarse papers.

Fines. See Flats.

Fine Writings. See Flats.

Finger Bowl Liner. An article made of sulphite pulp, specially sized to conform to shape of a finger bowl and used as a liner in the bowl.

Finish. A term used in referring to the surface characteristics of a sheet of paper or of a board.

Fireproof Paper. A general term descriptive of paper which has been treated to render it fire resisting.

Fireworks Paper. A heavy bogus wrapping or light-weight chipboard; used in the construction of fireworks.

Fish Paper. A term applied to a chemically treated board; used as a non-conductor of electricity as insulation in building dynamos and motors.

Flat Cap. A size of paper 14 by 17 inches. Also called Cap.

Flats. Writing paper in which beauty of formation is the denominating characteristic; short-fibered, close formation, fine grain and texture; generally high-finish, firm, but not excelling in bursting or tearing strength; usually wove, but may be laid; white or colored.

Flat Foolscap. A size of paper 13 by 16 inches.

Flat Wallets. Specially constructed envelopes with pockets; made of heavy rope stock.

Flat Wrappers. A general term applied to sheet paper, to be used for wrapping purposes, which is put up in bundles of flat sheets instead of quire fold or interfold.

Flexible Cover. A cover paper that is designed to be flexible; used for book covers, pocketbooks, etc.

Flint Glazed. Term indicating a method of giving a high finish to paper; originally derived from the practice of glazing one side coated papers with smooth flints.

Flour Sacks. A bag suitable for the packing of flour; made of heavy strong rope, jute, or sulphite.

Flowers, Paper. Imitation flowers, made of white and colored tissue and light-weight writings of good quality; used for decorative purposes.

Fly Paper. A strong rope, manila, or jute-like wrapping paper, coated on one side with a sticky substance; or an absorbent paper impregnated with arsenic, quassia bark or similar poisonous material; used for catching flies.

Foil. Paper, coated with aluminum, tin, copper or zinc; used for packing, decorative purposes or often for wrapping candy.

Folded Writings. Writing papers in various note and letter sizes as well as foolscap and legal sizes that have been folded once.

Folder. (a) A circular or other piece of direct advertising, folded; frequently folded in an unusual manner in which the printed matter is confined to the space within, never across the folds.

(b) A manila sheet, folded once and used for filing purposes.

Folder Stock. A manila bristol, made of mechanical pulp, sulphite or rope stock; used for file folders.

Folding Boxboard. (a) A coated boxboard, with a base of mechanical pulp or newsboard; flexible and suitable for fine grade of folding boxes; printed or lithographed.

(b) A term used to indicate any grade of board that can be made into folding boxes without breaking or cracking.

Folding Bristol. Board of the bristol type, but with longer and more flexible fibers to make folding possible.

Folding Satin. A cheap grade of stock resembling translucents, but with a manila or dark base; particularly adapted for folding purposes.

Folding Translucents. A bristol, possessing folding qualities; clay coated and with high finish.

Folio. (a) A size of paper 17 by 22 inches. Also called "folio post."

(b) A book size indicating a sheet folded once; the largest size of book.

Foolscap. A size of paper 13 by 16 inches. Also called Flat foolscap.

Formation. As applied to a sheet of paper, the fixed disposition of its fibers; the term is generally used to include all effects produced in the paper before passing over the drying rolls, exclusive of the marks produced by the dandy roll; the formation is examined by holding the sheet to the light.

French Folio. A kind of light-weight writing paper; used for making proofs, for second sheets and for various purposes where a light-weight paper in several colors is required; a smooth-finished manifold.

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Fourdrinier Bristol. A bristol made on a fourdrinier machine; a solid sheet; resembles heavy ledger and is used chiefly for index purposes; a one-process sheet.

Friction Board. A heavy, compressed solid board, made of chemical woodpulp, mixed papers and tar, or of mixed papers used for making friction or paper pulleys by cutting out circles and bolting a number of them together as layers to form a pulley.

Friction Glazed. A term indicating a high finish obtained by calendering paper between rolls running at different speeds.

Frisket Paper. A manila wrapping used for friskets on printing presses.

Fruit Tissue. A wrapping tissue made of sulphite or sulphate pulp and used for protecting and preserving fruit for shipment; must be strong enough to twist or wrap about large fruit.

Fumigating Paper. Paper soaked in potassium nitrate, dried and then steeped in an alcoholic solution of fragrant balsams; used as its name implies.

Furniture Paper. Wrapping paper slit to narrow widths to facilitate winding around the frames of chairs, tables and other furniture to prevent damage in transit; applicable to any grade used for this purpose.

Fuzz. Loose particles of paper or powdery substance on the surface of paper.

G

Game Counters. Pieces of cardboard of various grades such as tough check and railroad board cut to special sizes and in a variety of colors for game record purposes.

Garnet Paper. See Abrasive paper.

Gasket Stock. See Hard fiber.

Gelatin Board. A board which possesses a smooth surface, hard enough to stand the use of tacky inks without picking; it must change in dimension but slightly when wet.

Geography Paper. This term ordinarily refers to a supercalendered book paper used for printing maps in school books. It may also refer to map paper, which see.

Glassine. A kind of sanitary wrapping paper made of ordinary sulphite or Mitscherlich pulps by long continued beating followed by supercalendering. It is a highly transparent thin paper and is used for small envelopes, bags, covers and for windows in envelopes. It may be decorated or embossed.

Glassoid. A trade name for a material similar to glassine, but more highly finished and resembling isinglass.

Glass Paper. See Abrasive paper.

Glazed Board. A board, glazed or polished to a high surface by any process.

Glazed Book Paper. A book paper specially glazed for box covers and labels.

Glazed Finish. A term used in describing the finish of a highly polished paper or board; produced by calendering, either web, plate or friction; and also on a Yankee drier of the paper machine; used in connection with coated book, board, cover and certain wrapping papers.

Gold Paper. Paper made to resemble gold in color; coated with gilt; used for seals and similar purposes.

Grain Direction. The direction in which the fibers flow on a papermaking machine.

Grained Jute Board. A solid or filled jute board, printed on one or both sides to resemble wood or marble; used for decorative purposes, backs of check books, suit boxes, etc.

Granite Paper. A general term indicating a paper that is mottled to imitate granite by adding fairly long fibers of a different color; generally refers to cover, blotting, wall paper and some fancy writings. See Ingrain. See Mottled.

Grass Bleached Tissue. Thin tissue paper of special white color; name is intended to indicate open air bleaching; used for wrapping stationery goods.

Greaseproof Paper. A wrapping paper made of sulphite pulp, usually Mitscherlich or other strong sulphite, beaten till thoroughly hydrated and also thoroughly jordanned. This paper resembles the vegetable parchment made by chemical processes, but is not stronger when wet than when dry, as is the case with vegetable parchment. It is used for wrapping greasy food products and is also the base from which glassine is made. Also called imitation parchment, pergamyn and parchmoid.

Grocery Bag Paper. A term applied to paper used in the manufacture of grocery bags; paper should be strong enough to hold contents of bag; generally light weights of manila, kraft or sulphite wrapping are used.

Guide Card Stock. A board used as a divider or guide in keeping records; white, manila and assorted colors; index bristol, document manila, etc., commonly used for this purpose; in large sizes, press board is used.

Gummed Paper. Various kinds of paper, such as kraft, writing, book, label paper, etc., gummed on one side with an adhesive; used for labels, alphabets, numbers, etc.

Gummed Tape. See Sealing tape. See Paper parcel tape.

Gum Wadding. A thick felt or chipboard, used in loading shotgun shells.

Gusset Felt. A stiff cheap board, made of old rags or mixed papers; used for stiffening the sides of traveling bags.

Gypsum Plaster Board. An incombustible board composed of gypsum plaster, reinforced on the surfaces with a covering of fibrous material (bogus wrapping or felt). It is designed to be used as a backing for the application of gypsum plaster.

Gypsum Wallboard. An incombustible board, composed of gypsum plaster, reinforced on the surfaces with a covering of fibrous material (chipboard, sized pulpboard, etc). It is designed to receive decoration, without the use of plaster.

H

Halftone News. A newsprint possessing a high finish, produced by the addition of a filler.

Halftone Paper. A term used to denote a printing paper, suitable for printing from halftone cuts; generally high machine finish, supercalendered or coated.

Ham Paper or Ham Wrap. Paper used for wrapping hams; bogus wrapping, straw paper, dry finish butchers, oiled manila and vegetable parchment are used for the purpose.

Handmade. Paper made by hand mold in sheets, having rough or deckle edge on four sides; the mold, of size required, is dipped in the vat containing stock and is lifted out with a certain, definite motion.

Hangings. Heavy newsprint which, when printed, embossed or colored on a coating machine, is used for wall paper.

Hard Fiber. A general term used to include hard-rolled, stiff boards of dense nature; used for trunks, gaskets, shoe counters, insulating purposes, etc. Also called vulcanized fiber.

Hard Sized. A term applied to the resisting qualities of paper when water or ink is applied; sizing quality is increased by the addition of rosin to the beater or by tub-sizing with glue or starch; a sheet is said to be hard sized when it resists to a considerable extent the penetration of ink or water.

Hardware Paper. A paper suitable for wrapping hardware; generally a strong, water-finished paper, black in color.

Herbarium Paper. A strong ledger paper; used in the handling of plants and seeds.

Heeling Board. A hard fiber or leather board of considerable stiffness; used in the manufacture of heels in shoes, or as a substitute for leather.

Hinged Ledgers. Ledgers designed for loose-leaf work; the pages frequently have a paralleling binding edge, a narrow strip (frequently attached to the page by a strip of cloth) so formed or manipulated as to give increased flexibility, assuring flatter opening of the book.

Heralds. See Flyers.

Hosiery Paper. Wrapping or tissue paper paper used in connection with hosiery; may be used to designate wrapping paper to wrap a box of hosiery; to designate the lines of individual boxes, or as a flyleaf; it is usually a white or decorated paper when used on the inside and a kraft, manila or sulphite paper when used as a wrapper.

Hot Pressed Paper. Highly surfaced paper, finished by the plate glazing process; usually refers to drawing paper.

Hull Fiber. The short fibers adhering to the cottonseed hull after de-linting; used to some extent for the production of a bleached pulp for papermaking.

I

Ice Blanket, Paper. Sheets of vegetable parchment, cut to sizes to cover cakes of ice, as a protection against heat.

Ice-Cream Boxes. Receptacles made of solid manila and double manila lined news; used for carrying ice-cream.

Ice-Cream Dishes. Plates made of solid woodpulp board and single bleached sulphite liner with solid manila back; used for serving ice cream.

Ice-Cream Spoons. Molded spoons, made of hard fiber or solid pulpboard.

Imitation Art Paper. An English term referring to a paper, heavily loaded with clay and run through damping calenders; used as a substitute for coated papers when the requirements are not so severe.

Imitation Jute Board. A combination board, having for its surface a liner of pulp, consisting of sulphite or sulphate pulp.

Imitation Kraft. A paper colored to resemble the peculiar brown, which is the natural color of a genuine kraft; it is most commonly made of unbleached sulphite, but may be re-manufactured or bogus kraft.

Imitation Parchment. **(a)** Paper rendered grease and waterproof by prolonged heating; sulphite used for this purpose. See Greaseproof. **(b)** Waterleaf rag paper, treated in a sulphuric acid bath to produce a tough and somewhat transparent grease and waterproof paper. See Vegetable parchment. Both kinds are used for wrapping and for sanitary packages of various kinds.

Imperial. A size of paper 23 by 31 inches.

Impression Paper. See Duplicating paper. See Mimeograph paper.

W

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Indented. A term used to indicate that the sheet of paper has been indented and contains small indentation, without breaking the fibers of the sheet, producing a soft, bulky sheet of paper; especially suitable for packing or wrapping purposes when it is desired to prevent jar.

Indented Board. Chipboard, made of mixed papers, indented by rollers or raised bumps; used for packing bottles and glass containers; for lining refrigerators and protection to furniture, for floor covering under carpets and as core paper in cast iron pipe foundries.

Index Bristols. Cardboards made on the fourdrinier machine of homogeneous stock (such as rags and sulphite), finished and sized for pen and ink work; or made by pasting together two or more plies of the same kind of paper. Used principally for index records, business and commercial cards; it resembles a heavy ledger.

Index Card. A small card, cut from index bristol or heavy ledger; generally in sizes 3 by 5, 4 by 6, or 5 by 8 inches.

India Proof Paper. Thin tissue paper, made from the inner fibers of the bamboo stem; extremely soft and absorbent; suitable for taking full bodied impressions in plate printing.

India Tint. A term applied to a well recognized shade of light brown; applies to writing, blotting, book and cover papers.

India Transfer Paper. See India proof paper.

Indicator Board. A clean, white soda pulpboard with high finish; used for faces of clocks and watches, etc.

Indicator Paper. A book or writing paper, used in connection with an apparatus for determining power of a steam engine, and for other self-recording devices.

Industrial Writings. A group of fine writing papers made for specific uses, as distinguished from ordinary correspondence, commercial and duplicating writing papers.

Ingrain. A term applied to certain mottled effects found in wall paper.

Innersole Board. A hard fiber board, made of rags and leather clippings; used as innersoles of shoes and slippers as a substitute for leather.

Insulating Board. A tough hard-rolled board, similar to press board or vulcanized fiber board; used for insulating purposes around electric motors, etc.

Insulating Paper. Strong, well-sized, acid-free papers, specially washed free from soluble salts in order to render the paper less hygroscopic and thus maintain its electric insulating qualities.

Insulating Tissue. A strong tissue paper, made from rags, sulphate pulp or manila and jute fiber; should be free from chemical residues as it is used chiefly for wrapping an insulation about electric wires.

Intaglio Paper. A high grade bond paper, suitable for intaglio printing.

Interleaving Paper. A thin blotting paper to be inserted between printed sheets to prevent offsetting or blotting; also between the leaves of books for the purpose of absorbing ink from freshly written manuscripts.

Iridescent Paper. Paper with an iridescent surface appearance.

Ivory Finish. Special finish on high grade cards; obtained by calendering through rolls upon which beeswax has been rubbed; also refers to a color, cream white.

Ivory Board. A highly finished non-bending clay-coated two-sides board; used for high class art printing, for hotel menus, etc., when halftones are necessary; also known as menu board or translucent.

J

Jacquards. Hard board or press board, cut and perforated to suit the jacquard looms in spinning factories; used to transfer designs to fabric being woven, the yarn going through the perforations of the board.

Japanese Copying Paper. Specially thin and strong tissue papers, made in Japan from long fibers; used for copying books.

Japanese Paper. A general term descriptive of paper with long fiber as made in Japan or in imitation of it; used for fine engravings and for proofs of engravings and etchings.

Japanese Vellum. Thick paper with long fiber, as made in Japan, or in imitation of it; formation very cloudy; very tough and durable; almost as difficult to tear as vellum; color usually cream or natural; finished with good surface and suitable for certificates, or when tough durable paper is necessary.

Jelly Protectors. Heavy sulphite bond or vegetable parchment, cut to desired sizes and used for covering jelly or other preserves when in jars.

Jumbo Rolls. A term applied to rolls of paper of any grade where the diameter exceeds 9 to 12 inches.

Jute Bag Paper. Wrapping paper made wholly or principally of pulp from jute butts, burlap or hemp and used for the manufacture of paper bags.

Jute Board. A strong solid board, made of kraft pulp on cylinder machine; used for manufacture of folding boxes.

Jute Bristol. A sheet of unusual strength, having high tearing strength and used for various purposes where durability is essential.

Jute Envelope Paper. Paper made of jute butts, burlap or hemp, with good writing surface; used for the manufacture of envelopes.

Jute Imitations. A cheap board, made of mixed papers, colored to resemble jute board and marble or oak grained.

Jute Lined Chipboard. A combination chipboard, vat-lined with sulphite or sulphate pulp.

Jute Lined Strawboard. A combination strawboard, vat-lined with sulphite or sulphate pulp.

Jute Liners. See Container liner.

Jute Manila Wrappings. Wrapping paper of manila color, made of jute and manila clippings or burlap; used for wrapping and in the manufacture of clasp envelopes.

Jute Paper. A strong wrapping paper, made of old rope, burlap, or jute waste; used for heavy wrapping and for lime and cement bags.

K

Keyboard Paper. An all-sulphite sheet used on monotype machines.

Kid Finish. A term applied to a finish, given to high-grade paper or board resembling in appearance and feel that of undressed kid; obtained by the plating process and on calenders; also used to designate a special low machine finish.

Kraft. A term applied to a brown wrapping paper, made wholly of sulphate pulp or mixed with sulphite pulp.

Kraft Bag Paper. Wrapping paper made of sulphate or sulphite pulp and used in the manufacture of paper bags.

Kraft Board. A board made principally of sulphate pulp; possesses unusual strength; sometimes referred to as jute board.

Kraft Envelope Paper. An envelope paper, made of sulphate or sulphite pulp.

Kraft Paper. Paper made wholly or principally of sulphite or kraft pulps.

Kraft Pulp. Pulp of wood, by a chemical caustic cooking process; used in connection with a large number of kinds of wood; process differs from soda process in the addition of sodium sulphide; generally a strong brown pulp.

Kraft Waterleaf. A light-weight absorbent paper made of sulphate pulp; unsized; used principally for toweling.

Kraft Waterproof. A kraft wrapping paper that has been treated with paraffin, asphaltum or other material to make surface impervious to water.

L

Label Paper. Machine finished, supercalendered or coated one-side book paper; especially sized for label printing and lithographing; used for all kinds of labels.

Lace Paper Stock. White sulphite bond or machine finished book paper, converted into papers resembling lace by means of punching or die cutting; used for decorative purposes, such as shelf paper, etc.

Laid. A term applied to papers made with the dandy roll, woven in such a manner as to leave distinct raised lines; those made in machine direction (around the roll) being about one inch apart, while in the cross direction (at right angles) the lines are close together; a special watermark produced by a laid dandy roll.

Laid Antique. This refers to an antique finish on a laid sheet. The formation of a paper may be either laid or wove, the laid depending on the sort of dandy roll used.

Laid Writings. Fine flat writing papers of laid formation; usually in colors.

Laminated Strawboard. Straw paper built up to desired thickness by combining two or more sheets; same as pasted or airdried strawboard.

Lampshade Paper. Heavy vegetable parchment or treated ledger paper, decorated and used as lampshades as a substitute for parchment.

Laundry Board. A term applied to any kind of board, stiff enough to be used as bosom stiffeners in laundered shirts; also known as shirt boards; generally cut in sizes 8 by 16 and 9 by 18 inches.

Lawn. A finish imitating linen finish, applied by pressure to paper.

Layer Board. A medium weight board, made of solid pulpboard or blanks; used for layers or dividers in cracker and cake boxes.

Lead Pencil Paper. A strong sulphite manila wrapping slit to very narrow widths and used in the construction of paper pencils.

Leather Board. A variety of solid board, made from pulped scrap leather with or without jute, manila or paper clippings, on a wet machine; it is often called imitation leather.

Leatherette Cover Paper. A cover paper, embossed to have the appearance of leather; used for box covering and for covers of cheap notebooks.

Ledgers. Writing paper of medium to heavy substance, made on fourdrinier machine; hard-sized, either tub or engine or both; good erasing qualities; may be loft, air or machine dried. It carries medium finish; fibers are long, formation is open (slightly cloudy), not pebbled as in bond paper. Originally designed for use where durability is the primary essential, such as account books, court records, deeds and other legal forms and documents, now made in many grades, fairly true to type, to meet more general needs, particularly in commercial work, such as business and shop forms, stock acrount and blank books.

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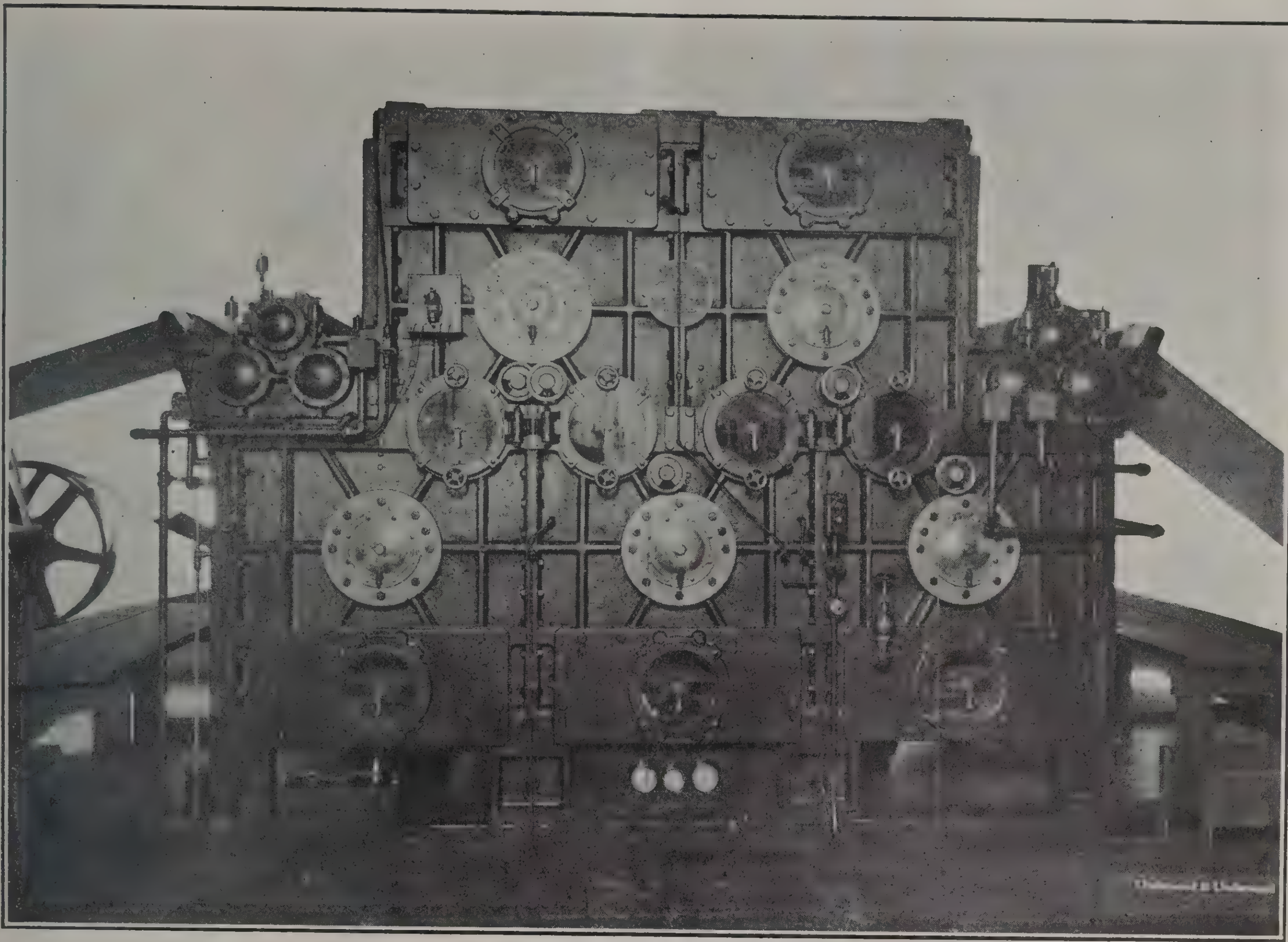

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Legal Cap. A size of paper 8½ by 14 inches. Also called Legal blank.

Lens Paper. A tissue made of long fibers and used for wrapping and polishing lenses; tissue of Japanese fiber generally used.

Lined Boards. **(a)** Mill-lined refers to any board that is lined with newsprint, book paper, cover paper, etc., after the board is made on the board machine and while it is still in the roll, before being cut into sheets. **(b)** Vat-lined is a term applied to any board made on a multicylinder machine, where the top or bottom liner or both are of different quality stock from the filler or center of the board; this term refers to a one-process sheet, the liner or liners being applied as the board is being made on the wet end of the machine. **(c)** Sheet-lined refers to board that is lined, sheet by sheet, on a sheet lining machine; any board whatever can be sheet lined with any quality of lining paper selected.

Lined Paper Plates. Plates made of vat-lined chipboard.

Linen Brief. A paper of foolscap size, ruled with 36 lines across the width of the paper and with a vertical marginal line.

Linen Faced. A linen finished paper used as a facing sheet to a great extent in making boxes.

Linen Finish. A term indicating a finish resembling linen; produced by embossing, by plating with linen glued to zinc plates, or by interleaving linen and paper with zinc plates top and bottom of pile about 4 inches high; an embossed or plated finish.

Linen Ledger. A ledger paper of high grade, originally containing a large proportion of linen rags; now frequently contains a small quantity of linen rags, and in many cases made entirely of the best substitutes, first-class new cotton cuttings; great endurance, especially when folded; excellent erasure quality; extra hard-sized, both in engine and tub.

Linens. Originally a writing paper of light to medium substance; of long, flexible fibers; well distributed and interlaced (felted); produced on a hand mold of laid pattern, and imitating in marked degree the first paper made by the Chinese, which was later known in commerce as India paper; very hard-sized, for pen and ink use, as distinct from the use of the oriental brush; color usually natural or cream; probably derived its name "Linen" from the fact that linen rags afforded the most adaptable fibers for producing this imitation of India paper; highly preferred, before the advent of the typewriter, for commercial correspondence; adopted very largely for typewriting work during the first years, following the introduction of the typewriting machine; woven largely superseded laid, owing to better adaptability for typewriting; as papermaking developed, new cotton rags were mixed with the linen of substituted, therefore, today, usually made on a fourdrinier machine, in many grades, from a great variety of papermaking fibers.

Liners. The outside layers, i. e., the vat-lined or sheet-lined surface, of a built up or combination board.

Lining Paper. Paper used for lining purposes; it may apply to news or book paper, sized specially for pasting or for lining strawboard for manufacture into boxes; may also be a wrapping, used as a lining for shipping cases or freight cars.

Litho Blank. A cardboard, having a highly polished clay coated surface; used for color printing, posters, etc.; coating must take lithographing.

Linters. See Cotton linters.

Lithograph Book Paper. A soft-sized, carefully made book paper, with good finish for lithographic printing; made of rags, sulphite, soda, or pulp from old magazines; used for illustrations and color printing, often coated or supercalendered.

Litmus Paper. A chemical test paper, made by soaking filter paper in tincture of litmus; acids turn the paper red, alkalis turn it blue; three kinds made, red, blue and violet; the last being a neutral paper.

Loft-Dried Paper. Paper which, having been immersed in a tub of a solution or emulsion made of animal hide cuttings, glue, starch, tapioca flour, Irish moss, or other vegetable substances, is while still wet, cut into sheets, which are hung or laid over poles in a loft, controlled for temperature and ventilation, thus drying without tension; subsequently seasoned and conditioned before finishing.

Look-Through. A term applied to the appearance of a sheet of paper when held to the light; a poor "look-through" means a blotchy appearance or wild formation.

Luminous Paper. Paper prepared by mixing a phosphorescent compound with the halfstuff or by coating the finished paper with such a mixture.

M

Macaroni Paper. A wrapping paper colored blue, used in connection with packages of macaroni; it contains sulphite or sulphate in whole or in part depending upon the strength required; it may or may not be machine finished.

Machine Dried. A term applied to the process of drying paper, by passing it over internally heated iron rolls or cylinders of a paper machine; process differs from pole, loft or air drying in that the moist paper is in contact with the rolls or cylinders and is under considerable tension.

Machine Finish. A term applied to a finish of paper, obtained by passing the paper through a paper machine calender stock; a finish higher than antique; also a term sometimes applied to paper with finish as it appears leaving the last dryer.

Machine Finish Book Paper. Any uncoated book paper, having the surface finish obtained from the calender stock of a paper machine.

Machine Finished Cover Paper. A kind of uncoated cover paper with a surface or finish, obtained by passing through the machine calender stack without other calendering or polishing.

Machine Glazed. Wrapping or tissue papers made on a Yankee machine and dried upon one large steam heated revolving cylinder, which produces a highly glazed surface on the side next to the heated roller, leaving the other side in the same finished condition as it came from the wet end.

Mailing Tubes. Strawboard, or lightweight chipboard, wound to several thicknesses, sometimes spirally, to desired size and cut to various lengths; used for mailing purposes.

Manifold Books. Books made of lightweight manifold or copying paper for duplicating purposes.

Manifold Paper. Light-weight writing paper, which, when used alternately with carbon papers, produces multiple copies of written or typewritten work; unglazed or glazed finish.

Manifold Tissue. A tissue paper used for duplicating work when a large number of copies are to be made on the typewriter at one time. See Manifold paper.

Manila. A general term originally used to indicate content of manila rope in the finish, in whole or in part; now descriptive of a color of paper or board; and does not refer to the stock used; color similar to that of mechanical pulp.

Manila Bag Paper. A bag paper, either of rope, jute or sulphite pulp and of a manila color.

Manila Board. A combination board, made of mechanical pulp and sulphite, old rope or bagging, which is either patent or clay coated.

Manila Drawing Paper. Manila paper, of rough finish; possessing a "tooth" suitable for use with pencil for practice drawing purposes.

Manila Envelope Paper. A manila paper of the wrapping paper type, possessing folding qualities and suitably finished for pen and ink.

Manila Lined Chipboard. Combination chipboard, with a manila liner on one or both sides; the manila liner may be made of mechanical pulp, sulphite pulp, old rope or bagging.

Manila Lined Newsboard. A combination newsboard vat-lined, one or both sides, with manila stock, made of sulphite or a mixture of sulphite and mechanical pulp.

Manila Lined Strawboard. A combination strawboard, vat-lined one or both sides with manila pulp, made of sulphite or a mixture of sulphite and mechanical pulp.

Manila Tissue. A tissue made of rags, sulphite or mechanical pulp and given a manila color.

Manila Wrapping. A term applied to a group of manila-colored wrapping papers, made of sulphite, or a mixture of sulphite and mechanical pulp; used for various wrapping and printing purposes and also for envelopes, filing folders, etc.

Manila Writing Paper. A paper originally made from hemp, the fiber of jute or manila; color bright buff or yellow, from full bleached stock (brown from unbleached); sizing hard; generally high machine finish varying to low or antique.

Manuscript Cover. A light weight cover paper; used for protecting legal papers and manuscripts; made of varying quantities of rope, soda and sulphite pulp.

Manuscript, Music. High grade paper of the ledger or drafting type, smooth finish, extra hard sized; erasure superlative; ink must not spread when applied to erasure; used for writing musical scores with pen and ink.

Map Paper. A firm, closely-knit, hard-sized writing paper, light to medium substance capable of good register; finish generally high.

Marble Board. Solid jute board; made of sulphite or sulphate pulp; grained to resemble marble; used for check book covers, etc.

Marble Paper. A glazed paper, having a design printed upon it or by special process laying on a bath, giving the appearance of marble.

Matrix Paper. A heavy, unsized, unfinished paper, which when moistened and prepared, becomes elastic and, when forced over the printers' type form, takes its impression; this form is baked and used for making a metal plate for roll printing; used principally for large runs such as newspapers and various types of publications; may be a solid sheet or may be built up of matrix paper and stereotyping tissue with an adhesive mixture of formaldehyde, china clay, straw, flour, French chalk and gum arabic or similar mixture.

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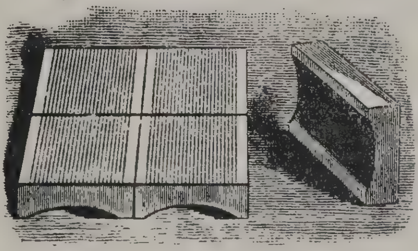

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Mat Board. A combination board, lined with a plain or decorted cover; possesses rigidity; used for mounting specimens or articles.

Match Board. A two-ply board, made of mechanical pulp and sulphite, impregnated with paraffin and chemicals and used in the manufacture of paper matches.

Mat Facing Paper. Paper used for covering mat boards, which see.

Mechanical Pulp. Woodpulp produced by the rubbing action of revolving grindstones against short logs of wood; wood pressed sidewise against the stone by hydraulic pressure with the addition of more or less water.

Medio Board. A particular kind of bristol board used in a gelatin process of printing particularly applicable to an imitation of the regular photographic print.

Medium. A size of paper, 18 by 23 inches.

Medium Finish. A finish that is neither high nor low—between supercalendered and antique; such as machine and English finish.

Metallic Paper. Especially coated paper on which marks may be made with a metal point or stylus; used for note books and indicator diagrams; mixture of whiting, lime and zinc is used as coating, and then glazed.

M. F. See Machine finish.

M. G. See Machine glazed.

Middles. A rough coarse board, made from mixed papers and mechanical pulp; used as a filler for cardboard.

Mill Blanks. A one-process board, not coated, made on a multicylinder machine; two outer plies of white stock; inner plies of mechanical pulp, over-issue news or cheap waste material.

Mill Board. A board made of woodpulp or mixed papers; used for binding.

Mill Bristols. A term applied to a group of bristols, made on a cylinder machine, by combining by pressure when moist, two or more layers; or made by pasting together two or more plies of the same or different kinds of paper.

Mill Glazed. Paper finished on the calender stack rather than on the plater.

Mill Lined Board. Any board that is lined with newsprint, book or cover paper, before being cut into sheets.

Mill Wrapping. A general term to designate grades of paper used by mills for wrapping purposes; grade depends on the quality of the contents and upon the custom of the mills. **(a)** Heavy weight screenings for wrapping paper mill runs or large rolls and paper put up in bundles. **(b)** Heavy sulphite wrappers, highly-finished, sometimes duplex in color; used for wrapping reams of fine writings, etc.

Mimeograph Paper. Slack-sized, semi-absorbent printing paper, with rough finish and generally laid watermarked; used for duplicating by means of a mimeograph machine; made of soda or sulphite; sometimes contains rags and clippings.

Mitscherlich Pulp. Chemical woodpulp cooked by the original sulphite process, where the heat is obtained from steam coils in the bottom rather than by the direct introduction of steam to the chips; a slow cooked pulp.

Mixed Papers. A cheap grade of waste paper or paper stock; collected from department stores, offices, schools, etc.; not sorted.

Monotype Paper. A white book paper, in small rolls; perforated with small circular holes; used on a monotype keyboard machine. Also called Keyboard paper.

Mothbag Paper. A strong manila wrapping paper, often in red color; treated to prevent the presence of moths.

Mottled. A variegated effect on the surface of paper, produced by the introduction of a small amount of strongly colored fiber to stock of another color; used for fancy and decorative purposes.

Moldmade Paper. Imitation handmade paper; sometimes made on a cylinder mould by dividing the surface with rubber bands to simulate the deckle edge of handmade paper.

Mounting Board. Cardboard made by pasting card middles together for the body of the board, which is then surface-lined with a good grade of box cover liner; has either a smooth surface both sides or a smooth surface one side and an art mat surface on the other.

M. Paper. A term applied to paper that is not up to the first sorting, but in which the imperfections are trivial, perceptible only to the expert.

Multigraph Paper. Paper of various grades, colors and finishes suitable for use on a multigraph press.

Munition Board. See Ammunition paper.

Music Cover. A heavy-weight book paper; used for the protection of sheet music; often a coated book or cover.

Music No. 1. A name applied to the high-grade music paper, but without any fixed standard.

Music Paper. Medium weight printing paper, generally with English finish; made of soda and sulphite pulps, used for printing of music; cheaper grades for popular sheet music contain mechanical pulp.

Musicroll Paper. Jute manila or sulphite manila wrapping paper, reasonably resistant to contraction and expansion; used for music rolls for player pianos and organs.

Mulching Paper. Coarse wrapping paper used for mulching; paper made from bagasse often used for protection of growing sugar cane; stronger paper, made of bagasse (sugar cane waste) and burlap used for mulching pine apples; used to some extent, when perforated with holes, for protection of tomatoes and other vegetables; such paper is spread over the ground to keep down weeds to keep in moisture in dry climates and to force growth.

N

Napkin Tissue. A sanitary tissue, plain or creped, cut to napkin sizes; often decorated; made from bleached sulphite pulp.

Needle Paper. Black wrapping paper, especially prepared to insure freedom from acids to prevent tarnish; used for making small packages or container to hold a dozen or more needles.

News. A general term applied to a class of papers, made largely from mechanical pulp, soft sized and machine finished and used as hangings or newsprint.

Newsboard. Cheap board, made on a multicylinder machine from printed news; may be combined or solid. **(a)** Combination newsboard is a board, having a news base or center and lined on one or both sides with a higher grade of stock and possessing a smooth surface. **(b)** Solid newsboard is a board made entirely from printed news, when a clean surface is desired, without the use of the liner.

News Vat-Lined Chipboard. A combination chipboard with an outer lining of over-issue news.

Newsprint. Cheap printing paper, made largely from mechanical pulp, soft-sized and machine finished; used for various printing purposes and in cheap tablets.

(Note.—Secretary Mellon, of the United States Treasury Department, on August 29, 1923, issued the following order specifically defining standard newsprint under the Tariff Act: "As the result of an investigation conducted by the Department and conclusions reached, standard newsprint paper, as covered by paragraph 1672 of the free list of the tariff act of 1922, is hereby defined as consisting of mechanically ground woodpulp and chemical woodpulp or sulphite containing not in excess of 30 percent of sulphite and varying in weight not more than 10 percent from 32 pounds to each 500 sheets or 24 inches by 36 inches. This definition is applicable to newsprint paper without regard to the color thereof.")

Nine Point Strawboard. A coarse cheap board made of wheat and other straws; used by corrugated box manufacturers in making corrugated boxboard; corrugated strawboard is faced with jute liner; also used for single-faced corrugated board and corrugated hemp wrappers.

Nitrating Paper. A light weight rag or sulphite absorbent paper; used in the nitrating process for making nitrocellulose compounds; waterleaf paper similar to that used in the manufacture of vegetable parchment; cotton and sulphite pulp also used for nitrating purposes.

Non-Curling Gummed Paper. Specially prepared gummed paper, the body being made as nearly free from stretch as possible; the coating of gum when dry is broken into fine particles by drawing the finished paper over a steel bar to prevent the film of gum from acting as a single surface.

Non-Pasted Blanks. A term applied to coated or uncoated blanks which are usually made on a multicylinder machine and generally vat-lined, such as patent coated, etc.

Note Paper. Flat writing paper, of various qualities and finishes; generally folded. Sizes of paper: 5½ by 8½ inches, Folio note; 6 by 9½ inches, Pocket note.

Notion Envelopes. White manila or colored envelopes; used as a delivery or wrapper for small articles as merchandise; colored sulphite wrapping used to a large extent for this purpose.

Novel News. Heavy-weight rough finish newsprint used for printing cheap novels.

N. Paper. Sortings of writing papers inferior to M. paper; usually contains specks and wrinkles.

Number 1 Bristol. A solid sheet of heavy ledger grade of paper, made wholly or principally of rags, on a Fourdrinier machine, two or more sheets of which are sometimes pasted together to secure desired thickness.

Number 1 Kraft. Colored wrapping paper made wholly of sulphate pulp; usually tests about one point per pound.

Number 1 Manila. Wrapping paper, made principally of sulphite pulp, but containing other fibers, such as sulphite pulp or kraft clippings.

Number 1 Mill Bristols. A cardboard somewhat similar to heavy ledger, but pasted, usually; is generally not quite so high a grade a quality as No. 1 bristol, which see.

Number 2 Bristol. A bristol or cardboard made of lower grades of pulp, but retaining the characteristics of the No. 1 bristol type; made sometimes on a multi-cylinder machine.

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Number 2 Kraft. Brown wrapping paper made principally of sulphate pulp, but containing other fibers, such as sulphite pulp or kraft clippings.

Number 2 Manila. Wrapping paper in which mechanical pulp is the predominating material used in its manufacture; manila color or resembling color of mechanical pulp.

O

Oak-Grained Board. A jute or pulpboard, with one liner printed with an oak-grain design.

Oatmeal Wall Paper. A hanging (news stock) paper, having spread upon its surface a coating of wood flour, for decorative purposes.

Offset Paper. Printing paper, specially sized for offset lithography; finish, noncurling and absorptive qualities of importance; should be free from lint and fuzz and is generally slightly antique finish.

Offset Postcard. A bristol or cardboard, made of sulphite and soda pulp, with a vellum finish; used for post cards, or special jobs where it is desired that work will stand out and still show soft finish.

Oiled Board. A tag board or heavy weight water-finished fiber board which has been oiled; used for art stencil, dividers in copy books, shipping stencils, etc.

Oiled Paper. A term applied to wrapping paper that has been immersed in an oil bath, or treated with oil; neutral mineral oil is generally used.

Oiled Stencil. A heavy solid tag board, treated with oil to give it resistance against moisture when used as a permanent stencil.

Oilproof Paper. A specially treated paper, that will resist oil when applied to its surface; such as vegetable parchment.

Oneside Coated Printing Paper. A writing paper, either single or double coated on one side of the sheet.

One-Piece Box. A paperpulp box (carton) consisting of a body with four closing flaps at each end, in which the flaps are a part of the body (not stitched or otherwise fastened on).

Onionskin. Light weight writing paper, thin, transparent and highly glazed. It is made transparent by excessive hydration of stock in the beater, assisted by high finish; durable; used for permanent records where a minimum bulk is desirable. It has also become popular for manifolding purposes; with modified finish, or glazed, peculiarly adapted to typewriting manifolding.

Overpeck Blanks. See Non-pasted blank.

P

Packing Paper. **(a)** Any paper used for packing purposes. **(b)** A felt or oil-treated board, used for packing between castiron joints.

Pails, Paper. Containers in the form of pails or buckets, made of hard fiber, pulpboard or woodpulp; either cut into parts and assembled or molded into shape and compressed; used for packing dry commodities, such as candy, nuts, etc.

Pamphlet Paper. An uncoated or coated printing paper; used for small books without stiff back; used for printing short tracts or articles.

Panel Board. Any heavy board, possessing rigidity and used for panels or backing; hard fiber, cloth board, etc., are examples.

Paperoid. A trade name given to a heavy rope wrapping which is used for large expansion envelopes, for filing legal documents.

Paper Napkins. Tissue paper, cut to sizes suitable for use as napkins; plain or creped and sometimes decorated with fancy printed designs; generally made of bleached sulphite pulp.

Pamphlet Cover. Cover papers of various thicknesses, colors, designs and finishes; used to cover pamphlets, booklets, catalogs and the like; usually being stitched but not bound; originally used as a protection, like manuscript cover; made of varying quantities of rags, soda and sulphite pulp.

Paper Stock Board. Commonly known as chipboard and made from a grade of waste paper known as "mixed papers," made on multicylinder machine, in several qualities; used for a large number of purposes.

Paper Textiles. Various fibers made of light-weight paper which has been twisted into yarn and then woven.

Paper Twine. Narrow strips of sulphite tissue or wrapping paper, twisted into form like twine; paper is moistened just before twisting to preserve the twist; used for tying small packages; made in different sizes.

Paper Yarn. Light weight paper twine; generally made of tissue paper; used for weaving into fabrics.

Papeterie. Writing paper, designed for the box stationery trade; somewhat of the wedding type but less refined; must fold reasonably well for envelopes; made in white and an infinite variety of light tints; usually linen or kid finish; but many special finishes are used.

Paper-Mache. Wood pulp suitable for molding or die-cutting into a variety of articles of merchandise; also used for cupolas, cornices and similar purposes, where light weight is essential.

Paraffin Paper. A sized or unsized paper, passed through a bath of melted paraffin or wax; light weight paper generally used; used for sanitary wrappers and covers.

Parcel Tapes, Paper. Strong jute, sulphite and sulphate wrapping paper, cut to narrow strips, of different widths, and gummed on one side; used to fasten the ends of wrappers and for sealing packages.

Parchment Circles. Parchment paper, cut to circles for use principally as caps or tops for pails, buckets, and jars which hold articles containing moisture.

Parchment Deed. High-grade, heavy-weight writing paper of the bond type, in imitation of genuine sheepskin parchment.

Parchment Finish. Finish of paper resembling genuine parchment; usually produced on a plating machine similar to that used to obtain a linen finish, only instead of cloth, a regular thickness of rippled effect paper is used.

Parchmentizing. The process of treating unsized waterleaf rag or sulphite paper in a bath of sulphuric acid and the subsequent washing and drying of the paper to produce vegetable parchment.

Parchment-Lined Board. Chip and other boards, lined with vegetable parchment, imitation parchment or greaseproof paper to make them grease and oilproof.

Parchment Paper. **(a)** A term used to designate a paper resembling the skin of a goat, sheep and other animals; made by treating a waterleaf rag or sulphite sheet with sulphuric acid. **(b)** A very high-grade, heavy-weight bond paper, in imitation of genuine sheepskin parchment, to be used as a substitute therefor.

Parchmoid (Parchmyn). Trade names for imitation parchment, which see.

Passe-Partout. A strong wrapping paper, gummed on one side and cut into narrow strips and sold in rolls about 2 inches in diameter and 1 inch wide, made in all colors, as well as in the metallic bronzes, black is quite frequently used for the binding of lantern slides though the other colors are frequently used in the mounting of pictures.

Pasteboard. A general term applied to both boards and cardboards that are formed by pasting a liner on cheap stock; popularly used to denote any stiff board or cardboard of medium thickness.

Pasted. A term applied to covers bristols or boards in which two or more thicknesses of dry paper have been pasted together as an operation separate from their manufacture on the paper machine; the different sheets pasted together may or may not be of the same stock; flour paste, starch of sodium silicate (waterglass) may be used as an adhesive.

Pasted Blank. Blanks coated or uncoated, made up of a center stock, usually manufactured on a multi-cylinder machine, to which a sheet of book paper is pasted on each side.

Pasted Board. A group of boards, prepared by pasting together two or more boards or by sheet lining a board.

Pasted Bristol. Bristols in which two or more thicknesses of dry paper, which may or may not be of the same stock, are pasted together as an operation separate from their manufacture on the paper machine. This is generally done by machine but in the case of some wedding bristols hand pasting is used.

Pasted Chipboard. Board consisting a two or more layers of chipboard, pasted together to produce a desired thickness.

Pasted Cover Paper. Cover papers, prepared by pasting together two or more sheets of cover paper; often called double thick.

Pasted Felt. Two or more sheets or plies of felt, pasted together.

Patch Stock. A stiff board, made of jute and a little sulphite; used for eyelets in large open-end envelopes and tags.

Patent-coated Board. A type of cheap board with a white vat-liner on one side.

Patent-coated Manila Board. A manila combination board with a white vat-liner on one or both sides and possessing a high finish.

Patent-coated Newsboard. A combination newsboard, with a vat-liner of white shavings.

Patent-coated Newscenter Manila Back. A board, with a vat-liner of white shavings on one side, a manila back made from manila clippings and a newsboard base.

Patent-coated Solid Manila. A board, with a manila base, made from manila clippings and mechanical pulp and with a vat-liner on one side made from white shavings.

Pattern Board. A light weight board, made of sulphate pulp and rag stock; used for tailors' patterns.

Pattern Paper. A paper used by tailors for making patterns, containing sulphite or sulphate in whole or part, depending upon the strength required; usually black or green in color.

Pattern Tissue. Strong tissue, made of sulphite and rag pulp; usually manila color; used for cutting into forms as patterns of dresses and other clothing.

Pen Carbon Paper. A carbon coated tissue paper, suitable for duplicating writing by means of a pen.

Pergamyn. See Imitation parchment.

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Phonograph Record Envelopes. A heavy wrapping paper, made of kraft, rope jute or sulphite; made into an open-end envelope, suitable for holding phonograph records.

Photo-Copying Paper. A paper, so sensitized that copies may be made of records, etc., by a photographic process.

Photo Folders. Cover paper, of various thicknesses, designs and colors; used as a mount for photographs and large enough to fold over and protect the picture; usually a double-thick cover.

Photographic Paper. Paper of light to medium substance, for sensitizing for photo printing, fiber practically pure cellulose; free from metallic or other foreign substances; chemically pure; all chemicals used in reduction of fibers absolutely removed, none remaining in sheet except such as are introduced to assist in the sensitizing process; closing superlatively fine; fibers strong when wet.

Photogravure Paper. An English-finish book paper, suitable for use in printing by the photogravure process.

Photo-Mounts. A term used to indicate any heavy paper of board, used to mount photographs; made of newsboard, or pulpboard and lined with a special embossed cover paper; used also for advertising.

Photostat Paper. A sensitized paper, suitable for duplicating records by a photographic method; a trade name.

Picture Backing Board. A double-faced, corrugated strawboard or plain chipboard; used as backing in framing pictures.

Pie Bag. A flat bottom bag, suitable in size for enclosing pies, usually light weight wrapping and of manila color.

Pin Paper. An anti-rust and anti-tarnish paper, either of book stock or a sulphite manila; usually of a blue or black shade; used for merchandising pins in packages.

Pin Tickets. Small pieces of cardboard or tough heavy wrapping paper; having attached thereto a pin or hook, adaptable for fastening to packages or pieces of merchandise; generally used as price indicators.

Plain Blanks. Uncoated, pasted cardboard, white lined on both sides, distinctive for whiteness, stiffness and light edges; suitable for window cards, posters, etc.

Plain Blotting. A term applying to a commercial blotting in original sheets or in cut sizes, before coating, printing or decorating.

Plain Coated Cover Paper. A heavy enameled paper, in cover weights, possessing strength for folding and without printing, embossing or other decorating.

Plain Shell Board. A light weight solid chipboard.

Plain Strawboard. Strawboard without a liner; a certain thickness, called 9 point 0.009), is used for the manufacture of corrugated container board.

Plant Drier. A heavy gray absorbent paper, used by plant collectors, in their field work to press and carry specimens.

Plasterboard. A board made of heavy wrapping paper or felt, with or without gypsum, designed to be fastened to studs or joists and to be used as a backing for the application of plaster.

Plated Finish. A term applied to a high, smooth finish, obtained by the plating process; used chiefly in connection with high grade bristols, bonds and cover paper, and the higher grades of coated lithograph blanks.

Plated Vellum Finish. A smooth finish, to imitate the appearance of vellum; produced by pressure in a plater.

Plate Glazed. A term applied to a high finish obtained by placing sheets of zinc, copper, or smooth hard boards between the sheets of paper to be finished and passing between the rolls of a plater.

Plate Paper. A highly-finished, light-weight book paper, coated one side; suitable for plate printing in colors.

Plater Board. A thick, stiff, smooth board; used in plate-finishing paper.

Plater Finish. A high smooth finish produced by pressing against a smooth plate.

Plate-Wiping Paper. A light weight tag board; used for wiping engravers' plates between impressions; sometimes oiled.

Player-Piano Paper. A tough partly parchmentized paper; used for punching for player-piano records.

Playing-Card Stock. A stiff pasted cardboard, made of sulphite and soda pulp, with a coated and glazed surface; used for playing cards for various kinds of games; usually with a waterproofed surface.

Pleating Rolls. A manila wrapping paper, in long rolls; used by tailors to lay over dress goods during the pleating operation.

Ply. A term used generally to designate a solid web of paper, which when brought together in process of manufacture, or by pasting, builds up a board to a desired thickness.

Point. A unit of thickness of paper or board; equals one one-thousandth of an inch (1/1,000 inch).

Postcard Paper. **(a)** A cardboard, coated or uncoated; used for postcard purposes; pasted or non-pasted book stock for printing illustrated post cards. **(b)** A document manila or tag board made of sulphite, soda or mechanical pulp, with a smooth writing surface; used for postcards or cheap ticket work.

Pottery Tissue. **(a)** A high-grade tissue, generally manila; used for wrapping pottery. **(b)** A strong tissue, used for the transfer of designs to pottery. See Decalcomania.

Press Board. Stiff, hard-rolled, smooth-surfaced solid board, made of sulphate, rags or rope; generally in colors and somewhat resembles vulcanized fiber.

Press Copy Paper. A strong tissue of light weight; used for duplicating work; paper is moistened and placed over type-written sheet and pressure is exerted.

Press Spahn. See Press board.

Printed Fruit Wrappers. A tissue or light weight sulphite wrapper; used for wrapping fruit for storage and shipment to prevent deterioration. See Fruit tissue.

Printed Gummed Tape. Gummed tape, made of book, rope, kraft or manila paper that has been printed.

Printers' Dry Proofing Paper. See Proofing paper.

Printing Papers. A class of papers, made from sulphite and soda pulps, old papers, and sometimes bleached mechanical pulp on a Fourdrinier machine and containing varying amounts of loading material to produce a smooth surface for printing; generally slack-sized; used for printing books, magazines, etc.

Profile Paper. **(a)** A black, rough cover paper; used for making silhouettes. **(b)** A kind of drawing paper used for profile work or levels by surveyors.

Proofing Paper. **(a)** A high grade, smooth finish cardboard; used for making engravers' proofs. **(b)** A cheap book paper or news; used for making galley proofs.

Pulp Barrels. A barrel shaped container, made of molded woodpulp, used for dry commodities such as dyes, etc.

Pulpboard. A board made on a multi-cylinder machine from mixed papers or mechanical pulp; may be combination (filled) or solid. **(a)** Combination pulpboard is a board having a base or center of mixed papers, with a vat-liner on both sides made from manila clippings or mechanical pulp. **(b)** Solid pulpboard is a board made entirely of mechanical pulp.

Q

Quadrille Finish. A fancy finish embodying a pattern of small squares, produced by a plater.

Quarto. The resultant sheet when a sheet is folded or cut into four parts.

Quire. A name given to a group of 24 or 25 sheets of paper; in coarse papers, 24 sheets and in fine papers, 25 sheets are considered a quire; one-twentieth of a ream.

Quirefold. A term indicating that a separate package has been created by the folding of each quire; usually across the short way of the sheet; when folded with the length of the sheet, it is designated as "quirefold long-way."

R

Rag Board. A general term sometimes applied to binders, trunk and similar coarse boards to indicate that they were made principally of the cheapest form of rag stock.

Rag Lining. A light weight wrapping paper, made of mixed papers, news stock or clippings; used for lining cases, boxes or cartons; does not contain rag stock.

Rag Paper. A general term, very loosely used, to indicate that some rag stock or cotton linters was used in its manufacture; term rag-content paper is used for same purpose.

Rag Plate Paper. A plate paper, made principally of rag stock; used for color printing.

Rag Printing Paper. A high grade book paper, made principally of rag stock; used for printing when durability is essential.

Rag Pulp. A form of pulp, made from rags independently of a paper mill and sold to paper mills; used in various grade of book writing and boards.

Rag Wrapping. A term applied to heavy wrapping paper, made of mixed papers, does not contain rag stock and is merely a trade term for a cheap wrapper.

Railroad Board. A white-lined cardboard, with base of over-issue news; made on multi-cylinder machine; used for mailing cards, show cards, tickets, checks, tags and car signs; usually claycoated in various colors on both sides.

Railroad Copying Tissue. A very light weight yellow tissue, made largely of rags; used principally by railroads for making copies of a particular record or trainmen's orders.

Railroad Manila. See Railroad writings.

Railroad Transfer Paper. A colored newsprint; used by city railway systems granting privilege of transfer from one car to another.

Railroad Writings. Writing paper, made from chemical or other wood fibers, hard-sized; finish generally high M. F., varying to low or antique; usually a bright buff or yellow.

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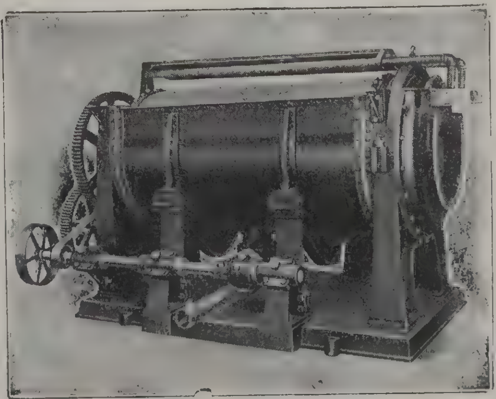

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Rattle. The sound produced by snapping a sheet of paper between the hands.

Ream. A term used to denote a certain number of sheets of a specified size of paper; used in merchandising and to indicate the basis weight of paper; wrappings and tissues 480 sheets, book news and writings 500 sheets; in proposed standard substance basis, a ream of 500 sheets 25 by 40 inches is recommended.

Record Paper. A high grade ledger paper; durability essential; suitable for county and other permanent records; term derived from that use.

Red Matrix Paper. A thin, compact absorbent paper of red color; used as one of the layers in building up a matrix; sometimes called red rag blotting.

Reel Bands. A board, used in the manufacture of reels or cores; usually straw or chipboard.

Repped Finish. A term applied to paper passed through steel rollers which produce a raised or ribbed surface; may also be produced by felts having heavy warp threads.

Retree. Imperfect papers taken from first sortings; second sortings.

Ribbon Blocks. Straw or chipboard cores, used for the center of rolls or bolts of ribbon.

Ribbon Paper. Narrow strips of paper of different grades; so-called because of its width; generally book paper; used to protect ribbon when rolled or in bolts.

Ripple Finish. A term applied to a finish resembling the ripples on the surface of water.

Rocket Paper. See Candle paper.

Roller Matrix. A matrix mat, molded by being passed through or between a roller and the type form. See Matrix.

Roofing Paper. A general term applied to any material used in waterproofing upper decks of buildings. **(a)** Prepared roofing: Saturated felts, saturated and coated with asphaltum, plain or with crushed slate or other grit imbedded in asphalt-coated surface. **(b)** Built-up roofing: Saturated felts, saturated but not coated with asphaltum, put on roofing decks in plies or layers and coated or built up at the time of application. **(c)** Roofing shingles: Saturated felts, saturated and coated with asphaltum, crushed slate, shell or gravel imbedded into the surface while hot then cut into various styles of shingles.

Roofing Wrappers. A term used to designate papers used for wrapping rolls of roofing or building paper; it may be kraft, sulphite, manila or bogus.

Rope Bag Paper. Bag papers manufactured of rope or bagging stock. See Rope Manila.

Rope Envelope Paper. Envelope papers made of rope or bagging stock.

Rope Manila Paper. Wrapping paper, of manila color, made principally of rope stock, the remainder being free from mechanical pulp. This paper has great strength and is used largely for cement bags, flour sacks, etc.

Rope Paper. Paper made principally of old rope, whether manila, jute or burlap; used for exceptionally strong wrapping for heavy work.

Rope Wrapping. See Rope paper.

Rosin-Sized. A term referring to the addition of rosin to the beater to produce sizing effect. See Sizing.

Rotogravure Paper. Highly-finished, uncoated printing paper, often made of bleached mechanical pulp; used for printing by the rotogravure process.

Royal. A size of paper, 19 by 24 inches.

Rubber-Stamp Mark. A mark similar to a watermark, but impressed in the damp paper on the machine from a rubber band on the press rolls or baby drier, usually on grades made rapidly.

Rugs, Paper. An article made of paper, cut to narrow widths in rolls, twisted to resemble twine and woven into rugs or carpets; paper is treated to resist moisture and colored for decorative purposes.

S

Sack Paper. A general term to designate papers used in the manufacture of paper bags; it is generally a rope, crepe, manila or sulphite stock.

Safety Paper. Strong writing (bond) paper that has been sensitized, either by additions of chemicals in the beater, or by special printing in a manner to disclose alterations; used for checks, drafts, railroad tickets, premium coupons or any negotiable certificate of value.

Salesbook Paper. A book or bond paper, of various colors; made up into books for sales record; used in connection with carbon paper to make several copies.

Sandpaper. A good grade of manila or unbleached rope, coated with a mixture of fine sand and glue; base paper should be pliable and durable; used for polishing and cleaning purposes. See Abrasive paper.

Sandwich Bags. Small bags, sometimes of glassine, suitable for enclosing sandwiches.

Sanitary Containers. Sulphite container board stock coated with paraffin, spirally wound into cylindrical cans; made in various sizes from one-quarter pint to half-gallon; crimped flange top and bottom, with fitted lids; suitable for liquid or semi-liquid food stuff.

Sanitary Tissue. A general term applied to a group of tissues which are absorbent, bulky and generally of rough finish, such as napkins and toilet tissues.

Sanitary Wrapping Paper. A term applied to a group of wrapping papers, prepared from sulphite or Mitscherlich pulp by mechanical action in the beater. This term is also used to cover the converted product prepared by treating paper with paraffin, sulphuric acid or other materials.

Satin Folding Bristol. A cheap grade of stock resembling translucent, but with a manila or dark base; particularly adapted for folding purposes.

Saturated Felt. A porous bulky chipboard or rag wrapping; treated with tar or asphaltum; used for roofing purposes. See Roofing paper.

Saturating Felt. A felt which is used as a vehicle to carry and hold various tars, asphaltum or other waterproofing compounds; sometimes designated as waterproofing felt.

Sealing Tape. Manila or No. 1 kraft, gummed on one side and put up in rolls of narrow width. See Paper parcel tapes.

Sealing Wrappers. A heavy mill wrapper, made of Mitscherlich or sulphite pulp; high-finished; sometimes duplex in color; used for sealing ream packages of book and writing paper.

Screenings. **(a)** Drab-colored wrapping paper, made of partly cooked pulp, broke pulp screenings and seconds; frequently full of specks or dark spots; used for cheap wrapping and packing purposes; sometimes machine-glazed. **(b)** A general term used to designate paper made of partly cooked pulp; broke screenings and seconds; frequently full of specks or dark spots, as well as long slivers of wood; it is used for cheap wrapping and packing purposes.

Seaming Cords. A cord, made of narrow strips or rolls of sulphite or kraft paper, twisted into a twine or cord; used as such within a covering of leather for the borders of leather seats in automobiles, etc.

Seconds. Imperfect sheets; sortings.

Second Sheets. **(a)** A term applied to typewriter paper of the same character as the letterhead used, but blank; used for continuation of letter that will not go on one page. **(b)** Sometimes used to refer to light-weight manifold paper, on which carbon copies of letter are made at time of writing.

Seed-Germination Paper. A blue absorbent paper, the dye of which does not bleed or run when sheets are wet; used by seed men to grow seeds upon, with a view of ascertaining the percentage of propagation.

Seidlitz Paper. A term given to lightweight paper, specially treated; used for packing seidlitz powders; usually in blue and white.

Self-Sealing Paper. Wrapping paper, having a coating of paraffin, which when heat is applied, will stick; used principally on food packages.

Semi-Kraft. A wrapping paper, made of sulphate and sulphite, duplex in color; kraft on one side and manila or colored fiber on the other.

Semi-Vulcanized Board. An imitation of vulcanized fiber board; usually hard and stiff and made of all jute stock.

Shank Board. Woodpulp, chemically treated, mixed with leather clippings, run on wet machines and highly compressed; used in shoes as substitute for leather.

Sheathing. Building papers, used between rough boards and finish in outside walls of frame buildings, for portection against wind and dust; closely felted and relatively compact.

Sheet-Calendered. A term applied to a process of finishing paper in which the sheets of paper are passed through a calender stock, but not in a continuous web.

Sheeting Paper. News or book paper, used for the sheet lining of chip and straw boards.

Sheet-Lined Chipboard. Chipboard, which has been lined, after being cut into sheets.

Sheet-Lined Strawboard. Strawboard which has been lined after being cut into sheets.

Shelf Paper. News, book or sulphite bond paper, cut in sheets, often with decorated or lace paper edge; used for lining shelves or cupboards.

Shell Packing. See Cartridge paper.

Shell Paper. See Cartridge Paper.

Shells, Paper. See Cartridge paper.

Shipping Cases, Paper. Cases, cartons or shipping containers made of soild fiber boxboard or corrugated boxboard; used for shipping merchandise.

Shirt Board. Chip or newsboard; used by laundries to place in shirts to keep ironed shirts protected from wrinkles. See Laundry boards.

Shirt Protectors. Shirt board, with a sheet of glassine pasted to the edges; used as an enclosure for laundered shirts as protection.

Shoe Board. Hard fiber board, or highly compressed pulpboard, made of woodpulp and leather clippings; used in the construction of soles and heels as a substitute for leather.

Shopping Bag, Paper. A paper bag, made of strong, heavy rope or kraft wrapping and having a handle attached for convenience in shopping. See Carry bag.

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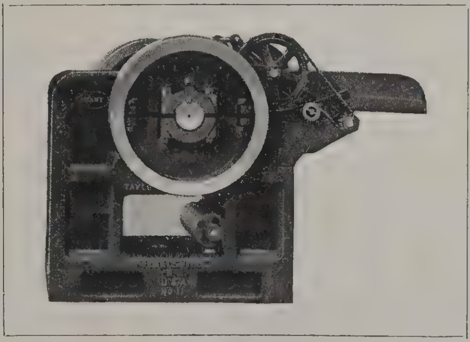

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Showcard Board. A cardboard, made of over-issue news and colored; lined on one side with a book paper and coated one side; used for window and counter display signs.

Silk Board. A stiff heavy chip or binders board; used as a substitute for wood, about which to wrap cotton or silk fabric into a bolt.

Silk Wrapper. A duplex (buff and white) light weight cardboard or cover paper; used for wrapping bolts of silk fabric.

Silver Express. Pearl or gray, water-finished sulphite or sulphate wrapper; used for the same purposes as ordinary express or drab express wrapping.

Silver Tissue. A white anti-tarnish tissue; made of rags or sulphite; used for wrapping silver.

Single-Coated Printing Paper. Printing paper, having a light coating of clay on one or both sides; used for screen cuts not the highest degree of fineness.

Single-Faced Corrugated Board. A corrugated straw board, faced on one side only with chipboard or bogus wrapping; used for protection of glassware and other packing purposes.

Single Feather Edge Board. A board, having but one feather edge; other edge of the same thickness as body of board.

Single Manila-Lined Board. A boxboard, with chip base (made of mixed papers) with a manila liner made of manila clippings; used for folding cartons, butter and lard traps or plates, signs, etc.

Single Manila-Lined Newsboard. Manila board, lined with news back, clay coated on manila side in white and colors.

Single News Vat-Lined Chipboard. A chipboard, vat news lined on one side only.

Single-Thick Cover. A cover paper of a single thickness of paper not pasted.

Single White Vat-Lined Chipboard. A chipboard, vat-lined on one side only, with pulp of white shavings.

Sized and Supercalendered S. & Sc. See Supercalendered.

Sizing. A term applied to the resisting qualities of paper when ink or water is used; sizing quality is produced by the addition of rosin or other similar materials to the beater, or by tub-sizing with glue or starch.

Sketching Paper. A very rough, white or manila writing paper for rough sketches; seldom of permanent value.

Slack-Sized. A term applied to paper containing less than the usual amount of sizing, depending upon the uses of the paper; not generally applied to waterleaf sheet.

Slates, Paper. Thin paper or cardboard coated with a black composition, used as a substitute for slates in schools.

Slaters' Paper. A tarred felt or sized sheathing used under slates in the roofing of buildings.

Slitting Paper. Paper in jumbo rolls and rolls of large diameter and in various widths; used for slitting or cutting down to smaller size rolls.

S. M. P. L. Chip. Single manila print lined chipboard; made of mixed paper or chip base, with a liner of printed manila clippings; used for cheap folding cartons, butter and lard trays that are paraffined, etc.

Soda Pulp. Broadleaf wood (poplar, gum, basswood, etc.) cooked by the soda process; usually bleached; a short fibered bulky pulp, used in blottings, book, cover and writing papers.

Solid Boards. A group of boards that are made of one grade of beater-prepared stock in one process or operation.

Soap Wrappers. Manila, water-finished fiber or waxed paper; used for wrapping individual bars or cakes of soap; when used without treatment, paper must be free from mechanical pulp to prevent discoloration by the soap.

Solid Bristol. A term applied to index or mill bristols which are made of homogeneous stock in one operation.

Solid Cardboard. A term applied to any cardboard that is made in one operation on the multi-cylinder papermachine.

Solid Jute Board. A board, made entirely of jute stock, without liner or filler.

Souffle Cups. Small cups made of white sulphite writing paper; cut or embossed with fancy designs; used for serving small portions of foods or sweets.

Specialties. **(a)** Converted paper articles, not commonly used; as distinguished from the standard uses; **(b)** Grades of paper, made in small runs, of special colors, etc.

Spinning Parchment. A specially treated parchment paper of lightweight, usually red or pink in color; used to make small rolls about one inch wide for use in connection with the French system of mule spinning of worsted goods.

Starch Paper. An absorbent paper, treated with starch; used as an indicator paper in chemical laboratories for the presence of traces of free iodine.

Steam-Dried Binders Board. Binders board that has been made on a multi-cylinder machine and dried on steam-heated cylinders, as contrasted with air-dried board that is made on a wet machine and air-dried.

Steam Finish. A finish obtained by means of a steam spray on the machine calenders or on the supercalender.

Streamers, Paper. White and colored tissue paper, cut to narrow width rolls for hand use; used principally at carnivals or for decorative purposes.

Steel Plate Paper. A high grade paper of exceptionally uniform surface used for steel plate engravings.

Stencil Board. A water-finished, cylinder-made sulphate board; used for making stencils for shipping purposes.

Stencil Paper. A paper, used for cyclostyle, mimeograph or other duplicating machines; made by impregnating strong tissue paper with paraffin or other suitable materials.

Stenotype Paper. Book paper, in small rolls or folds, used on stenotype machines.

Stereotyping Tissue. Extra strong tissue, made of rags or sulphite; used as a facing in the production of matrix mats for printing purposes.

Stock Sizes. Common sizes, usually carried by producers, distributors or consumers; sizes that are standard and which are reordered from time to time.

Strawboard. Cheap coarse board, made on a multi-cylinder machine from incompletely cooked straw; may be combination or solid. **(a)** Combination strawboard is a board, having a straw base or center and lined on one or both sides with a higher grade of stock and possessing a smoother surface. **(b)** Solid strawboard is a board made entirely from straw pulp.

String-Inserted Waterproof. A built-up, heavy wrapping paper, consisting of two sheets of kraft or manila paper, with coating of asphaltum in center and with cotton or jute string inserted in the center coating, spaced about three-eighths to half an inch apart.

Suit Boxboard. A combination board, of chip base with jute liners, possessing strength and rigidity.

Straw Wrapping. Coarse wrapping paper, made of wheat or rye straw; used by packers and butchers for wrapping meat and for lining wagons in which meat is delivered.

Substances. The weight of a sheet of book or writing paper; book paper weights are on basis of ream 25 by 38 inches, while writings are on basis of 17 by 22 inches; proposed substance is on a basis of ream 25 by 40 (1000 square inches) for all classes of paper.

Suitcase Board. Pasted chipboard, oak-grained on one side and reverse lined with imitation leather paper, used for making suit cases and sample cases.

Sulphate Paper. Paper made wholly or principally of sulphate pulp. See Kraft paper.

Sulphate Pulp. See Kraft pulp.

Sulphate Wrapping. A brown wrapping paper made wholly of sulphate pulp.

Sulphite Bag Paper. Bag paper, composed wholly or principally of sulphite pulp, either white or manila color.

Sulphite Board. A pulpboard, made entirely of sulphite pulp.

Sulphite Bond. Paper of the bond type, made from wood fibers, the chief component being bleached sulphite pulp.

Sulphite Manila. A manila wrapping paper, made wholly or principally of sulphite pulp, but colored to resemble manila.

Sulphite Paper. Paper made wholly or in large part of sulphite pulp.

Sulphite Pulp. Woodpulp produced by a chemical acid process using a mixture of sulphurous acid and lime; coniferous woods, such as spruce, hemlock, fir, etc., generally used in this process; gives a long and strong wood fiber.

Supercalendered Finish. A finish of book and other papers, obtained by glazing the paper by passing it through a series of rolls of paper, cotton or chilled iron, with or without heat; rolls rest upon each other in the form of a stack and the bottom roll is driven; the iron rolls alternate with either cotton or paper rolls.

Supercalendered Book Paper. Machine finished book paper that has been passed through a series of rolls of paper, cotton or chilled iron (called a supercalender), and given a high or glazed surface.

Supercalendered Cover Paper. A kind of uncoated cover paper that has a high or glazed surface, obtained by having been passed through a supercalender stack.

Superfine Writings. A high or superior grade of fine flat writings; usually with a high finish frequently modified to suit a diversity of uses and tastes.

Super Finish. A term applied to a finish of an uncoated paper, which has been given a glazed surface. See Supercalendered.

Super Glazed. A comparative term applied to an unusually highly glazed surface of paper.

Super Royal. A size of paper, 20 by 28 inches.

Supplement. Sheets of book paper, added to the end of a printed book.

Surface Coated. A term applied to any paper to which a coating of any kind has been applied to the surface; distinguished from a coating applied by passing the sheet through a bath.

Surface Sized. See Tub Sized.

Surgical Dressings. A thin web of pulp, made in layers, generally creped; sterilized and used by surgeons for its absorbent qualities. See Cellucotton.

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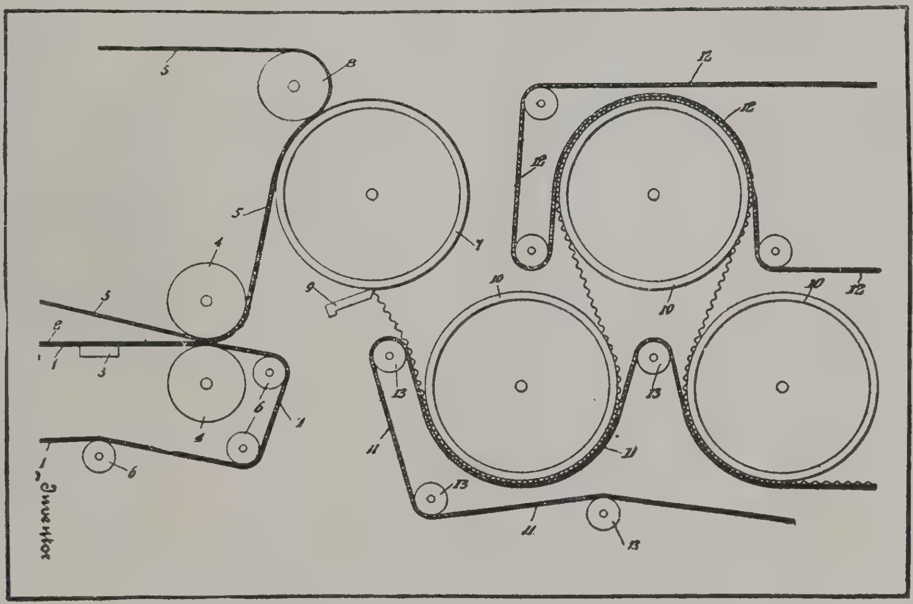

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Syphon Paper. A medium weight writing paper, of smooth surface; slit and reeled into rolls ⅝ inch wide and from 6 to 8 inches in diameter; used in connection with syphon recorders at telegraph cable terminals, for recording messages automatically in a special kind of marks.

T

Tablet Blotting. A sheet used on the front of tablets, between the cover and the writing paper; sometimes printed with black lines and included in a box of papeterie, to be placed beneath the sheet of writing paper to make it easier to write in a straight line.

Tablet Board. Chip or strawboard; used as a stiffener for the backs of tablets.

Tablet News. Newsprint, usually of rough surface suitable for pencil writing; used in cheap tablets.

Tablet Paper. Book paper, sometimes containing mechanical pulp; sized for writing purposes; used in the manufacture of tablets; other grades also used, such as news, writings and bonds.

Tack Board. A term applied to a lightweight, stiff, gray or black solid chipboard; used in the construction of tack boxes.

Tag Blanks. See Tag board.

Tag Board. Various weights and qualities of a manila colored cardboard; made of mixed papers, mechanical pulp, sulphite or rope stock; used for the manufacture of various kinds of shipping tags; generally has a printing or writing surface.

Tag Envelope. An envelope, so constructed of heavy document manila that it may be used both as a tag and for enclosures; used in connection with shipping, for enclosure of special instructions; as for installation of electric motors, etc.

Tape, Paper. Paper made in narrow widths in rolls for a variety of purposes; many grades of paper used.

Tapping Board. Hard fiber, leather or sulphite pulpboard, used in the construction of cheap shoes.

Tar Board. A cloth board, containing tar and hard rolled; generally used for high grade book covers.

Target Board. Stiff binders board, one side covered with olive drab lining, reverse side covered with news liner; used for field targets on government rifle ranges.

Tar Paper. See Tarred Felt.

Tarred Felt. A building felt, saturated with tar; used in the construction of buildings, etc. See Saturated felts.

Tea Paper. Colored sulphite wrapping paper; used in making a container for individual packages of tea.

Telegraph Manila. A cheap yellow-colored manila writing paper, made of mechanical pulp or sulphite pulp; sized for writing; used for the writing of telegraph messages for transmission and delivery and for railroad waybills, etc.; called chemical manila when made from chemical fibers; called railroad manila and manila writing when mixed with mechanical pulp.

Templet Board. Hard-rolled press board, made of mixed papers on wet machine; made in large sheets; used by foundries and machine shops for making templates and patterns.

Test Board. Chip or jute lined board; used in the construction of shipping containers to conform to definite strength specifications.

Test Jute Board. Solid board made wholly or principally of sulphite or sulphate pulps, the strength of which meets specific requirements for special uses.

Test Chipboard. A solid chipboard, which must conform to definite strength requirements when used in the manufacture of containers for interstate transportation.

Text. High grade uncoated printing paper, with smooth but dull finish, of good texture and appearance. This paper is often made with some rag stock and is used chiefly in the production of high grade or expensive book.

Textile Spools, Paper. Spools, cones or cores, made from a combination board of light weight chip base stock, with surfaces of vatliners of a desired color; used for winding yarns.

Textile Tissue. Strong colored tissue paper, cut into strips and twisted into thread or yarn for making paper textiles or fabrics of light weight.

Three-Piece Box. A paper pulp box (carton) consisting of a body piece with separate ends attached to the body by means of flanges. The ends may be attached inside the body with the flanges projecting outwards (recessed end) or either inside or outside of the body piece with the flanges projecting towards the body (capped end).

Thick China. A coated non-pasted cardboard, coated two sides; made of overissue news, on a multi-cylinder machine; carried in an unusual variety of colors; particularly adapted for theater tickets; practically a railroad board in light weights.

Threaded Felts. A heavy sulphite or sulphate wrapping, to which has been applied a coating of asphaltum and covered with yarn, running one or both ways across the sheet; exposed, or covered with another sheet of the same or different kind and weight of wrapping paper.

Ticker Tape. Narrow rolls of white book paper; used on ticker machine to indicate market and stock report.

Ticket Board. Bogus bristol, thick china or cheap sulphite board; used for various ticket purposes.

Ticket Paper. Bristols, translucents or tough check; used by railroads for tickets; sometimes specially treated or coated to prevent counterfeiting; also a good grade of writing paper or bond, which may have the safety feature.

Ticket Stock. Coated board, same colors as tough check but with a base of news.

Tinfoil Paper. Paper coated with tinfoil, the latter being tin in a finely divided state and pasted on the surface of the paper; used for decorative wrapping and preservative purposes.

Tire Containers. Receptacles made of cheap boxboard; used for packing and transporting rubber inner tubes.

Tire Wraps. Plain kraft, waterproofed wrapping or case lining paper, or string-inserted waterproofed wrapping; in 50 or 100 yard rolls from 1½ to 6 inches wide; used for wrapping tires. See Automobile tire wraps.

Tissue Manila. Manila colored tissue, often made of manila or jute fiber, rag or sulphite.

Tobacco Paper. Manila or colored sulphite and mechanical pulp wrapping paper, sometimes coated; fairly bulky but pliable and soft, so that when used as a container for plug cut or other smoking tobacco, the package when felt will give the impression of containing fresh tobacco.

Toilet Tissue. Tissue paper, made of mechanical pulp or sulphite; creped, smooth or rough finished; sometimes impregnated with small quantities of a waxy substance; finished in rolls or sheets and used for toilet purposes.

Tissue Paper. A general term indicating a class of papers made in weights lighter than 10 to 12 pounds, 24 by 36, 480; made on Yankee or Harper machine generally, or on a single-cylinder machine, glazed or unglazed; of rag, sulphite or rope; used for a large variety of purposes.

Toned Printings. A term applied to a shade or tint of book paper bordering on buff; the natural color of bleached woodpulp.

Tooth. A term used to denote the depressions between the fibers or groups of fibers in the surface of a sheet of paper; refers principally to drawing papers and papers of low finish.

Tough Check. A strong cardboard, made either of rope stock or extra quality strong unbleached sulphite on multi-cylinder machine; coated; used for tickets and tags, where strength is essential; usually coated on both sides.

Toweling. A light weight absorbent paper made of woodpulp or waste papers; creped or crinkled; used as a substitute for cloth towels.

Towel Paper. See Toweling.

Tracing Paper. Transparent, thin, lightweight writing paper; used for tracing original drawings or plans; its transparency makes possible blueprinting these tracings.

Tracing Tissue. A tissue paper of considerable strength and transparency, used for tracing patterns and drawings.

Trademark Paper. Paper containing a mark in the sheet, used primarily to distinguish it from any other paper and to conform its ownership.

Transparent Paper. (a) Cheap news in various colors; used for street railway transfers. (b) Light-weight tissue or book paper, on which is printed a design or colored picture for transfer to some article; includes embroidering transfer pattern, pottery tissue, decalcomania paper, etc.

Translucents. A soft cardboard, pasted or non-pasted, made of soda pulp with both sides clay coated; used for booklet covers, window hangers, cards, etc.

Transparent Manifold. A very thin manifold paper for use with duplex carbon; transparent, so as to be read through.

Transparent Paper. A general term applied to thin paper through which can be seen an object against which it is held.

Trimmed. A term applied to paper that is cut or trimmed on two or more sides to insure exactness of angle.

Trunk Board. A stiff binders board, made in large sizes; used in the construction of trunks. See Binders' board.

Trunk Wrapping. A heavy sulphite, kraft or rope paper.

Tube Board. Strawboard or chipboard; used for winding either straight or spirally into form of a tube; used for mailing or container purposes.

Tub-Sized. A term applied to paper which has been passed through a bath of glue or starch, and subsequently air or loft dried; the glue or starch improves the quality of the paper, as well as the sizing quality; used in treatment of bonds, writings, ledgers, etc.

Turmeric Paper. Absorbent filter paper, treated with extract of turmeric root; used in chemical laboratories to indicate the presence of small quantities of acid by a change of color.

Twisting Paper. Either strong tissue or wrapping; used for the manufacture of cords, twines, and yarn; also in the manufacture of carpets, rugs, furniture, woven paper fabrics and bags, etc.

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Two-Sides Coated Printing Paper. Printing paper, either single or double coated on both sides of the sheet.

Tympan Paper. Paper used by printers for packing between the cylinder or the platen and the sheet in printing process; it is always finished in rolls, in widths equal to the standard widths of the printing press and is generally a stiff manila colored wrapping, oiled or uncoated, made of jute, manila and sulphite.

Typewriter Manifold. Light weight paper of bond character; made of rags and sulphite; used in 7, 9 and 13 pound weights for making a number of carbon copies at one time on the typewriter.

Typewriter Paper. Bond and writing paper, cut 8½ by 11, 8½ by 13, and 8½ by 14 inches in size; packed in ream boxes and sold as typewriter paper; used in 13, 16, 20 and 24 pound weights; made of rag, sulphite, soda and cotton linters.

V

Varnish Label Paper. Uncoated printing paper, made for label purposes, sufficiently sized to withstand a coating of varnish after printing.

Vat-Lined. A term designating the process of applying a liner to a board or cardboard, by use of a multi-cylinder machine, by having a different stock in the first or last vat.

Vat-Lined Chipboard. A chipboard, having a liner formed in the process of manufacture on a multi-cylinder machine, of a different color or quality than its center or filler; liner made on a different mold than the filler and all the plies brought together while wet and compressed at the press rolls.

Vat-Lined Strawboard. A combination strawboard, vat-lined with mixed paper stock.

Vat Paper. An English term applied to paper made on a cylinder machine, on account of the vats in which the cylinder mold revolves.

Vegetable Parchment. A term applied to waterproof, greaseproof and partly transparent paper, produced by passing a waterleaf sheet, made of rags or sulphite, through a bath of dilute sulphuric acid and immediately washing; used as a sanitary wrapping.

Vellum Finish. A term used to describe or indicate any paper or cardboard finished as vellum; obtained by the calendering or plating process.

Vellum Paper. A high grade natural or cream-colored heavy paper similar to ledger, except that it has a slick or oily appearing finish, produced by the use of oils; used for diplomas, embossed resolutions, marriage certificates, etc.

Velvet Finish. A term applied to a finish given to paper or cardboard and so named because of its similarity in feel to velvet; a low antique finish, dull in surface.

Veneer. Thin pulp or fiber board, or heavy ledger, highly glazed and used for coverings.

Visor Board. Jute board, made of strong sulphite pulp, having good bending qualities; used for making cap visors.

Vulcanized Fiber. Often called hard fiber; paper or board rendered hard and waterproof; waterleaf paper is passed through a bath of strong zinc chloride solution and washed; several sheets pressed together while wet into a hard compact mass, used for various fabricated articles such as washers, etc.; also used as backing board.

Vulcanized Paper. A paper or board which has been treated with a strong solution of zinc chloride. See Vulcanized fiber.

Vulcanizing Paper. A waterleaf sheet, made of rags or sulphite to be treated in a zinc chloride bath in the manufacture of hard fiber and other vulcanized paper products.

W

Wad Paper. Chipboard, used to cut into small disks and used in shotgun shells.

Wallboard. **(a)** Heavy board, composed of a number of layers of chip, binders, or pulpboard, molded or pasted together and generally sized, either throughout or on the outer surface. **(b)** A composition material used as substitutes for lath or for lath and plaster in the construction of partitions, side-walls and ceilings in interior construction; commonly known as asbestos wallboard, gypsum wallboard, gypsum plaster board and wallboard made entirely of old papers or woodpulp.

Wall Paper. Heavy paper, made largely of mechanical pulp, similar to newsprint or otherwise, is used as a covering for interior walls and ceilings for decorative purposes; high grades of wall paper are made of better quality of stock.

Washers, Paper. Disks, with a round center hole, made of hard-rolled chipboard, tar board or hard fiber; used for various purposes as a substitute for metal washers.

Watercolor Paper. A drawing paper with a surface more pebbled than ordinary; pebbling slightly tending toward a geometrical pattern; faintly resembling prepared canvas for oil painting; sized hard; surface firm but not "greasy"; watercolor when applied should not flow, neither should the paper rob the color of its brilliancy.

Water Finished. Paper that has been highly glazed or finished by the action of the machine or supercalenders on the surface of the sheet which has been moistened immediately before entering the rolls of the calender; also applied to highly glazed wrapping paper, obtained by being calendered on a calender stock equipped with "water boxes," and compound levers to increase the pressure on the rolls, while the paper is being calendered.

Water Finish Sulphite Wrapping. Sulphite wrapping paper, made wholly or principally of sulphite pulp, and moistened before passing through the last stack of calenders on the paper machine to produce a glazed surface.

Waterleaf Paper. A kind of blotting paper, used for conversion by chemical processes into vegetable parchment, vulcanized fiber, etc.; the term waterleaf is sometimes used in connection with filter paper and commercial blottings.

Watermark. **(a)** A term applied to a distinctive mark or design; produced by the raised pattern on the dandy roll or the wet sheet before going to the couch roll; includes the laid mark. **(b)** A term applied to a distinctive mark or design produced by raised design on rubber rolls, pressing against the sheet as it goes over the first dried or baby drier.

Waterproof. A term applied to any paper or board that has been heavily sized or treated to resist moisture; indicates that water or moisture, under ordinary conditions, will not penetrate within a limited time; this is a relative term.

Waterproofing Felt. A paper used for building purposes which is treated to render it waterproof.

Waterproof Bag. A paper bag made of duplex kraft with center of asphaltum.

Waterproof Sheathing. Sheathing paper made wholly or partly impervious to moisture by extra sizing during manufacture or by later treatment.

Waterproof Wrapping. A term used to designate paper which has been coated with asphaltum, or a duplex sheet filled in the center with asphaltum to make a highly waterproof sheet; it may be used as a wrapping paper or a case lining to protect the contents against moisture.

Waxed Paper. A wrapping paper that has been passed through a bath of wax or paraffin or that has been coated or treated with wax or paraffin; generally used for various wrapping purposes.

Waxed Tissue. Tissue paper that has been waxed; used for sanitary purposes.

Waxing Paper. Any paper, which may be treated to produce waxed paper; should be sufficiently slack sized to absorb the wax or paraffin.

Wax Stencil. Stencil paper of board, that has been coated with wax or paraffin.

Waybill Paper. Light weight yellow or pink writing paper, made of sulphite and mechanical pulp; used for railroad waybills.

Web-Calendered. A term referring to a process of finishing paper in which the paper is passed through a calender stack in a continuous sheet or web.

Web News. A term used to indicate news print in rolls or a continuous web.

Wedding Bristol. High grade bristols made by pasting together two or more sheets of finished or unfinished paper of rag content in different thicknesses or plies; plated to give various finishes; used for cards, announcements, etc.

Weddings. Superfine writing papers of medium to heavy substance, slightly modified for better folding; exceeding delicacy of texture; finish usually of the vellum or kid style, i.e. smooth to the touch but lacking in sheen or glare; may carry other finishes, as high plate or linen; particularly adapted to steel engraved wedding announcements; frequently used for social correspondence.

Weight. A term used to indicate a quantity of paper; has special application as a term used to indicate the basis of a single sheet of paper, in terms of the actual or nominal weight of a ream of that paper, of some standard or arbitrary size. See Basis weight.

Well-Closed Formation. An even regular formation of the fibers, producing an even, uniform appearance to the sheet as opposed to a wild formation which gives a mottled, cloudy appearance.

Western M. F. Book. A term applied to book paper made in other than the Eastern States; it was thought that such paper had somewhat different qualities than similar paper made in the East; usually contained less soda pulp and more sulphite and in some cases contained white shavings; applies usually to cheaper grades.

Whalebone Paper. A stiff, hard-rolled, chemically treated jute board, resembling fish paper; used as a substitute for whalebone in stays and corsets for insulating purposes.

White Divider Board. Cardboard, made of over-issue news and sulphite; white colored throughout; used for separating candy layers.

White Mill Blanks. Cheap cardboard, made of over-issue news and white shavings; used for cheap advertising and window decorating.

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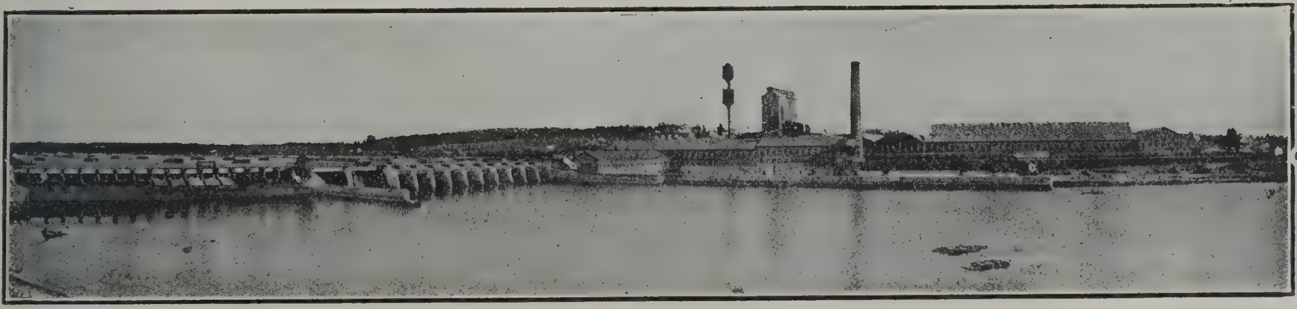

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White News Mill Lined Strawboard. A strawboard, which has been lined with newsprint, while yet in the roll and before leaving the paper machine.

White Sulphite Paper. A term applied to a paper, made of bleached sulphite pulp, having strength and good appearance.

White News Sheet Lined Strawboard. Strawboard, which has been lined with newsprint after leaving the paper machine and cut into sheets before lining.

Wild Formation. An irregular formation of the fibers, producing a cloudy or mottled appearance in the sheet; particularly noticeable in long fibered papers, such as kraft.

Willesden Paper. Any paper, treated with ammoniacal solution of cupric oxide, which produces a gelatinous effect on the surface, somewhat resembling parchment.

Wiping Paper. A paper, used for wiping or cleaning type; generally a butcher's manila or smooth surfaced wrapping.

Wire Mark. A term applying to the surface given a sheet of paper by contact with the wire on a paper machine; generally a diamond or square shape.

Wire Side. That side of a sheet of paper which has come in contact with the wire of the paper machine, during the process of manufacture

Wire Wraps. Duplex, anti-tarnish paper, kraft on one side and green or blue on other side; used for wrapping rolls of wire.

Woodpulp. Pulp made from wood and suitable for making paper; produced by one of three chemical or one mechanical process; such as soda, sulphite, sulphate and mechanical pulp.

Woodpulp Board. Woodpulp board, commonly known as pulp board, is used for various purposes such as tablet backs, pie plates, cake boards, cracker layer board, set-up boxes, etc. **(a)** Filled: made from mixed papers with vat-liner on both sides made of manila clippings or mechanical pulp. **(b)** Solid: made of mechanical pulp.

Wove. A term used to indicate that in making a cover, wiring or bond paper, a dandy roll was used with a cover similar to Fourdrinier wire (instead of a "laid" dandy), in order that the two sides of the sheet might be nearly alike. See Laid.

Wrapping Tissues. Tissues whose chief characteristics is toughness and, in some cases, freedom from chemicals likely to produce tarnishing effects.

Wrapping Paper. A general term applied to a class of papers made of mechanical pulp, sulphite, sulphate, straw, rope, jute, burlap, old rags and mixed papers, and used for wrapping purposes as a container or protection; may be made on Fourdrinier, cylinder or Yankee machine.

Writings. A class of fine papers made on the Fourdrinier machine, from rags, cotton linters, sulphite, soda pulp, etc.; hard sized and suitable for conversion by printing, ruling, folding or other methods, for use with pencil or pen and ink for commercial or social purposes.

Y

Yarns, Paper. Paper or tissue twisted in a manner suitable for weaving into carpets, rugs, bagging, paper fabrics, etc.

Yellow Waybill Copying. Yellow copying tissue of sulphite, jute or mechanical pulp; used for duplicating railroad waybills.

Z

Zinc Liner. Refers to the use of zinc plates on top and bottom of each sheet of paper in making the plater "book." A zinc plate, cloth, paper, etc., are used. In the ordinary plate finish, a zinc plate is used only at the top and bottom of the book. The use of a large number of zinc plates puts a deeper finish on the paper; in fact it actually cuts into the fiber.

Detection of Animal Size in Surface Sized Papers

By F. T. CARSON*

IN the manufacture of surface-sized paper there are but two materials used in appreciable quantities as tub-sizing agents, viz., animal glue or gelatine and starch. The former is usually referred to as animal size. Aside from its primary function the sizing agent produces secondary effects on the physical qualities of the paper, such as improvement in the strength, rattle and feel, the effect being different according to the sizing agent used. Owing to the somewhat intangible nature of certain of these properties it is often impossible to express completely the quality of a sheet of paper by physical tests alone. It is customary, therefore, to specify the component materials which enter into the manufacture of the product. In the case of surface-sized papers the kind of size used is specified in lieu of satisfactory physical tests definitely to predetermine the suitability of a given paper to a given use. Whether starch or animal size has been used in the tub-sizing process is sometimes difficult to determine. The simple test with iodine in potassium iodide solution is used to detect starch. The detection of glue, however, involves some uncertainty for the reason that certain starches give a precipitate or otherwise interfere with the test for glue by the usual procedures. In fact it is maintained that "when either casein or starch is present there is apparently no means of proving the presence or absence of glue."[1]

Precipitate With Starches

Several qualitative tests for glue have been used, the most common of which is the reaction with tannic acid. Certain starches, however, give a precipitate with tannic acid which is very similar to that given by glue. Griffin[2] recommends that the starch, if present, be hydrolyzed by heating with hydrochloric acid on a steam bath before adding the tannic acid. It has been observed also that boiling the tannic acid precipitate will aid in differentiating between the two materials. If due to starch the precipitate will dissolve and reappear on cooling, while if due to glue it will further coalesce and settle out in dense particles which remain intact on cooling. Levi[3] recommends the biuret test, and a modified Nessler's reagent has also been used for the detection of glue. But apparently the most satisfactory test available is the reaction with ammonium molybdate.

Ammonium Molybdate Methods

The ammonium molybdate method is given in the Paper Testing Methods referred to above, but does not appear to have gained much popularity, possibly because of failure to emphasize certain simple but necessary precautions. The precipitate formed by adding ammonium molybdate to a solution of glue is partially or wholly soluble in strongly acid solution. Hence the usual ammonium molybdate solution used for the detection of phosphate is unsuited to the detection of glue. Nor will the precipitate occur in neutral or alkaline solution. The reaction occurs to advantage only in dilute acid solution. It might be supposed that this condition would tend to make the method troublesome. But such is not at all the case, for the aqueous extract of paper is never far from neutral, making possible a uniform qualitative procedure.

Applying the Method

In applying this method it is well to work with definite amounts of material. In this manner a rough quantitative estimation of animal size is possible after some experience. Half a gram of paper boiled with 10 cc. of water gives good results. The aqueous extract should be cooled and filtered before adding the ammonium molybdate reagent. The reagent recommended by Schmidt[4] is prepared by dissolving 3 g. of ammonium molybdate in 250 cc. of water and then adding 25 cc. of nitric acid of specific gravity 1.2 (about one part concentrated acid to three parts water). The reagent is not permanent but on standing for some time will gradually settle out. About one volume of the reagent is added to two volumes of the cold aqueous extract, a white voluminous precipitate indicating glue. The test is very delicate, revealing minute traces of glue, so that if no precipitate results, or even in case of slight turbidity, one can be reasonably certain that the paper has not been tub-sized with glue.

Schmidt's Investigation

Schmidt[4] investigated the action of ammonium molybdate upon a large number of substances, including starches, and it can be inferred from his results that none of the substances other than animal size which might be present in the aqueous extract of paper would precipitate with this reagent. He found this test more sensitive than either the tannic acid or the biuret test. Several cases have come under observation in this laboratory in which the aqueous extract of paper gave a precipitate with tannis acid but after hydrolyzing the starch present no precipitate occurred with tannic acid. In every case the ammonium molybdate test for glue was also negative. Tests were also made using solution of glue and starch and various mixtures. The ammonium molybdate reagent always revealed glue when present without interference by the starch.

In conclusion it may be stated that tests and observations indicate that the ammonium molybdate method as described, possibly supplemented by Griffin's extension of the tannic acid method, will determine positively whether or not paper has been animal glue tub-sized.

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* Assistant physicist, Bureau of Standards. Published by permission of the Director of the Bureau of Standards, U. S. Department of Commerce. The writer is indebted to Dr. V. H. Gottschalk, Research Associate of the American Glue Association, for many suggestions and for the translation of original sources.

[1] Paper Testing Methods of the Technical Association of the Pulp and Paper Industry, 1922, p. 34.

[2] Technical Methods of Analysis, p. 355.

[3] Papierfabr. Vol. 9, p. 365 (1911).

[4] Chem. Zeitung, Vol. 36, p. 313 (1912); Farber-Zeitung, Vol. 24, p. 97 (1913).

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Electrical Maintenance in Paper and Pulp Mills

By H. L. HAYES*

MAINTENANCE is generally distinguished from ordinary repair work in that it includes the inspection of equipment and the making of minor repairs when work can be done with least loss of production, and it also takes into consideration prolonging the life of equipment which may otherwise be shortened by premature breakdowns. Several years ago a steam engineer stated that he had obtained a good position because, in his previous position, he had been fortunate enough to have had a large number of breakdowns and, due to this experience, had become particularly expert in making repairs. Stress was laid on the fact that the only way to learn about apparatus is to get it running after a breakdown. With the best of maintenance programs there will still be plenty of opportunities to get breakdown experience, but a good maintenance crew will avoid many times the making of extensive repairs.

Maintenance work can be carried to extremes, thereby being unduly expensive and yet not accomplish the desired results. To obtain a proper balance of values, maintenance work should be systematic.

Keeping of Records

The first requirement of systematic maintenance is the keeping of records. Some men, especially in the smaller mills, may be inclined to scoff at records as being unnecessary and only so much red tape, but there is reason to believe that all mills need practically the same information and should keep the same records, with possibly minor changes to suit local conditions. In the larger mills it may take all of the time of one or even several men, while in others it may only require part time of one man, but in all mills complete maintenance records should be kept.

This article deals with electrical equipment, especially motors and motor starters, but the idea can be applied to all apparatus.

Regardless of the kind of industry using them, motors have the same general characteristics, but as to the records there is a wide divergence in the information to keep and the manner of keeping it. Theer is generally a tendency to keep too much data on one form. On cards for motors, there is often kept not only the motor specifications, which are practically constant, but also variable data such as sizes of pulleys, fuses or overload settings, load readings, motor-starter rating, driven load, etc. All these variable data are subject to change every time a motor is moved to a new location with the result that a new card is necessary or the old one corrected. There should, therefore, be two cards for each piece of listed apparatus, one of which is called the "Specification" card and the other the "Maintenance and Service" card. The "Specification" card should contain the following data:

Data On Specification Card

1. Number as assigned by mill.
2. Where purchased with date and purchase price.
3. Where first installed, with date.
4. Complete name plate rating including manufacturer's name.
5. Efficiency, power factor and heating guarantees.
6. Winding data, such as coil specifications, connections, number of coils, coil throw, etc.
7. Mechanical data, such as bearings, oil gages, oil rings, shaft sizes, etc.
8. Miscellaneous data for brushes, collector rings, etc., and space for general remarks.

Separate specification cards can be kept for each individual piece of apparatus, but those for motor starters and general equipment cannot have quite the complete printed form that is possible for motors, because there is greater variety of individual parts. However, contacts, starting coils, overload coils and operating mechanism are common to all types and printed headings may be used, but there should also be a large space left for the listing of odd parts. It will be noted that the specification data are seldom subject to change and, therefore, should be kept by itself. Complete information about old apparatus is hard to obtain, and it is good policy when a repair part is ordered which has not been previously listed, to get the drawing or catalogue number from the invoice and put it on a specification card, as one object of this card is to have a convenient method of filing information for future reference. This usually requires considerable space, so cards or loose leaf sheets should be made large, some at least 12 by 14 inches.

Parts That Should Be Stocked

Good maintenance work requires that there should be stocked parts which are subject to wear or deterioration and are necessary for continued operation, but yet cannot be easily or quickly made in the local plant. Spare bearings are considered a necessity for important motors, but if ordered by motor numbers alone there would be considerable duplication as a slow speed motor of one size may take the same bearing as a high speed motor several times as large. There is the other condition where bearings are of the same general type and size but are not interchangeable due to different minor characteristics. It is therefore necessary to have specific information about each part which it is desired to stock. Spare windings and even spare motors are a necessity for continued operation but are difficult for many electrical departments to obtain. A spare winding is preferable to a spare motor when the latter is special or where there is only one of that particular type and speed, if, as it is frequently possible, that particular motor can be shut down for a time to be rewound, but could not remain down long enough to get a new winding from the factory. In such cases a spare winding requires less investment than a spare motor and may be nearly as effective, especially as many motors can be rewound in less than twenty-four hours. For other motors a spare winding is useless because there would not be time to wait for its installation and so spare motors must be provided. With belt drives spare motors are the cheaper proposition, because even if the spare is not of exact size and speed wanted it can generally be used, at least temporarily. It is with direct connected motors that special difficulty is encountered. In figuring out the need of either spare windings or spare motors, study each individual case; estimate the effect of a breakdown and then, if of sufficient importance, plan on having a spare motor or a (complete or part) spare winding as the case warrants. There is a sequence of operation, such that even a small breakdown may have disastrous consequences and the need of spare equipment is obvious if one is to secure the continuity of service so essential to a paper mill.

The efficiency and power factor guarantees listed in the specification form are important for making power tests of motors. From a depreciation point of view there is no economy in running underloaded motors because up to a certain temperature the insulation deteriorates practically as fast with low temperature as it does with high. Underloaded motors are a loss through increased investment, lower efficiency and lower power factor. Power measuring instruments are therefore necessary for a proper maintenance program. It frequently happens that a complete set of instruments can be paid for in a comparatively short time through detecting underloaded motors. For example, there may be a case where a 100 hp. motor is carrying a 75 hp. load and, when in need of a 100 hp. motor a 75 hp. motor can be purchased and the substitution made, thereby going a long way towards paying for the instruments. This is not an uncommon occurrence, because there is a tendency to play safe in recommending the motor sizes for machines.

Possibility of Going to Extremes

In these days of agitation for high efficiency there is, however, the possibility of going to extremes and sacrificing reliability for efficiency. Reliability of operation is of supreme importance because when a motor breaks down its efficiency is zero and even though its operating efficiency may be high it will be more than offset by a few breakdowns. With a constant load, motors may be loaded up to the safe operating temperature, but with variable load it is a more difficult matter. This may be illustrated by a pump taking a normal load of 75 hp., but for a few minutes at a time taking 100 hp. From a heating standpoint a 75 hp. motor would be sufficient, but the overload relays will have to be set at approximately 110 hp. to take care of the maximum load which is 47 percent overload for the 75 hp. motor. This is too wide a margin for single rated motors and the extra investment for a 100 hp. motor would be offset by a new winding if the 75 hp. motor burnt out due to lack of proper overload protection, to say nothing of the loss of production. In some cases there would be a loss in efficiency and lower power factor in using the larger motor, but it is also frequently possible that the larger motor may be more efficient at the part load than the smaller motor at full load. There can be no set rule for the proper application of motors as each case really involves individual study to get unit as well as overall plant efficiency. There is, however, one important principle in the selection of apparatus from a maintenance point of view, and that is to standardize as much as possible, all things considered, on one manufacturer's line. When buying machines with which motors are to be supplied, it is good practice to specify that motors shall be supplied of same manufacture as are in general use around the plant, as this eliminates the carrying of extra parts and spare equipment.

The success of a maintenance program depends greatly on the men who are doing the actual work. We have on each shift a man whose duty it is to make periodic trips around to all the motors. Originally their idea was apparently to make as many trips as possible, looking over motors for any evident trouble, but their responsibility ceased if motors were running satisfactorily at the time. This attitude has been changed as they are now responsible for things that might happen which are within their power to prevent, as we depend on protecting motors from possible injury rather than on the chance that a motorman will happen to be on the spot when trouble occurs.

Causes of Motor Burnouts

The three principal causes of motor burnouts are, actual breakdown due to defective insulation, bearings burning out permitting rotor to rub on stator, and overloads. A well constructed motor is inherently a reliable piece of apparatus and most of its troubles are due to outside causes and it is therefore evident that all conditions affecting a motor should be considered.

In many locations it is practically impossible to keep motor windings clean, but ordinary dry dust does not necessarily injure winding, except by plugging the air ducts thereby reducing motor capacity. Oil, water and acid are, however, particularly undesirable and every effort should be made to

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prevent them from getting on windings. Oil is watched not only as to its coming from motor bearings, but it is liable to be thrown into the motor from belts, chains or gears. Pipes near motors must be watched for leaks; even if they are not where water or acid may directly strike the motor, they can do harm by the liquid striking the floor and spattering into it. Keeping motor windings in proper condition eliminates to a great extent this first source of trouble. Ordinary blowing out with compressed air is not sufficient, so besides cleaning, they should be painted with a good insulating varnish. Under ordinary service conditions motors should be completely taken apart at least every three to five years and if conditions are severe the interval should even be shortened to once a year. Some motors are difficult and expensive to disassemble, especially if in constant service, so when frequent painting is necessary the ends of coils can be painted using an air-gun at 20 to 25 lb. pressure. This gives quite effective results and the complete overhauling can be done at longer intervals. In paper mills there is always the danger of a motor getting flooded with stock or water and the painting of windings, by filling up pores and minute cracks in insulation, often prevents breakdowns from these causes. The air-gun is particularly useful because it enables the varnish to be sprayed between coils, and the whole exposed surface coated over.

Avoiding Bearing Troubles

Bearing troubles due to their own conditions are infrequent if kept properly filled with oil and free from grit, but may be caused by tight belts or crowding of shafting, and pump rotors. It is expected that whenever millwrights take up a belt, connected to a motor, the motormen will be notified so that they can watch the bearings for any undue heating. Bearing oil should be changed at definite intervals, at least once a year.

Overloads generally come from outside causes except when the motor runs single phase due to defective circuit connections. Proper overload protection will take care of overloaded conditions, and motormen are expected to check the operation of the overload relays frequently. There is a tendency when a motor is overloaded and blows fuses or frequently trips overload relays "to set 'em up higher" and take a chance, but this should only be done in emergency or under special conditions which warrant taking the chance, otherwise install a proper sized motor.

Motormen act as inspectors and do minor emergency repair work, but the greater part of the repair and inside inspection work is done by a regular repair crew. Whenever there is more than a one man crew, it pays to have certain work followed as much as possible by certain men who, by continued practice, will gain extra proficiency in their particular line. Inspection and repair work require men who can see beyond just the obvious things.

Chart System of Motor Inspection

Before we had systematic inspection motor starters gave trouble and were a source of annoyance and expense, especially if it occurred during the night shifts and had to be fixed by the motormen. Their work would be more or less hurried and not done well so that starters would frequently again give trouble, we therefore had the vicious circle of a trouble hurriedly fixed causing more trouble. To overcome this a chart or card system of motor and starter inspection was developed. Every other week was assigned for Motor Starter Inspections and certain men detailed to do this work. In deciding how often inspection was needed it was assumed that a starter, under ordinary service, should stand up at least for one year when started twice a day for 300 days or 600 times. With this as a basis it was estimated how many times each starter was expected to operate, and that number of times divided by the 600 is the number of times a year the starter is to be inspected. This is used only as a basis and is not strictly followed because some motors are only started once a week, which would be 52 times a year, but it was considered that any starter could afford at least one inspection a year. On the other hand, there are motors started a large number of times, even to 300 or 400 times a day. These gave considerable trouble when ordinary hand starters but with the magnetic switch type have given practically none. There seems to be a growing tendency to use magnetic or remote control starters and eventually they will be nearly universally used, as they eliminate to a great extent the personal element in starting, as improperly started motors are a considerable source of trouble. Acid plants, blow pit rooms and such places offer an opportunity to put magnetic types of starters in a room by themselves out of reach of acid fumes, dust, etc. Our principal trouble with the magnetic type of starter has been when someone "takes a swipe" at the push button with a pickaroon instead of using the hand to start and stop a motor.

Forms for Inspectors to Follow

Inspections include not only the contacts but the complete equipment, and in making inspections we have found it advisable to have forms for the inspector to follow. These eliminate any tendency to slight certain parts as it is required to check each part as being O. K. or otherwise.

It not only aids the inspector but after the desired information has been noted in the service record, inspection forms are sent to the motormen who are not very keen on having an inspector report things that they have overlooked.

On alternate weeks the general apparatus around the plant is inspected, such as station apparatus, transformers, etc. Previous to scheduling the inspection work it was customary to bring a large crew in each Sunday and the work was more or less haphazard. Some apparatus got too much attention and others were neglected altogether.

The service records show the results of inspections and overhauling. If it is found that between inspections apparatus gives trouble, their frequency is increased and vice-versa if generally found to be satisfactory. The keeping of minor records as fuses blowing and overloading relays tripping has enabled single phase running to be detected, as well as faults in the machines driven. When available we put down the name of the man who started the motor if it gives trouble by blowing fuses due to improper starting, especially as may happen in "jogging" to run on belts, etc. Continued trouble along that line enables us either to caution the man or to instruct him in the proper manner of handling starters. It is not uncommon to find men with the idea that they are helping a strater by operating it slowly.

When a motor is purchased the service record starts with a number and rating. When installed, the date, location and machine driven is recorded; ampere and voltage readings are taken, also air gap, pulley size, belt data and overload protection setting. Routine cleaning is not recorded but all inspections, overload tripping, and overhaulings are noted. It sometimes happens that when installed certain overload settings are made and later inspection reports show them changed. The service record is a check on what the original setting was so that there cannot be changes of adjustment without being detected. Service data is never destroyed because if a motor is changed to a new location a note is made to that effect and the record continued. It is not a difficult or time consuming record to keep because many motors give practically no trouble and only two or three entries may be made during a year's time.

Keeping the Work from Becoming Congested

We have found it a decided advantage to schedule inspection as it tends to keep the work from becoming congested. We have also found it an advantage to furnish simple written instructions on the care of apparatus. Many men find it difficult to apply themselves to a regular course of study, but will read instruction sheets and bulletins supplied by the local plant or by the apparatus manufacturers, as apparently they wish to get to the point quickly about apparatus in which they are interested.

Paper Mills with electric motor driven grinders, electric steam boilers and electric motor paper machine drives are fast becoming entirely dependent on electric power for their operation. One can read articles here and there about electrical maintenance work, but practice semes to vary so much, that, considering its importance, it would seem to be within the province of this Association to obtain data to more or less standardize record forms, and give recommendations as to proper upkeep of equipment.

Causes of Deterioration of Color in Pulp and Paper

By MARTIN L. GRIFFIN*

AT the last general meeting of the Technical Association C. S. Hamm presented a paper dealing with the deterioration of the color of soda pulp. In my brief discussion I wish to broaden the scope of the inquiry to include paper stock generally and bleached cotton textiles.

It is a matter of common knowledge that all wood pulps and papers made from them discolor on aging much faster than rag half-tuff and rag papers. Papers composed largely of groundwood discolor on a few hours' exposure to sunlight. Groundwood contains no mineral chemical substances other than those composing the ash. We cannot therefore attribute discoloration of groundwood to any chemical treatment leaving residues behind.

Chemists familiar with the soda process know that the pulp, as it exists in the digester before blowing, is very light colored and acquires the dark color almost instantaneously when exposed to the air.

Important Fact in Making Pulp

Plant growth generally produces cellulose and the products of lignification called lignocellulose. All processes dealing with a separation of these two constituents for high grade products regard the lignifying substances as impurities. These are more reactive and sensitive to chemical change. Upon this fact depends all the commercial processes for making pulp and bleaching textiles. Perhaps we should not say that the natural impurities of cotton are the products of lignification, but for this discussion we may consider them in the same class.

Harsh and excessive treatment of cotton will tend to degrade it and make it more reactive to natural influences resulting in an inclination to discoloration. When carefully bleached (cleansed) it will not react

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The economic problem of securing an adequate supply of paper

THE book is of special interest to everyone connected with the pulp and paper industry and equally so to all users of print paper. It points out clearly what must be done to develop sufficiently our supply of pulpwoods. It shows the steps necessary in forest conservation and discusses the subject from the practical viewpoint of industrial needs.

Pulpwood and Wood Pulp in North America

By ROYAL S. KELLOGG

Author of *Lumber and Its Uses, The Cost of Growing Timber, The Timber Supply of the United States,* etc.

270 pages, 6x9, 87 illustrations, $4.00 (*English price 20s.*) *net, postpaid*

The book describes the pulpwood industry, the processes of making paper pulp from wood, the timber supply of North America, the need for increased timber production and the future possibilities of the pulp and paper industry. Detailed statistics of production and consumption since the establishment of the industry are given in the appendix and shown in the text by means of graphic charts of unusual effectiveness. The book also carries many illustrations typical of mill operations and forest scenes.

Do You Know

That 100 million cords of pulpwood have gone into paper in the United States and 30 million cords in Canada?

That paper-making is a billion-and-a-half-dollar industry in North America?

That a permanently self-contained operation for the manufacture of 100 tons of news print paper daily may require the equivalent of an investment of $10,000,000?

That the United States and Canada produce and use as much paper as all the rest of the world combined?

That the per capita consumption of paper in the United States is 150 lb. yearly?

How much pulp may be made from a cord of wood?

How much pulpwood and wood pulp has been exported from Canada?

How much pulpwood and wood pulp has been imported into the United States?

What are the pulping properties of 70 species of American woods?

What are Forest Regions of North America?

How much and what kinds of timber there are yet left in the various regions of the United States and Canada?

How much forest land in North America is publicly owned and how much privately?

What regulations apply to timber cutting in the public forests?

What are the essentials of a forest "Working Plan"?

That forestry is the application of definite scientific principles to the growing and using of timber crops?

What it costs to grow timber?

Who is responsible for the maintenance of the timber supply of the United States and Canada?

What are the essentials of a National Forestry policy?

That without forestry there is no adequate, permanent supply of paper and other wood products in America?

That there is no sense in delaying the effort to maintain the American timber supply on the false assumption that we can turn to any other part of the world for any considerable part of the wood products essential to our well being?

Read This List of Chapter Headings

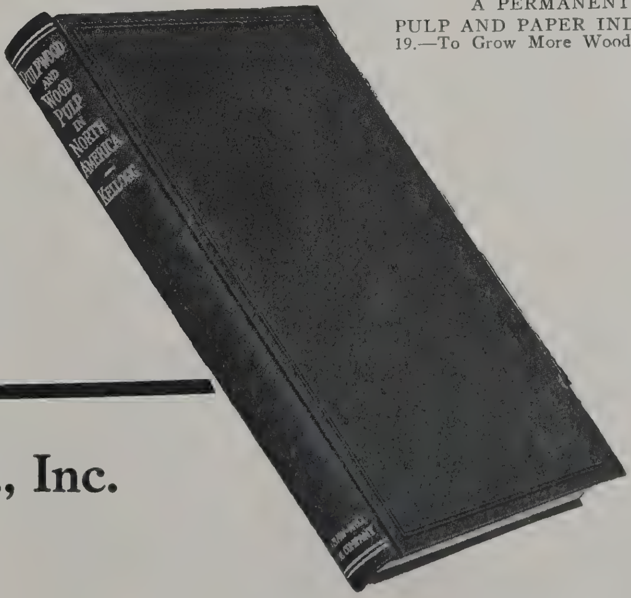
Part One
WOOD PULP
1.—Recording Materials
2.—Processes
3.—Consumption of Wood Pulp in North America

Part Two
PULPWOODS
4.—Logging
5.—The Unit of Measurement
6.—Pulpwood Grades
7.—Pulpwood Used in North America
8.—Properties of American Pulpwood

Part Three
TIMBER SUPPLY
9.—Forest Regions
10.—What We Have
11.—Forest Ownership

Part Four
TIMBER PRODUCTION
12.—The Need for Forestry
13.—The Chance for Forestry
14.—The Methods of Forestry
15.—The Hazards of Forestry
16.—The Cost of Forestry
17.—The Responsibility for Forestry
18.—What Should Be Done

Part Five
A PERMANENT PULP AND PAPER INDUSTRY
19.—To Grow More Wood



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with iodine, but with harsh and prolonged treatment it tends to break down and will react blue and even purple with this reagent. Cotton is the purest form of cellulose known, and yet it requires a very thorough treatment to free it from every vestige of impurities if cotton cloth is to remain white on the shelves of the retail dry-goods dealer.

Cotton duck for white shoes with rubber soles must stand an even severer test. Various form of aniline are used as accelerators in the vulcanizing processes, and if there are even traces of furfural-bearing impurities remaining in the cloth it will discolor.

Varying Proportions of Cellulose

Different woods contain varying proportions of cellulose and lignocellulose which necessitates a selective treatment. Those containing larger amounts of lignifying tissues and intercellular substances, such as tannin and resins, will be the most difficult to free from residual impurities. This is a matter of common experience. Northern white poplar will yield a pulp which will discolor less easily than the southern variety. Straws furnish a blend of cellulose and lignocellulose which will make a quality of paper difficult to match. In England and Scotland esparto has been used for a great many years for making high grade book and envelope paper, but I have never seen a piece of paper made from esparto which would not age to a pinkish tint in a short while in an atmosphere containing traces of aniline fume, which is a test for furfural-yielding substances and a warning that they will discolor with age. The test we apply to white cotton fabrics to determine if they are "well bottomed" or bleached, is to subject cuttings to an atmosphere of steam under a little pressure for about two hours. If they contain residual impurities they will discolor appreciably.

In textile finishing where scouring processes with detergents are employed, as in degumming silk, we know that to free the goods from the last traces of soap residues we must use a little soda ash in the finishing rinsing. This is because weak solutions of soap hydrolize, leaving a film deposit of fat or oil as the case may be, deposited on the cloth.

Thus, then, it will be doubly difficult to remove the last traces of impurities from pulp cooked by the alkaline processes, because the black liquors will contain crude resinous soaps, and in the washing process when the washings become dilute they hydrolize and fix filmy resinous residues on the fiber, which results in discoloration by oxidation. It is well known that even the rosin from engine sizing is a menace to permanent white in high grade papers. It is true that slow drying of pulp and paper will cause impurities to migrate, by capillary attraction, to the surface exposed, but this it not the answer here, because with rapid machine drying, impurities have no time to migrate.

Cross and Bevan's Views

The whole subject is dealt with very tersely yet fully in a report of a committee of the Society of Arts in 1898, on the "Deterioration of Paper" and contained in Cross & Bevan's book "Researches on Cellulose," from which I quote:

"The report first discusses the two directions of depreciation in use: (1) Actual disintegration shown by loss of resistance to fracture by simple strain, and by loss of elasticity—that is, increase of brittleness; (2) Discoloration. These are independent effects, but often concurrent. They are the result of chemical change of the cellulose basis of the paper, brought about by acids or oxidants used in the process of manufacture, and not completely removed from the pulp, or by acid products of bleaching—as oxycelluloses or chlorinated derivatives; again, by the starch used as a sizing agent, or by oxidations induced by rosin constituents when the rosin is used in excess. Discoloration is an attendant phenomenon of these changes, but is more frequently due to the low grade celluloses (esparto and straw) and lignocelluloses (mechanical wood pulp)."

Thus we come to appreciate the causes for discoloration in pulps and papers. The most permanent white may be expected from those raw materials which are purest in nature and are treated by very gentle processes. By as much as papermaking raw materials contain adventitious substances other than normal celluloses, by so much is our problem to make an enduring white paper involved, and to make products as good as they can be or are expected to be, will require great skill and care in the processes.

Report of Committee on Abstracts and Bibliography

By C. J. WEST

Chairman

THE Chairman of the Committee regrets that he must again report that the work of the combined Committee on Abstracts and Bibliography has been confined almost entirely to routine matters during the year 1923. Much of the time of the Chairman has been occupied in the completion of the translation of Heuser's text-book on Cellulose Chemistry (which has been prepared with the aid of Dr. G. J. Esselen, Jr., Chairman of the Cellulose Section of the American Chemical Society), and also in the preparation of a bibliography of bibliographies on chemistry and chemical technology, a compilation which will include about 7,500 references to bibliographies, and which, it is hoped, will be of some interest to the paper industry, inasmuch as it contains, among other things, references to practically all of the bibliographies on papermaking.

Abstracts

Through the able assistance of the abstractors for the Technical Section (John L. Parsons, A. Papineau-Couture, M. L. Caust and Paul Bartholow) it is felt that the literature of the papermaking industry has been thoroughly covered, and that abstracts of value have been supplied to the industry. The Chairman has endeavored to classify these abstracts in such a way as to make them accessible, and believes that their value has been further increased by the preparation of a semi-annual index of the Technical Section. During the year 1923, the published abstracts totalled 76,178 words, which corresponds to approximately 900 inches, or about 45 printed pages. The Chairman desires to emphasize that the credit for this work should be given entirely to the abstractors.

Bibliographies

During the year, 1923, five bibliographies were published, as follows:

No. 37. American and Foreign Paper Trade Periodicals. Frederick C. Clark and Clarence J. West. *Paper Trade Journal,* 76, No. 4, 45-49 (Jan. 25, 1923). A revision of contribution No. 3.

No. 38. Paper research literature, VII. Revised. A list of contributions by members of the Bureau of Standards, Department of Commerce, 1910 to Dec. 31, 1922. F. A. Curtis and C. J. West. A revision of Contribution No. 18. *Paper Trade Journal,* 76, No. 6, 47-52 (Feb. 8, 1923).

No. 39. Electricity in Pulp and Paper Mills. A reading list. Clarence J. West. *Paper Trade Journal,* 76, No. 8, 5053 (Feb. 22, 1923).

No. 40. Bibliography of Papermaking for 1922. Clarence J. West and A. Papineau-Couture, *Paper Trade Journal,* 76, No. 16 to 26 (1923).

Paper Research Literature

No. 41. Paper Research Literature. I. Contributions by Members of the Forest Products Laboratory. *Paper Trade Journal,* 77, 46-50 (Aug. 16, 1923).

In addition to these bibliographs, a bibliography on beating appeared in connection with that section of Volume IV of the textbooks.

Complete Bibliography

The Chairman has continued in a small way his efforts to prepare a complete bibliography of papermaking. All of the references from Chemical Abstracts have been carded, as well as those from the *Journal of the Society of Chemical Industry.* It is hoped during the coming year that much of the work on this project can be completed. This will involve a page by page search of the papermaking magazines. It is felt that this search need not cover those periodicals issued before 1900, because most of the important work has appeared since that time.

Requests

The usual number of requests for bibliographies, photostatic copies of printed material, and loans of current magazines have been received by the chairman. In most cases, the information has been furnished, although in a few cases answers could not be supplied. It is to be hoped that this phase of the committee's work may increase in volume, because it is the best indication of the value of the committee's activities to the industry in general.

Definitions of Paper Terms

Your chairman has also served as chairman of the sub-committee on Definitions of the General Committee on Standardization of Paper Sizes of the Bureau of Standards, and with the able assistance of F. A. Curtis, prepared and published some definitions of some eight hundred paper terms. While it is realized that these definitions are preliminary in nature, they at least furnish a basis for discussion and constructive criticism.

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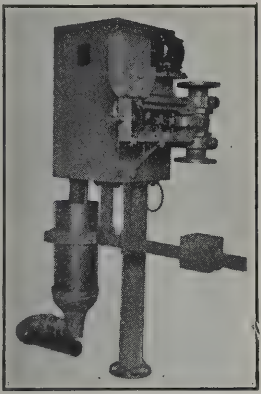

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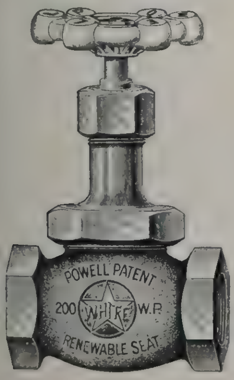

Fig. 102

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Disposal of Lime Sludge and Sulphate Pulp Mills

By G. K. SPENCE*

FOR some years past soda and sulphate pulp manufacturers have been confronted with the problem of disposal of lime sludge from the causticizing process. When compelled to discontinue dumping the lime sludge into the streams many were forced to take hurried steps to dispose of it. The first step was to pump the sludge to large sedimentation basins, which were open fields banked up on all sides, in which the lime was permitted to settle and the clear solution from the top passed to the stream. This was an expensive means of disposal, especially where ground was scarce, as one can readily understand how soon these basins would fill up and necessitate raising the walls or increasing the area of ground covered.

With the advent of filter presses for washing the soda from the sludges, and thus increase the capacity of the alkali-room, and decrease the loss of soda, the pulp manufacturer was attracted to other methods for disposing of the lime sludge.

The lime cake from the filter press contains from 40 to 50 per cent water, and the most natural conclusion is that it is in proper condition to be readily dried and marketed for agricultural purposes. A number of manufacturers installed rotary driers, using coke as fuel, dried this lime, put it up in bags and marketed it under the name of precipitated or agricultural lime. The market for agricultural lime is seasonal and there are times when it is impossible to dispose of it, and the manufacturer is compelled to revert to his old method of disposal.

Even when the market will absorb the agricultural lime it is about a break-even proposition and if it is necessary to store any, it is always rehandled at a loss.

Knowing that whiting would bring a higher price than agricultural lime some manufacturers made the necessary installation to produce this commodity from reclaimed lime sludge. As the trade requires a very clean product, free from caustic alkali, and of an extremely fine state of subdivision, it requires an elaborate installation to produce material which will meet the requirements.

Lime sludge from the causticizing operation contains about 8 percent unspent lime or calcium hydrate and it is necessary to carbonate this which was usually done in CO_2 towers, and even then it was a difficult matter to keep the caustic alkalinity under 5 per cent.

The lime after passing through the driers was ground and bolted or air-floated in order to bring it to the required state of subdivision. There is only a differential of about $4 per ton between the selling price of agricultural lime and whiting, which difference is mostly absorbed by the over-head on extra installation, extra labor, etc., necessary to prepare the material to meet the requirements of the trade.

The whiting market is also very uncertain and as in the case of agricultural lime, the manufacturer is compelled at times to resort to the sedimentation method of disposal or if allowable, pass the sludge to the stream, until the market is again ready to absorb the whiting.

When confronted with the problem of finding a steady market for disposal of agricultural lime or whiting, the manufacturer was compelled to investigate the practicability of reburning the lime sludge and using the reclaimed caustic lime to causticize soda in his own process. Those who have studied this problem are unanimous in their conclusion that reburning is the most feasible method of disposal. By this installation the manufacturer can realize a greater return on his investment and at the same time furnish his own stable market for disposal of the reburned lime, which he uses right over again in his own operating system. In fact this method of disposal. By this installation the to the pulp manufacturers that, regardless of the large amount of money invested in agricultural lime and whiting plants, almost every one has been junked, and conversion made into installations for reburning lime.

The writer has had experience with all three systems and in order to familiarize those interested in lime sludge disposal with steps taken a rough outline of each is here given:

Agricultural Lime

No extra care is necessary in preparing the lime sludge before passing same to the agitated receiving tank for the filter press. Either the continuous or batch type filter press may be used when washing the lime sludge, but care should be exercised to see that the soda is well washed from the cake before discharging it from the press. This can be better controlled by use of the batch filter.

The cake discharged from the press is passed through a rotary dryer 32 feet long by 4½ feet in diameter, the heat being furnished by burning coke, producer gas, or natural gas in the fire box. The dried lime is discharged into a larger dust chamber at the back of the rotary dryer, and carried by a screw conveyor to the bucket elevator, by means, of which it is discharged into the hopper supplying the bagging machine. Draught on the rotary drier is induced by means of a fan, and the air containing some fine dust is forced through a dry dust-collector, and thence through a stack provided with sprays to prevent fine dust from passing to the atmosphere. In some mills a special dust collecting device, such as the Dracco, Clark or Sly is installed. An Urschel-Bates valve bag packer is usually employed to pack the material for market. Following is a rough estimate of the installation cost, and daily operating cost of a plant for the manufacture of 50 tons of agricultural lime per day.

Installation cost, $65,000.	Daily operating cost
Interest and depreciation, 15% (325 days)	$30
Fuel for drying (coke)	70
Power	17
Labor	80
Valve bags	100
Repairs and office	25
	$322

Production cost per ton $6.44.

Agricultural lime will sell for about $7.50 per ton f.o.b. mill, but as it is necessary to pay 50c to $1.00 per ton to a fertilizer company for marketing the lime the margin of profit is very small, provided the market would absorb the lime as fast as it is manufactured, but as it is seasonal and unsteady at all times, it requires more or less storage and rehandling means a loss.

Whiting

In order to prepare the sludges for whiting it is necessary to remove all traces of black ash, and to carbonate all of the caustic lime before sending it to the filter press. The caustic alkalinity is usually removed by passing the sludge through CO_2 towers, the CO_2 being produced by burning limestone.

When manufacturing whiting it is next to impossible to obtain satisfactory results by use of continuous filters. The composition of the whiting must be controlled so closely that in order to procure the desired results it is advisable to use batch filters. Care must be exercised in passing the pressed cake to the rotary driers, as the feed must be uniform in order to insure proper drying results. It is a more expensive operation to dry whiting than agricultural lime. It must be dried either with indirect heat or natural gas. Any other means of drying tends to darken the finished product. The temperature must also be controlled very closely in order to completely dry and at the same time prevent burning some of the product to the oxide.

The equipment for inducing the draught and removal of dust from the escaping gases is practically the same as when manufacturing agricultural lime.

After passing the rotary drier it is necessary to grind the whiting and bolt it through a 200 mesh cloth, or grind and airfloat it in order to bring the product to the desired state of subdivision. This requires extra equipment and labor. It is necessary to have two forms of packers in order to comply with trade requirements; one being the open mouth bag packer for cloth bags, and the other the Urschel-Bates valve bag packer for paper bags.

Following is a rough estimate of installation cost and daily operating cost when manufacturing 50 tons of whiting per day.

Installation cost, $120,000.	Daily operating cost
Interest and depreciation, 15% (325 days).	$56
Fuel for drying (natural gas)	100
Power	30
Labor	135
Valve bags	100
Repairs and office	35
	$456

Production cost per ton $9.12.

The selling price of whiting varies from $11.50 to $12.00 per ton f.o.b. mill, but as it is necessary to pay a commission of 10 per cent for marketing the commodity, the manufacturer receives about $10.50 per ton for whiting when the market will absorb it as fast as it is produced. This will leave a profit of a little less than $1.50 per ton, if it is not necessary to re-handle the whiting; but if it is necessary to haul it to a warehouse, store and rehandle it when the market will absorb it, the necessary expense of rehandling will almost balance the margin of profit.

A lime reburning plant using producer gas for heat supply, is a slightly more expensive installation, but the return on the investment is so much more satisfactory, that it requires very little investigation to decide in favor of this equipment.

There is no previous treatment of the sludge necessary, it being pumped direct from the alkali room to the supply tank for the press. A continuous filter should be used, as it requires less attention and uniformly washed material is not essential.

The cake from the filter is discharged into the rotary furnace, which is from 100 to 120 feet in length and 7 feet in diameter, lined with fire brick. Producer gas is burned in the fire box.

In this process the burned lime is discharged at the fire box end of the rotary, while in the other two processes the dried lime is discharged at the opposite end.

The burned lime is either discharged into cars and hauled by hand to the alkali room, or conveyed to a causticizing tank in the lime burning room, where the carbonate liquor is causticized and pumped to settling tanks in the alkali room.

Following is a rough estimate of installation cost and daily operating cost of a plant for reburning 35 tons of lime per day:

Cost of installation, $130,000.	Daily perating cost
Interest and depreciation, 15% (325 days)	$60.00
Coal for gas producer	87.50
Power	22.00
Labor	50.00
Repairs and office	15.00
	$234.50

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* Member T.A.P.P.I. New York and Pennsylvania Co., Johnsonburg, Pa.

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This estimate is based on coal at $5 per ton at the plant, and burning two tons of lime per ton of coal. With this installation it is possible to reclaim 85 to 90 percent of the lime used.

Powdered coal has been tried for furnishing the heat required for reburning the lime, and while this method will increase the burning efficiency, there is not the necessary data at hand to determine whether the accumulation of dirt in the lime from the ash in the coal is of sufficient detriment to condemn its use.

A pulp manufacturer, who is paying more than $8 per ton for his lime at the mill, and not over $5 per ton for coal, will show a nice profit from an installation for reburning lime for his own use, and at the same time discontinue the practice of discharging the lime sludge into the stream.

A Measure of the Color Characteristics of White Papers

By **R. E. LOFTON***

PAPER, or other material, is said to be white if it reflects light nearly or quite non-selectively and also reflects a large proportion of the light falling upon it. It is common experience, however, that there is a wide variation in the tints of so-called white paper. The Bureau of Standards has measured the departure from true white of 21 commercial papers, including newsprint, printing, book, writing, bond and ledger.

Attempt was at first made to measure the departure from true white of each paper by using a single reflection of white light from the paper, as is done in grading or matching papers for color by the unaided eye; but this method was soon abandoned because the departure of the color of the paper from true white was usually less than the error made in setting the scale on the colorimeter.

A colorimeter constructed on the principles formulated by A. H. Pfund, which makes use of more than three reflections from the paper, was then tried. It is obvious that the color characteristics of a paper will be much more apparent upon the examination of a ray of light reflected three times from its surface than if the ray has been reflected but once. This colorimeter facilitates the comparison of two beams of light having a common source, one beam having been reflected between three and four times from the surface of the paper, and the other beam coming from the source unchanged. The two beams will appear exactly alike when viewed in the divided field of a photometer if there has been no change in the beam of light reflected by the paper.

In practice, the paper is tested for its brightness, or reflecting power, for three colors, or wave lengths, of light: red (625 m. wave-length), green (550 m. wave-length), and blue (460 m. wave-length). This is done by inserting consecutively into the ocular tube of the photometer three light filters having the dominant transmission as given above and matching the two beams of light for brightness for each color. A graph of the color characteristics of the paper may then be made, using its brightness for the three colors to form the vertical axis and the given colors or wave-lengths to form the horizontal axis.

Of the 21 papers tested, it was found that all were more or less deficient in the proportion of blue light reflected, and also that all were deficient, but to a smaller degree, in the proportion of green light reflected.

The 21 papers were also matched for color by unaided eye observation by 17 individuals experienced in color work. There was practically no agreement, however, among the 17 individuals as to the "whiteness" of the various papers. The accuracy of this colorimeter is from two to five times that of the unaided eye, as shown during this investigation.

It may be stated, in conclusion, that practically all, and perhaps absolutely all, commercial white papers depart from true white, in that they do not reflect all the components of white light in the same ratio, reflecting less blue light than green, and less green than red.

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* Associate physicist, Bureau of Standards.

Committee on Coated and Processed Papers

By **EDWIN SUTERMEISTER**
Chairman

AT the meeting in April, 1923, it was decided that the work of the Committee on Coated and Processed Papers for the following year should include the two lines, Waxed Papers and Gummed Papers. It was thought that the work could be carried out best by organizing two sub-committees, and Raymond Hatch was asked to serve as chairman of the sub-committee on waxed papers, and Norman Clark of that on gummed papers.

Mr. Hatch made very careful inquiry among the manufacturers who were prominent in the waxed paper trade and found it impossible to persuade them to enter into questions of investigation or research in a co-operative way. He felt that any work done by the committee under such conditions would be done by one man and that the work would be accepted by all the rest of the industry without any reciprocal information. After considering the situation carefully it was thought best to abandon, temporarily at least, the attempt to carry on work along this line. This sub-committee was therefore allowed to die a natural death.

Mr. Clark appointed on his sub-committee George W. Sullivan of the Nashua Gummed and Coated Paper Company and George G. Richter of the Brown Company. Through a misunderstanding, Doctor Richter has done no work for this committee nor taken any part in the carrying out of its program. Mr. Sullivan has prepared a paper on the effect of acetic acid on animal glue, and this paper will be read and discussed later.

Although not on Mr. Clark's committee J. O. Ross has ably seconded its efforts by preparing a paper on the drying of gummed papers. This will also be read and discussed at the sectional meeting.

During the year the question of a possible substitute for casein was brought up by a member of the Technical Association. This has aroused considerable interest in the industry and it has been attempted through correspondence to find out who was interested to the extent of supporting the necessary investigations financially. No definite plans have yet been made and opinion seems to be divided as to whether the work should be done by the Bureau of Standards, in which case the results would be free for all to use, or whether it would be better to have it done in a private laboratory so that the results would benefit only those who finance the undertaking.

Chapter in Textbooks

The most important work carried out by the committee this year has been the preparation of the manuscript on Coated Papers for the textbooks. This work has been done almost entirely by Norman Clark.

Substitute for Casein

For the coming year it would seem well to organize for the investigation of possible casein substitutes and push the work along as fast as possible, for at best it will probably be a rather long investigation. It is hoped that more work relating to gummed papers can be undertaken as this should be a fruitful field for research. Another subject which is proposed is the manufacture and use of satin white. It would probably be quite difficult to obtain co-operation in this work for it is a field where there are supposed to be many secrets, but as there is practically nothing, about it in the technical literature there is a good chance to fill a distinct want.

Report of Materials Testing Committee

By **HELEN U. KIELY**
Chairman

DURING the past year the Materials Testing Committee has assembled and had published for the first time standard methods covering the more common materials tested in the ordinary paper laboratory.

These methods are in all instances the practical commercial methods and are in daily use in many laboratories. While it is realized that these might not meet with the approval of the highly scientific, it was thought better to prepare such methods as would best suit the needs of the ordinary paper mill chemist. For college laboratories or for referee analysis a more detailed method might be more advisable.

This edition of the Materials Testing Methods is in no way complete or final. It is the hope of the Committee that from this first attempt many valuable criticsms and suggestions will be forthcoming and a more complete and improved edition printed.

The Committee will continue to assemble and check new methods during the year. It is hoped that a revised method for pulp testing may be developed, as there seems to be a growing need for a new method that may better approximate mill working conditions.

No data seems to be available on the testing of rags and it is also hoped that something may be worked up along this line.

If there are any particular methods which the members desire the committee to investigate they should be brought to the attention of the committee and consideration will be given them.

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Comparative Efficiency of Pulp Grinders

W. A. MUNRO*

CONSIDERABLE discussion has taken place during some few years past concerning the relative merits of the new Voith magazine type grinder and the older or pocket type. These discussions have created considerable interest in grinders and each type has its ardent supporters and satisfied users who are not backward in pushing forth the claims of their favored type. The Groundwood Committee for the past year has been endeavoring to secure as much data as it possibly could concerning the different types and their performance, and has been able to obtain a considerable body of valuable information on such points as hp. per ton, labor cost per ton, tons per stone per unit time, etc. This information we have tabulated and classified so that the salient features can be recognized at once. We have also secured samples of paper made from each type of grinder as we feel that the fact that one mill may use 60 hp. per ton with a certain type of grinder should not be used as an argument for or against that grinder or a basis of comparison with another type unless the running conditions in the mill, such as speed, per cent of sulphite, etc., and the quality of the finished product are taken into consideration with the horsepower figure.

Little Difference in Quality of Paper

We have found that there is but little difference in the quality of paper made of pulp from different types of grinders. We have found as great or a greater difference in the paper made by two different mills both using pocket grinders as we have in the paper made by two other mills, one using pocket grinders and the other using magazine grinders.

If freeness testing had gone ahead to such an extent that it would be possible to standardize groundwood, the matter of comparison would then be much simpler, but with the freeness tester of such value that it can be used only in one mill or a small group of mills where white water conditions are about the same, another basis of values must be taken.

The committee has been in touch with practically every large newsprint mill in the United States and Canada. We have selected twelve representative mills and tabulated the returns from them. We have not listed the initial price of any of the equipment as the prices vary so according to the year of installation that they would be practically valueless. I might say that a magazine grinder at present would cost very nearly $1,000 per ton of pulp produced while a pocket grinder would cost but $300 per ton.

The magazine type of grinder makes a much better looking mill than the pocket type. There is an almost total absence of steam, the walls and floor are free from pulp spatterings, and all wood is handled on an upper floor.

Conclusion

The magazine grinder using 4 feet wood is much more economical in labor cost per ton over the three-pocket type of pocket grinder on 2 feet wood producing less than 7½ tons to a stone per 24 hour. The saving in labor over this 2-foot type is so much that it more than over-balances the increased stone cost of the magazine type and higher power cost per ton. This higher power cost is due to the fact that more power is required on the magazine type to grind a ton of pulp than in the pocket type.

The difference in costs is not so great and rapidly disappears as the size and production of the pocket grinder increases. With a production over 7½ tons to a stone and up to 10 tons there is but little difference in the labor cost, the higher labor cost of the pocket grinder being largely offset by greater initial cost, higher stone and power costs of the magazine type. Over 10 tons to a stone the larger type of pocket grinder is more economical in every way than the magazine type.

TABLE

					Paper machine			
Type of grinder	Size of stone	Tons per stone	Power per ton-hp.	Labor cost per ton	Speed, f.p.m.	Efficiency, %	Sulphite, %	Strength, points
3-pocket..........	27x54	6.5	65	$1.85	640	89	28	8
3-pocket..........	27x54	6.0	61	1.54	480	92	16	9-10
3-pocket..........	27x60	7.0	66	1.16	600	90	22	10
3-pocket..........	27x54	7.5	52	.90	645	92	20	9
3-pocket..........	36x54	10	62	.85	680	88	28	10
4-pocket..........	27x60	10	56	.72	560	90	23	9
3-pocket..........	54x54	15	54	.56	1000	94	22	10
Magazine.........	54x67	20	68	.70	660	93	30	8.5
Magazine.........	54x67	20	65	.77	560	90	23	10
Magazine.........	54x67	18	67	.68	700	86	24	8
Magazine.........	54x67	17	70	.72	1000	92	26	8.5

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* Member T.A.P.P.I., Washington Pulp & Paper Corp., Port Angeles, Wash.

Report of Sulphite Pulp Committee

By R. A. HAYWARD

Chairman

THE efforts of the committee have been divided into several lines, each member of the committee taking charge of one of the divisions.

Investigations have been made along the following lines:

1. Methods of testing the bleachability of pulp before charging the bleachers. This work has been carried on with an effort to determine the best method of testing the pulp so that it would be possible to add the proper amount of bleach for the charge.

2. The various means of effecting economies in the steam required for cooking.

3. An effort has been made to develop more accurate means of measuring the economy of acid plant operation. This work has been carried on with a view of making it possible to compare one plant with another in a more intelligent way.

4. Investigation has been carried on to determine the various ways and means of measuring wood into a sulphite mill.

5. R. N. Miller of the Forest Products Laboratory has been carrying forward his work on the Chemistry of the Sulphite Process.

Some of the members of the committee are ready to report on the work that they have been investigating, others have not completed their investigations and are not ready at this time to make a report or recommendations.

During the past year there have been some interesting developments in the sulphite process. Most of these developments have been based on an effort to increase the yield from the wood or with a view of effecting other economies in the process.

One of the plants in the middle west very recently started on a new process whereby they are cooking their pulp with a neutral sodium sulphite. This represents an interesting departure from the present method of cooking. It will be interesting to see how this process works out and it is hoped that a report can be made on it in another year.

A great deal of work has been done through the west on a patented process involving the use of reducing reagents, particularly zinc dust, in the sulphite digesters. By maintaining a strongly reducing condition in the digester it has been possible to carry a higher combined acid. The result of this work has indicated that a higher yield is obtained from the wood and a better quality of pulp is also produced. The unbleached pulp is brighter in color and requires less bleach to bring it to the standard color of bleached sulphite.

Some work has also been carried with another patented process which reclaims the heat and gas from the relief of the digesters. This was accomplished by relieving from one digester into another during the early stages of the cook. This has already been reported on through the Technical Section.

An investigation has been made of the various methods that are now being used for testing the strength of the sulphite pulp. Very few of the mills are using the exact method adopted by the Technical Association a few years ago. Most of the mills have found that a beating curve is of more value than the single point as recommended in the Standard Method: This beating curve is made up by beating the pulp in the ball mill and testing it after every 1,000 revolutions. This curve is of value in determining the characteristics of the pulp. Several of the mills are using a small beater for making these strength tests. A small beater has the advantage that the tests can be made more rapidly and the action of the beater more nearly approaches the conditions that exist in the paper mills. The use of the beater has the disadvantage that it is hard for one mill to check the tests of another mill on the same pulp.

During the coming year it will be desirable to revise the standard methods of testing in the sulphite mill and bring these methods up to date according to the practices that are now in use.

EXPOSITION SECTION

The Paper Industries
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Exposition Exhibits Educational

Both the Public and the Manufacturers of Paper Learned Much at the Second Annual Paper Industries Exposition

WITH a variety of exhibits that ranged from vast suction rolls to tiny scales, the Second Paper Industries Exposition at the Grand Central Palace was an important adjunct of the annual convention of the American Paper and Pulp Association. Exhibits were both educational and commercial.

Machinery companies and mill supply companies had exhibits aimed chiefly at the paper manufacturers. The Southern Kraft Manufacturers, the American Association of Paper Specialty Manufacturers, and others, had exhibits that were wholly educational. Other companies displayed wares with the view of appealing direct to the public. And thus there was something for every one at the show.

By far the most engrossing exhibit at the exposition, as far as the public was concerned, was the papermaking by hand of Dard H. Hunter. His old time appliances, the methods he uses in the actual making of paper caused a crowd to be congregated at his place, at the booth of the Paper Makers' Chemical Company, throughout the week. Each step was gone through hundreds of times during the week, and hundreds of sheets of hand made paper was given out to the crowd. Mr. Hunter himself was forced to explain and explain to the interested people. Even men from paper mills had never seen the kind of apparatus with which Mr. Hunter worked. The huge wooden presses, the old vats and instruments, the hand dryers, all caused vast interest.

Paper Clothes

A colorful touch was lent to the exposition by the presence of Ada May, star of the musical comedy "Lollipop," which recently opened in a Broadway theatre. Ada May and a group of her dancing girls appeared in costumes made entirely of paper, of various tints. Afterwards the costumes were placed on display.

While the crowds attending the exposition were not as large as the exhibitors had hoped, there was, nevertheless, a large number of visitors both from the public and the visiting manufacturers. Many of the machinery companies reported at the end of the week that sales and prospective sales had been numerous, while towards the end of the week, the familiar "Sold" sign began to appear about the hall.

It is certain that the exposition made a much better showing than last year. It was held on the main floor of the Grand Central Palace, and consequently enabled the machinery men to display their wares to much better advantage. Some unusually large machines were in evidence and several were in actual operation. At times the rumble of the machinery made the hall sound like a factory.

Vast quantities of souvenirs were given away by the exhibitors. Some visitors with a penchant for collecting these souvenirs, went home laden down as if they had been on a Christmas shopping tour.

Throughout the six days of the exhibition there was a constant flow of people through the aisles, but by far the biggest day was Thursday. On that afternoon the session of the Technical Association was held in the motion picture theatre in one corner of the main floor and most of the manufacturers here for the convention took advantage of the opportunity to inspect the exhibits. That afternoon presented a fair-like aspect, with crowds of interested persons gathered about almost every booth, listening to the elucidation of the product and in various cases, watching the thing operate.

Throughout the hours that the exposition was open to the public, motion pictures showed the various processes of the making of paper. Some unusually interesting films, depicted the course of the paper from the rag and the forest to the finished piece of paper. The motion picture corner was always the magnet that drew crowds its way.

The Hammermill Exhibit

One of the first booths to greet the eye upon entering the main hall was the neat and simple display of the Hammermill Company. Always in the foreground when it comes to advertising with taste, the large space occupied by this display immediately attracted the eye. Those little stereopticon machines told of the work of the Hammermill company, while advertising literature was also given out by the wideawake attendants. Assistant Advertising Manager Frampton was much in evidence in greeting the public. About the walls were hand painted pictures of the ancient art of paper making, while seats were plentiful for the tired visitor. The display was wholly educational for the public, and while now and then a real good punch of advertising was done with a printer who came along.

The Continental Novelty Booth

No booth on the floor had quite the uniqueness of the Continental Paper and Bag Mills Corporation. Here a house, roof and all, had been erected of the products of the company. In it were samples of the thousand and one useful articles in paper put out by this company.

The house that Continental built was the gathering place of hundreds of people during the week. Thousands of samples were given out and the visitors at the show went home with a new idea of the possibilities of the Continental company.

Union Bag and Paper

The Union Bag and Paper Corporation had an exhibit that was largely educational. The entire sweep of the big company's operations was illustrated by a painted background giving a graphic idea of the process through which paper passed from "Forest to Counter." A series of exhibits showed the successive stages in the evolution of a paper bag, from the log to the finished paper in bag width and eventually to the completed coffee package on the retailer's shelf. The lumber resources are represented by rough and dressed soft woods and shingles. The pulp includes ground wood, sulphite, kraft and various grades of screenings. H. Stuart Daniels, specialty sales manager at the New York office, was in charge.

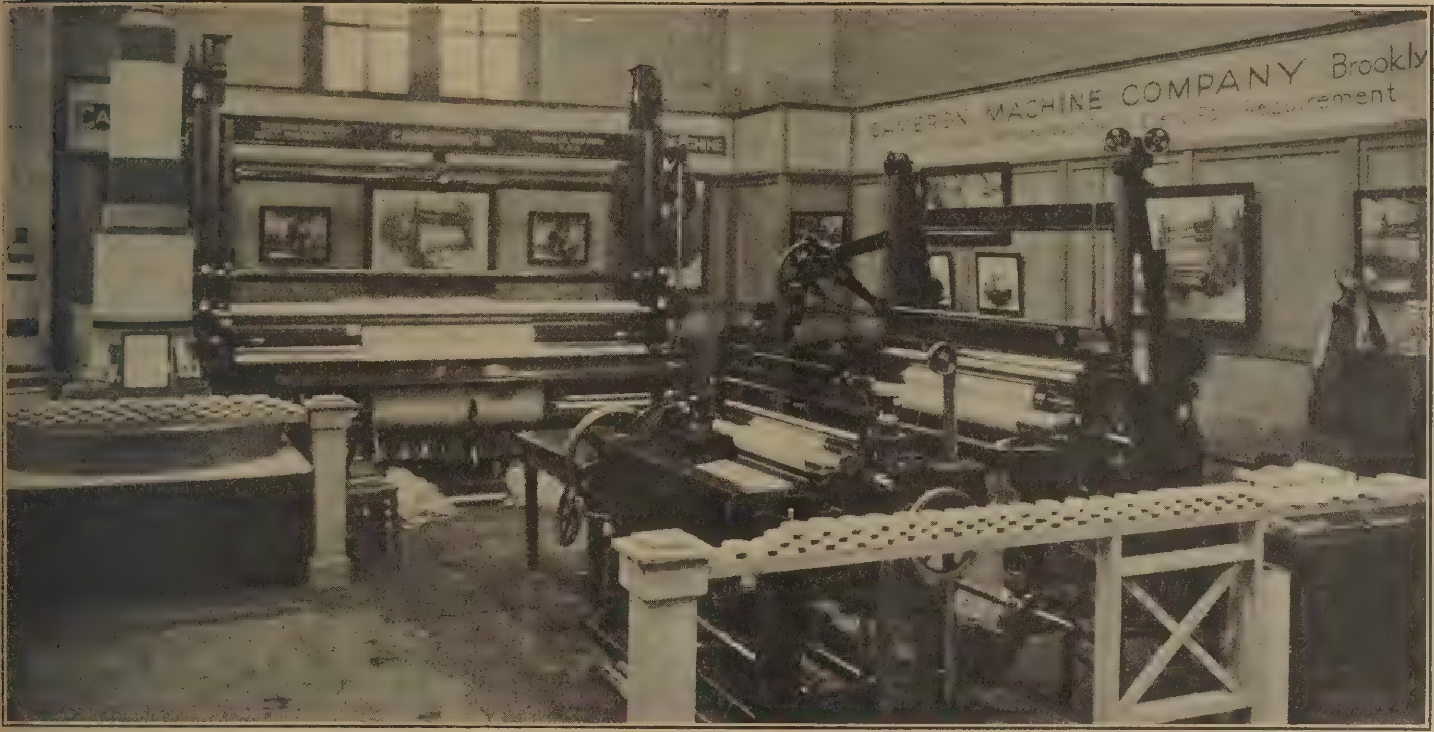
Purity Paper Vessels

With vice president and general manager W. R. Lenderking, in charge, the booth of the Purity Paper Vessels Company showed paper cans and milk bottles and various appliances manufactured for the purpose of furthering the use of paper containers and rendering them more easy to handle as original packages. The Purity paper can is used extensively by ice-cream manufacturers and also for dispensing many other liquid, semi-liquid and dry food products. The exhibit was in charge of Allyn G. Whitehead, supervisor of sales of the Eastern District and he is assisted by John A. Owen, Jr., and Wm. A. Palmer, supervisor of sales of the Metropolitan District.

Seaboard Air Line

Imbued with an abiding faith in the possibilities of the south as the great papermaking section of the country, Charles A. McKeand, general industrial agent of the Seaboard Air Line Railway Company, impressed the crowds visiting the show with his earnestness and wealth of facts. Printed matter was shown on paper made from every type of wood grown on the railroad's main line and tributaries.

CAMACHINE ONE OF THE MOST STRIKING EXHIBITS AT SHOW



One of the outstanding exhibits at the big Paper Industries Exposition is that of the Cameron Machine Company. Impressiveness is combined with practicality in its arrangement and the energetic Cameron staff have accomplished that difficult task of making a machinery exhibit attractive.

Standing back in an angle of the building, a titan of power and efficiency is the huge Camachine 18 mill type winder, which replaced with a happy smile the frown on the faces of winderman, superintendent and mill executive.

Close by is Camachine 10, the favorite of the converters and dealers, who, with its aid, always have a supply of stock on hand for a rush order.

As a partner in efficiency Camachine 6 stands beside its bigger brother. This machine turned out during the week thousands of rolls smoothly slit and evenly wound which were given away to the crowds which thronged about the booth throughout the week. At the same time interesting literature was distributed.

All the machines were in actual operation during the week, so that the visitors could note exactly how the production credited to Camachines is turned out—how good rolls can be made with the minimum of waste and mechanical trouble.

The booth was decorated with numerous photographs, as well as piles of rolls of paper in various kinds, sizes and colors, displaying the many uses to which the roll-paper can be put.

The staff of the Cameron Machine Company in charge, who greeted the visitors and willingly demonstrated the various machines, had an engaging way of making the visiting paper men as well as the general public right at home. A. Krug, the advertising manager, was in charge and he was assisted by J. E. Regan, John R. Cooper, and John T. Norris, of the sales staff. The demonstrators were F. Schatten and John Hawkes. Mr. James A. Cameron, President of the Company, was also on hand to greet his friends.

Mill men, converters and dealers were shown machines in actual operation which could be put to work for them. Many who knew of the merits of Camachines through advertising and word-of-mouth recommendation were enabled to see the machines for the first time, and the reactions were invariably favorable. The exhibit demonstrated most forcefully the truth of the Cameron slogan—

"FOR EVERY ROLL REQUIREMENT"

The staunchness and strength of the Cameron machines was plainly evidenced by the working machines on the floor. They stood there solid, substantial, efficient, both looking and acting like valuable mill acquisitions in building up production. The entire history of the cameron Machine Company is one of progress and advancement and growth. The public had the opportunity to observe at hand just why the company has progressed so fast and built up such an enormous business.

Cameron Machine Company

61 Poplar Street Brooklyn, New York

The wood was shipped to the United States Forest Products Laboratory at Madison for test manufacture, and the resulting paper, in various grades, are the basis of the exhibit.

Leather Belting Exchange

An unusual educational display was that of the Leather Belting Exchange. This is a co-operative display by the various manfuacturers of belting for power transmission in paper mills and other industries. A demonstration machine shows how belts transmit power and the relative values of different types of belting. In addition, there is an exhibition of a leather belt running in water, and another made endless on the pulleys. From both a scientific and a practical standpoint the exhibit is unusual and impressive. This booth always had a crowd around it.

The Potdevin Company

Thousands of little glassine printed bags were turned out right on the floor of the exhibition hall by the Potdevin Machine Company, of Brooklyn. It also had in actual operation at its booth machinery for pasting, gumming and gluing cardboard, paper, cloth and similar materials in sheets, as well as a two-color printing flat and square glassine paper bag machine. Postage stamps and bags are made thereon directly from a roll of paper at the rate of 100,000 daily.

Paper Makers Chemical Company

The huge area covered by the Paper Makers Chemical Company, the Western Paper Makers' Chemical Company and the B. K. Williams Company was well taken up by attractive displays of the products of these companies. A model beater showed exactly how the chemicals worked and throughout all three booths there was much of interest but outdoing all in attractiveness and interest was the operations of Dard Hunter, foremost hand papermaker of the country and great authority of the world. Mr. Hunter uses in his work utensils that were in use in England 400 years ago. The method of placing water-marks in paper is also demonstrated. Mr. Hunter shows a book on papermaking which he produced entirely by hand. This is an extraordinary one-man job from the making of the paper, cutting of the types, to the actual printing and binding of the finished volume. Mr. Hunter not only made the paper on which the limited edition of his book was printed, but devised the type, actually made the type, wrote the text and set the material in the type of his own manufacture. Then he printed the book on paper he had himself made by hand.

College of Forestry

To impress on visiting paper makers the need of conservation of forests, the State College of Forestry of New York had an interesting booth.

Two machines give a constant change of illuminated pictures of pulp and paper manufacture and the reforestation measures necessary to preserve the paper industry. Accompanying these illuminated pictures was an elaborate set of graphs showing forestry conditions, with another series of transparencies depicting wood-lot problems and forest practice in vogue in different parts of the country. The pictures and graphs are cross-referenced by use of ribbons leading from the transparencies to the wall charts. In addition, there are actual displays of small trees, set off by green decorations.

Mayer Coating Machines

The Mayer Coating Machines Company gave a demonstration of how paper is coated. Charles W. Mayer, treasurer of the company, was on hand to discuss coating problems of various kinds, giving descriptive particulars and illustration of the machines manufactured by this concern for waxing, oil saturating, gumming, gluing, varnishing, asphalt coating, clay coating and color coating.

Armstrong Machine Works

The Armstrong Machine Works, in its exhibit, featured a glass model Armstrong steam trap working under steam pressure. This model was connected so that the entire cycle of operation, together with how the Armstrong trap handles air and sediment, can be seen. A. E. Armstrong, president and general manager of this company, was in attendance.

Booth Chemical Company

The principal feature of the exhibit was the new type 24 Booth Dry Feeder. This machine was shown in operation, feeding white water Boothal, the special coagulant used in the separation of the excess white water into its components, thickened stock and clarified water respectively.

After the separation has been made, the recovered pulp, which is collected in the bottom of a settling tank, is returned directly to the paper machine, and the clear water is used in place of fresh water. While it is obvious that the object of using Boothal is to save the stock, it is also a fact that this coagulant continuously purifies the water so that slime producing growths do not occur in a closed system equipped with the process.

Vortex Manufacturing Company

The new folding drinking cup was the feature of this booth. It has an especially constructed dispenser which is non-mechanical, dust proof and requires little space, holding an unusually large amount of cups. The dispenser measures 4½x4¼x15 inches, is compact and can be set up in a jiffy most anywhere. A display of the well known Conical Paper Cups was also shown. The booth was in charge of W. B. Mangold, who was assisted by C. S. Hubbard, New York representative.

F. L. Smidth & Company

The many attractions of the booth of the F. L. Smidth & Company are set forth on a separate page in this issue. Do not fail to read it carefully.

Oneida Chuck Company

A useful new roll collar was featured in the booth of the Oneida Chuck Company. J. A. Lamotte the inventor of this new Roll Collar explained just how much in savings this latest invention represents to the user.

Gibbs Brower Company

Ogden Brower, Jr., and Miss Vera Langfeldt were in charge of the booth of the Gibbs Brower Company, who are well known paper and pulp mill brokers. Many copies of their "Go Between" Bulletin were distributed and many were attracted to the Gibbs Brower booth.

The McGrath-Sherrill Press

Some of the results of many years as handlers of paper mill advertising and the possibilities to be developed were shown by Edgar B. Sherrill and W. Howard Brown, of the McGrath-Sherrill Press. A large collection of direct by mail printing was displayed.

American Schaeffer & Budenberg

The American Schaeffer & Budenberg Corporation had a splendid display of instruments at this booth. They included Indicating and Recording Gauges, Thermometers, Tachometers, Steam Traps, etc.

A particular novelty was a large painting of a portion of a Paper Machine to which was attached their Paper Machine Tachometer in actual operation.

Bachmeier & Company

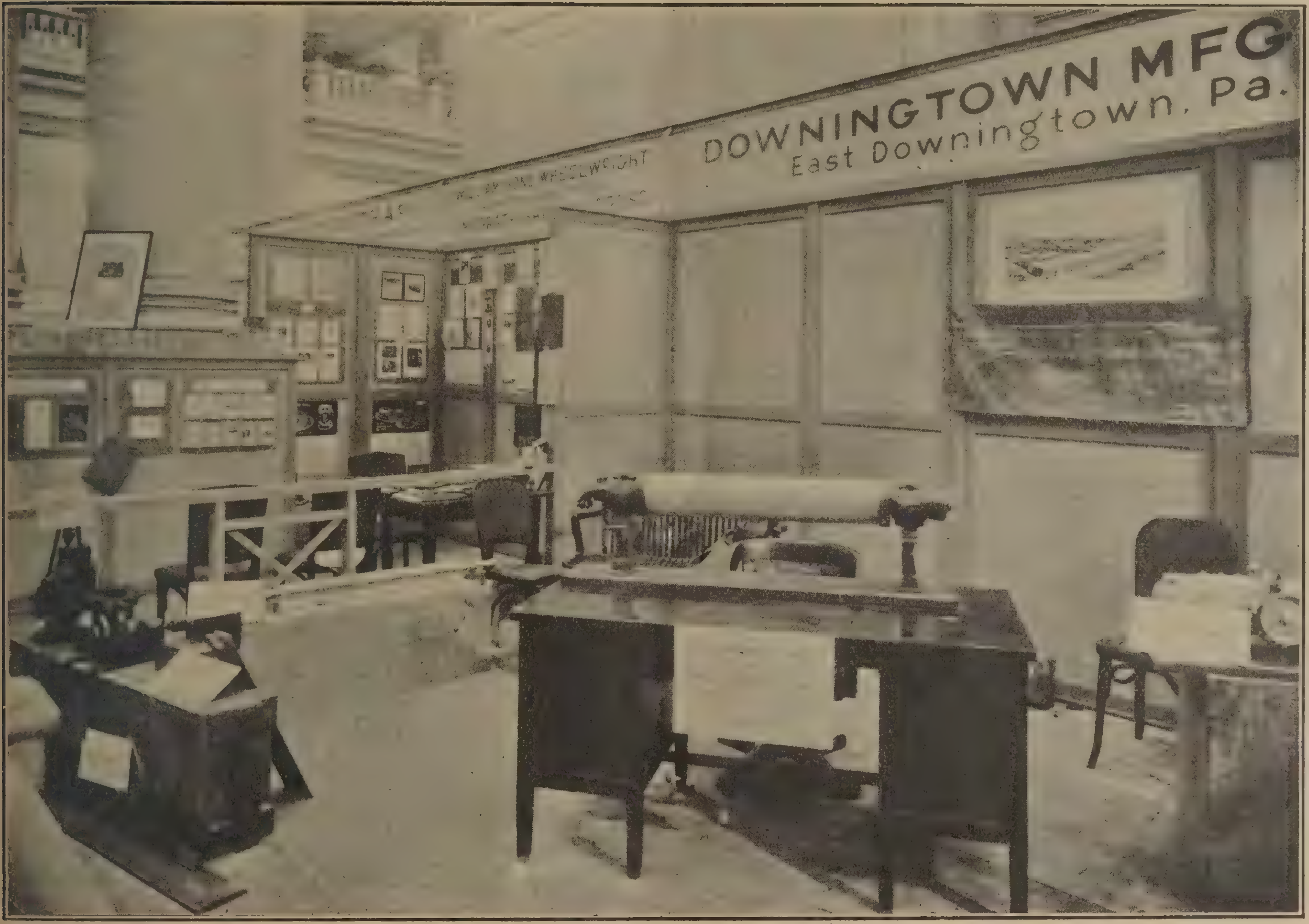
A full description of the booth of Bachmeier & Company will be found on page 128. PAPER urges that you turn to it and read about the various interesting features to be found there.

J. O. Ross Engineering Corporation

With J. O. Ross and a large staff of men on the job, the J. O. Ross Engineering Corporation proved always the center of a large group of interested visitors.

An exhibit of a model of a vapor absorption system on a paper machine in connection with a Briner economizer was a feature. The so-called cross ventilation consisting of varying the ventilating air sideways through paper making machines and so eliminating vapor pockets and enlarging the moisture carrying capacity of the air, is one of the recent developments used with Briner economizers.

KILBERRY SUCTION ROLL MAKES HIT AT THE CONVENTION



For the men familiar with the problems of the papermill one of the most interesting exhibits on the entire floor of the Paper Industries Exposition was the new Kilberry Suction Roll of the Downingtown Manufacturing Company. Because it apparently meets a long standing need of the paper mill, it was the center of attraction for those men who have for years wrestled with the trouble this roll overcomes.

It is the amazing simplicity of the Kilberry Suction Roll that kept the attention of the paper men for so long. It has common-sense bearings about one-half the diameter of the shell. It has an infallible alignment of the suction box to the shell and no adjustments whatever are required. There is no wear on the packings and consequently there are no replacements required. There is a direct jaw clutch connection to the driving shaft, with no gears. Moreover, and above all, it takes less power to drive the roll.

The model on exhibition was demonstrated in an effective way by George D. Kilberry, the inventor, himself well known throughout the trade. With a big black cigar tucked confidently in the corner of his mouth, he pointed out with the spirit that only an inventor can muster, the various good points of the suction roll. He even took it apart before the eyes of the visitors to show how simple and easy of access it is. The roll was praised from one end of the Grand Central Palace to the other, and it was a topic of conversation at the convention headquarters at the Waldorf-Astoria.

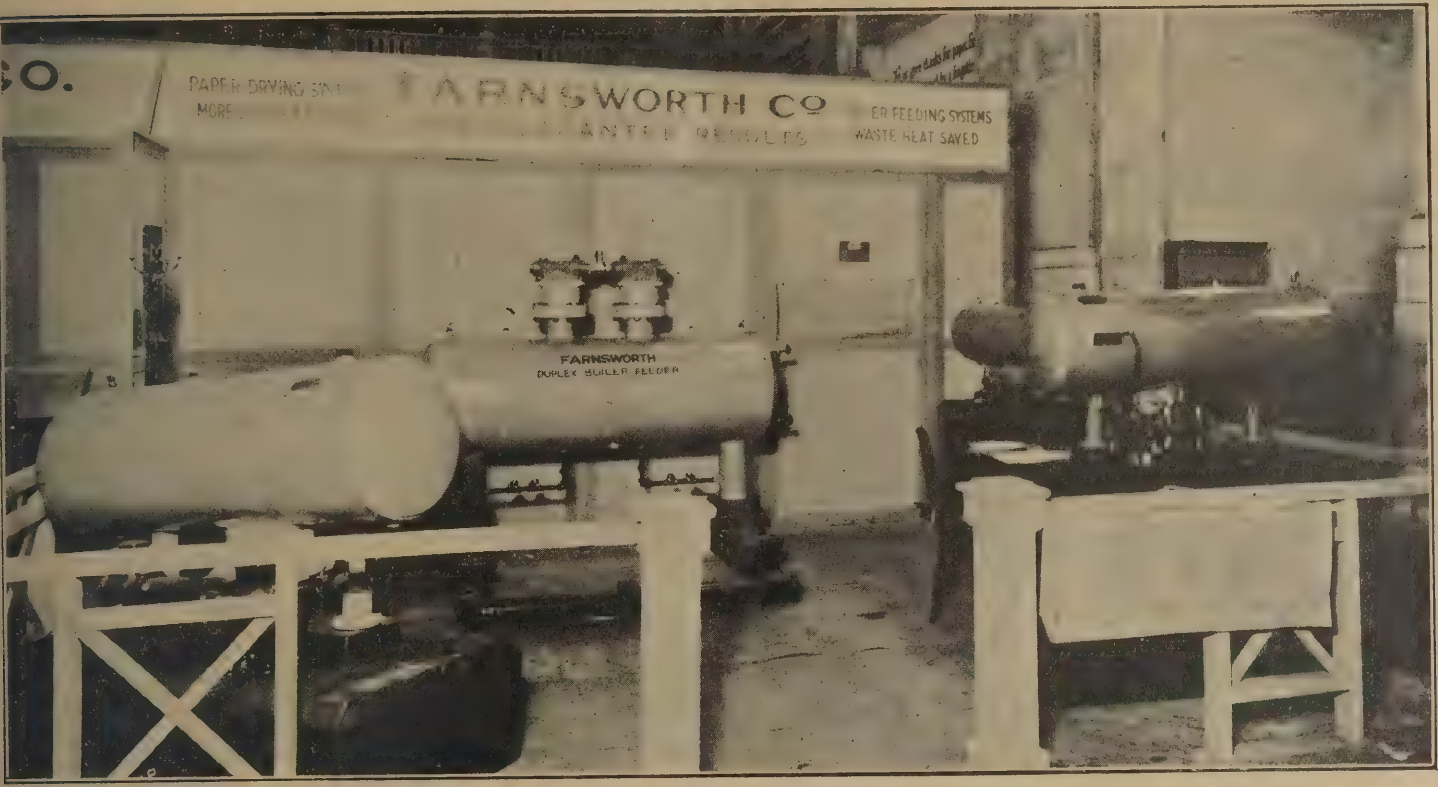
The automatic collapsible reel is another product of the Downingtown Manufacturing Company. This reel is specially designed for winding tissue and other light papers which are finished in a bundle cutter. The object is to save the enormous waste, due to the increased length of the outer sheets when the paper is wound to the increased length with stationary bars. In this reel the bars are collapsed automatically as the web of the paper increases in thickness, thus maintaining a uniform length to every sheet on the reel. This, too, is a well known product of the Downingtown Company.

There were illustrations and literature on hand for the other products of the company. The personality of Mr. Kilberry and his assistant assured a welcome for all visitors whether men familiar with papermaking or merely laymen of the great American public.

Of course, it was impossible to give more than a passing impression of the new roll and the other machines of the company in the rush of the exposition. A good way to learn more about the work of this company is to write to the Downingtown Manufacturing Company, East Downingtown, Pa.

Machinery Exhibits at the Paper Industries Exposition

SIMPLICITY OF THE FARNSWORTH BOILER FEED SURPRISES CROWD



Simplicity, the elimination of all superfluous parts, the getting down to basic fundamentals is an art. The Farnsworth Company, of Norristown, Pa., has mastered that art.

Consequently there was nothing to be surprised at when the Farnsworth booth at the big Paper Industries Exposition was always the center of interest for those interested in machinery and appliances that meet a need and yet are not complicated and involved.

The Farnsworth Drying System and the Farnsworth Duplex Boiler Feeder (newly improved) were particularly notable.

The Drying System has not a single moving part, and provides a perfect graduation of temperatures. The steam enters at the dry end of the Compound Steam and Return header with its water sealed differential regulators, then passes through the driers at a high velocity carrying all condensate and air to the wet end, where the air escapes through an automatic air valve and the condensate enters one Farnsworth Pump which delivers it to the Farnsworth Boiler Feeder thus providing an absolutely closed system consisting of only three units.

Mr. Farnsworth himself was in charge of the exhibit and from his vast store of practical and theoretical knowledge of drying paper and handling high temperature condensate was able to disseminate much information. The Farnsworth Company have long been manufacturers of these systems. The Farnsworth systems are known all over the continent, indeed, all over the world and their reputation for increasing production, saving fuel, and drying better paper have made an enviable and constantly growing market.

The booth of the Farnsworth Company was attractively arranged and made a display that appealed to the eye as well as to the engineering spirit of the papermakers present. Every visitor was welcomed and explanations were willingly given. The huge boiler-feeder in the center was flanked by one on each side of a smaller size. There were comfortable chairs about and many made their headquarters at the Farnsworth booth during the week.

It is the advice of this magazine that if you want to save money in your drying and boiler feeding system see or write to the Farnsworth Company at Norristown, Pa. It is the game the company has studied for many years and it is the game it knows.

The company reported a heavy demand for its products, and reported numerous installations. The business has been steadily growing for some time due to the worth of the product and the ability of the company.

The Farnsworth Company

Norristown Pennsylvania

Valley Iron Works

With the Valley Iron Works exhibit was linked the new Caterpillar grinder of the American Voith Contact Company. Both proved of great interest. The caterpillar grinder was represented by a working model that was amazing in its completeness and demonstrative ability. The Valley Iron Works, with Mr. Peterson in charge, showed the new possibilities of the high pressure inlet, as well as the beaters and other products of the company.

The Reed Air Filter Co.

The soot and dust of the manufacturing centers are coped with by the Reed air filter; as was demonstrated by the Reed Company. Taking a tip from nature adhesive is the chemical used in the Reed filter to act like mucus. It is an odorless, tasteless, non-volatile liquid which has a strong attraction for dust and carbon. It is estimated that Reed filters when effectively operated, remove fully 97 percent of the dust, carbon and bacteria in the air passed through them.

The Crane Company

From the vast variety and stock of valves, pipe and fittings of the Crane Company, a most interesting exhibit was made. Y stop-check valves and the Hoffman Blast traps were particular features of the exhibit.

American Engineering Corporation

The American Engineering Company, Philadelphia, representing the Taylor Stoker Company, Ltd., Toronto, Canada, exhibited drawings and diagrams showing the principles upon which the Taylor underfeed stoker is designed for economizing boiler fuel.

Sandusky Foundry & Machine Co.

Possibly the most impressive exhibit on the exhibition floor was that of the Sandusky Foundry and Machine Company. A magnificent specimen of a Millspaugh suction roll was on display, which amazed the crowd by its size. The new cycloidal vacuum pump being developed also attracted much attention.

These pumps are expected to prove of exceptional value to paper mills as they have an efficiency of from 79 to 83 per cent. This is far beyond the efficiency given by older types of pump. These pumps are compact, strongly built and attractive-looking. All parts that come in contact with acids are made from acid resisting chilled iron which has proved superior to bronze. Samples of engraving, rotogravure, marking, press, print and other rolls were shown together with many other products of the Sandusky Foundries.

Downingtown Manufacturing Co.

With the Kilberry suction roll, which has just been developed and has been successfully working for some time, as the feature, the Downingtown exhibit drew much attention. Mr. Kilberry himself was in charge of the exhibit. This roll is described at greater length on another page, which should be referred to by all means.

Beck Machine Company

How sheets are cut in vast numbers was shown by the Beck Machine Company, of Philadelphia. A roll sheet cutter demonstrated the way sheets are piled up and how great production can be made.

Mining Equipment Company

The Mining Equipment Company displayed a mixing motor of much usefulness in paper mills. It is portable and always handy. It drew much comment.

The Lubriko Company

The Lubriko Company, of Philadelphia, with its grease bricks, demonstrated how it keeps down the temperature of fast flying machinery.

The Faatz Company

Belt dressing in both bars and containers was displayed by the Faatz Company. Mr. Faatz himself was in charge of the booth.

General Electric Company

The General Electric Company had an exhibit that was particularly apropos to paper mills.

A sectional drive for paper mill installations, an electrically operated flow meter, an electric steam generator and other interesting electrical machines were exhibited. An electrically operated G-E flow meter for measuring the flow of steam, air, gas, water, oil and other liquids was a feature of this exhibit which was accorded much favorable comment. This new type of meter consists of a flow nozzle, meter body, and the electrical measuring instruments and voltage regulator mounted on a panel.

S.K.F. and Norma

Both the S.K.F. industries and the Norma Ball Bearing Company displayed ball bearings of various types. One unique exhibit of the S.K.F. was a ball bearing which ran for hours around a disc with no motive power save its own momentum. The Norma Minimeter, which is a true precision measuring instrument, was demonstrated at the Norma booth.

Keystone Lubricating Co.

Greases and oils for paper mills were displayed by the Keystone Lubricating Company.

R. & J. Dick Co., Inc.

Balata belting, which is a substitute for leather belting, was exhibited in striking fashion by the R. & J. Dick Company.

Voorhees Rubber Mfg. Co.

Rubber products were shown by the Voorhees Company. Rubber belting, rubber hose, and rubber steel valves were shown. Sensation belting is a belting of rubber and duck which has proved vastly satisfactory in paper mills.

The Hoe Corporation

The Hoe Corporation, of Poughkeepsie, demonstrated an adjustable wrench with good effect.

Westfield River Paper Co.

A magnificent line of glassine and paperglas samples were on display at the big booth of the Westfield River Paper Company. Embossed and silver coated papers were among the lot.

Kleen Products Company

The exceptional high quality of the products of the Kleen Products Company was demonstrated. Almost complete sets of household dishes, including plates, saucers, knives, forks and spoons were shown.

American Assn. Paper Specialty Mfgs.

With the genial J. F. Willert in charge, the display of the American Association of Paper Specialty Manufacturers, the new organization of the American Paper and Pulp Association, had an interesting display from its member companies. The booth was very attractive.

Seminole Chemical Company

How the Seminole Compound cleans boilers was shown by the Seminole Chemical Company. A full page is devoted to this in this section, which should not be missed.

Westinghouse Electric

The Westinghouse Electric & Manufacturing Company had its system of sectional drives displayed. This system consists of a Type SK motor, coupled to a parallel shaft, single reduction gear, both of which are mounted on a common bedplate with a chain driven speed charger and rotary contractor; a master rotary contractor unit; a sectional control panel, and a master control panel. This equipment was not connected to any load, but was demonstrated in operation from start, fast, slow and stop, push buttons. Speeds in terms of feet per minute of paper were shown.

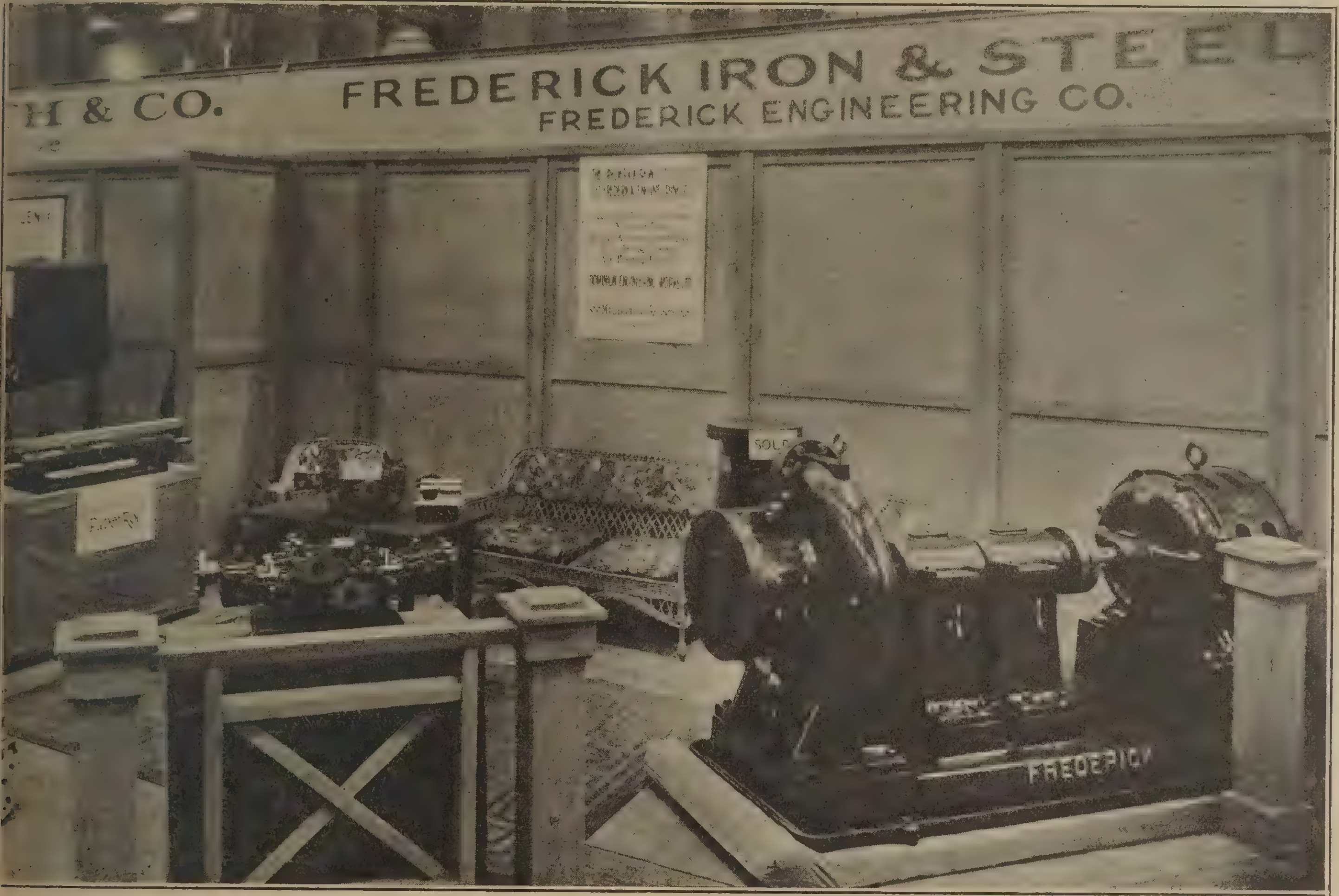
W. S. Tyler Company

The electric screens and testing sieves and woven wire screens for paper mills were shown by the W. S. Tyler Company, of Cleveland. Samples of Fourdrinier wires were also shown.

Tide Water Oil Sales Corp.

With the Tydol oils and greases effectively shown, there was much interest in the booth of the Tide Water Oil Sales Corporation.

FREDERICK HEAVY DUTY STOCK PUMP CENTER OF INTEREST



Impressive and capable-looking was the exhibit of the rederick Iron and Steel Company at the Paper Industries xposition in the Grand Central Palace.

The Frederick heavy duty high consistency stock pump vas the center of attraction at the booth throughout the veek. So well did this pump impress the paper manufacurers who visited the show that several orders were given t the moment.

This single suction centrifugal pump was developed and laced on the market to supply the insistent demand for high grade pump for the pulp and paper industry.

The model on display was the result of the most thorugh investigation into the pumping requirements regardng the manufacture of paper. It is recognized that cenrifugal pumps are among the most useful of all pumps or mill work. Efficiencies of from 60 to 65 per cent. are btained under actual running conditions when handling ulped stocks having a consistency of about 3 per cent. ulped stocks having consistency of from 4 to 4.5 per ent., handled with ease and minimum power consumption.

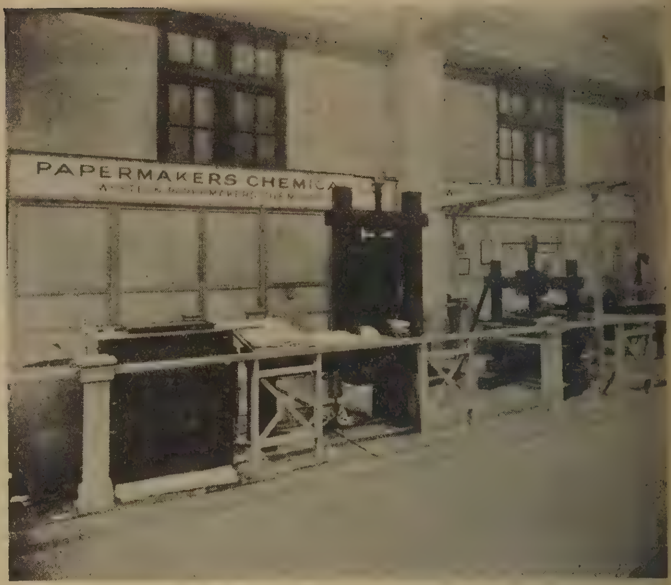
W. A. Riddell, the energetic president of Frederick Iron & Steel Company, took personal charge of the booth during several of the days and his staff of helpers also were always on the job, greeting visitors, courteously showing them the manner in which the pumps operate and making the guests feel at home. Mr. Riddell also met many of his old friends at the booth.

The manufacturers of paper themselves displayed an unusual interest in the exhibit. The fact that the pump fills a long and constantly increasing want in the industry caused these deep thinking manufacturers to ponder well on the qualities of the Frederick pump.

It was brought out plainly to them that the casing is of best quality, close grained grey iron, cast in halves, split horizontally on the center line of the shaft permitting ready access to the interior parts of the pump. The impeller is of the high efficiency, semi-open type, with waterways correctly proportioned, of easy curvature and liberal area. Each unit is made with the view of long, hard wear.

The Frederick Iron & Steel Company

Frederick Maryland

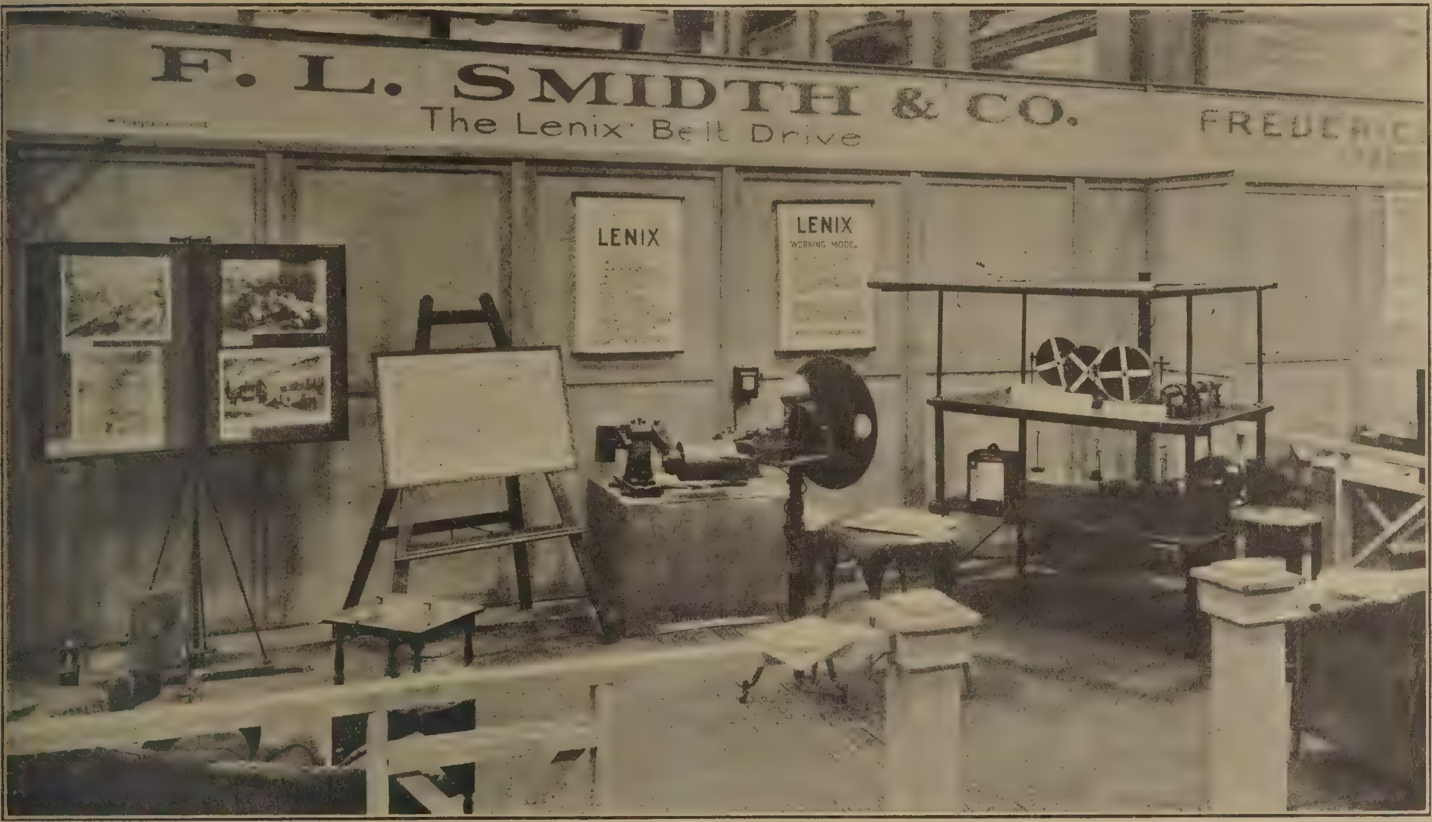


"There's a Warehouse Near You"
CONTINENTAL PAPER & BAG MILLS CORPORATION

UNION BAG & PAPER CORPORATION
AND ASSOCIATED COMPANIES
From Forest to Counter — Pulp Newsprint Wrapping

Educational Exhibits at the Exposition

THE LENIX DRIVE A REVELATION TO MANY PAPER MANUFACTURERS



Although the art of papermaking is an ancient one, many long-experienced papermakers learned something new at the Second Paper Industries Exposition at the Grand Central Palace the week of April 7.

Notable in this absorption of education was the Lenix Belt Drive, displayed by F. L. Smidth & Company, Engineers, of 50 Church Street, New York. In the Smidth booth the Lenix drive proved itself a revelation. And this despite the fact that it is already in use in several score paper mills of North America.

It was graphically brought out at the exhibit that in mechanical engineering long center belt drives installed with the full knowledge that they are compromises, because of the belief that sufficient and efficient use cannot be made of the pulley surface areas. For eighteen years the Lenix has disproved that belief by transmitting hundreds of thousands of horsepower with short pulley center drives, at the same time increasing efficiency and economy.

Short center belt drives with the Lenix have in general proved superior to long center drives. The Lenix uses a large part of the hitherto unused surfaces of the belt and pulleys. If automatically, permanently, constantly and accurately maintains the proper tension on the slack side of the drive without springs, that is, entirely by gravity. Counterweights permit accurate adjustment to the normal load. The Lenix automatically adjusts itself to peaks and valleys in the load.

Each Lenix is adapted to the prescribed conditions of installation and service. Each adaptation involves the co-ordination of such factors as the sizes and relative locations of the driving and driven pulleys; the belt speed, thickness and pliability; the horsepower to be transmitted, and frequently conditions of moisture, temperature, dust, fumes, etc., to insure the greatest efficiency. Since the proper working of the Lenix is not influenced by the direction of belt travel from a center, or which side of the belt is tight, these factors need no consideration.

Eighteen years' experience in designing and manufacturing the Lenix in units of from 1 to 1400 H.P. has proven the impossibility of fulfilling all of these requirements by means of standard units. But, for use in connection with standard two-bearing motors from 1 up to 100 H.P., it has been found possible to develop a number of standard units kept in stock and promptly available.

Comparing old established practice with open drives, the Lenix has proved that (1) because of freedom of pulley location saves floor space, building space and first cost of belting; (2) because of reduced bearing pressures, saves bearing friction, lubrication and renewal of bearings; (3) because of automatic features saves maintenance cost and attendance; (4) by permitting higher pulley ratios allows the use of less expensive, higher speed and higher efficiency motors or generators of the two-bearing type, in sizes larger than are used for open drives.

The apparatus used in demonstrating the value of the Lenix and which is here picture brought home to many manufacturers how much money they have been losing by neglecting to previously see its possibilities.

With Mr. Zahn in charge of the booth, and with a courteous staff of workers, every visitor was welcomed and made at home, and many of them admitted that their short visit had been an education to them.

The Dorr Company

With it shown in actual operation, recovering waste stock from white water, the Dorr Save-All, which is manufactured by the Dorr Company, engineers, of New York, Denver and London, England, consists of a steel tank with a number of trays dividing it into settling compartments, all connected by central openings in the trays. A slowly revolving central shaft carries radial arms with squeegees, each arm sweeping the bottom surface of a compartment.

The Nash Engineering Company

With the energetic Mr. Wright in charge, the huge and impressive exhibit of the Nash Engineering Company, of South Norwalk, Conn., showed the Nash Hytor Suction pump as well as the Jennings Hytor Vacuum Heating Pump, electric motor driver, designed to exhaust a vacuum and return all condensation in connection with vacuum return line steam heating systems; the Jennings Hytor Vacuum Heating Pump, steam turbine driven, for return line heating systems and other vacuum work where liquid is handled with a gas; and the Jennings Hytor Condensation Pump, unit type, electric motor driven, designed to handle condensate from steam heating or drying systems.

Locke Regulator Company

The Locke Regulator Company, of Salem, Mass., showed the regulator to not only control the temperature of the driers when the paper is running over them, but maintains the same temperature whenever there is a break in the paper.

Pennsylvania Salt Mfg. Co.

Among the chemical products of the Pennsylvania Salt Manufacturing Company shown were Sulphuric Acid 60° (Oil Vitriol); Muriatic Acid 18°, 20° (Hydrochloric); Aluminum Sulphate (Sulphate of Ammonia); Natrona Porous Alum (Iron free); Natrona Concentrated Sulphate of Alumina (Iron free); Excelsior Sulphate of Alumina (commercial), all grades of which are used for paper, color, dye and tanning industries and water filtration plants.

Shepard Electric Crane

The many possibilities of the electric crane were demonstrated effectively by the Shepard Company. An electric lift of simple construction was shown in operation.

National City Paper Co.

The extraordinary value of the booth of the National City Paper Company was evidenced by the huge crowds thronging about it all week. The paper testers and scales were ably demonstrated. Attention is called to the page devoted to it in this section.

Cameron Machine Company

Attention is called to the fact that a splendid descriptive article of the Cameron booth appears on a separate page in this section. Do not miss it.

Union Sulphur Company

Brimstone, free from arsenic or selenium, which is produced by the Union Sulphur Company featured the modest exhibit of this company. But visitors were always welcome.

United States Testing Co., Inc.

The value of real tests of paper were demonstrated plainly to the paper manufacturers by the United States Testing Company.

This included tests to determine the tensile and bursting strength of paper, and the folding endurance. Microscopic tests for the examination of the fiber were also demonstrated.

This company has offices in New York, Philadelphia, Paterson, New Bedford and Shanghai. A complete laboratory is in operation in key cities for use by paper men.

Bird Machine Co.

The Bird Machine Company exhibited a Bird Rotary Inward Flow Screen, a Bird Save-All, a Bird Self-Cleaning Shower Pipe, a Vickery Felt Conditioner, a Vickery Doctor and a Pullman Short Centre Drive. The valuable factors of the Vickery Felt Conditioner, which was in operation during the week, were thoroughly explained to those interested. The Vickery Doctor was also mounted to enable the expert demonstrators to explain its many advantages. The Bird Self-Cleaning Shower Pipe, a Vickery Felt with water and its principle was explained under actual operating conditions.

Lehigh Lime Company

The Lehigh Lime Company, formerly the Mitchell Lime Company, manufactures high calcium chemical lime exclusively, specializing in the requirements of the paper industries. Nearly half of the output is shipped to paper mills for liquid chlorine bleach, sulphate, cooking of rag stock, strawboard, and for water treating. In addition to high available calcium oxide content, Lehigh lime has earned a reputation for rapidity and depth of settling, which is an important feature in connection with the liquid chlorine bleach and the sulphate process. The plant is located at Mitchell, Ind.

The Mathieson Alkali Works, Inc.

How the Mathieson company transports its product was shown by a complete model car loaded with tanks. This is the car that has been approved by the Interstate Commerce Commission recently. The model shows the many unique features of the multi-unit car, together with the unloading by means of a manifold and headers. A full-sized Mathieson ton container, as used on this car, was also exhibited and was sectioned at one end to show the construction in detail. Samples of Eagle Thistle caustic soda, soda ash, and bleaching powder were given away.

The Permutit Company

The feature of the exhibit of the Permutit Company, of New York, was the operation of a small size Permutit water softener. This apparatus occupies very little space in the plant. It attracted much attention.

The Farnsworth Company

Something new in boiler feeds were shown by the Farnsworth Company, of Norristown. With Mr. Farnsworth present everybody was welcomed. The complete story of the Farnsworth product is taken up in detail in another page, which should not be missed by any means.

Frederick Iron and Steel

The sign "Sold" early appeared in the booth of the Frederick Iron and Steel Company, which simply showed that a worth while product was proving its value to the paper mill owner. A page is devoted to the Frederick products in this section, which should be read carefully.

* * *

International Paper Report

The International Paper Company reports operating revenues of $8,074.577 for 1923, against an operating loss of $1,047,128 in 1922. After reserves for depreciation, Federal taxes and interest the company reported net income of $3,809,540. This, after preferred dividends, was equal to $11.59 a share earned on the $19,931,984 common stock outstanding at the close of 1923. After reserves for depreciation, inventory adjustments and other deductions the company reported a loss of $7.572,390 in 1922. The surplus after dividends in 1923 amounted to $2,309.540, while in the previous year the company reported a deficit of $9.072,390 after preferred dividends. The profit and loss surplus on Dec. 31. 1923. amounted to $17.112 330, against $14,802,790 at the close of 1922.

The general balance sheet on December 31. 1923, showed net present assets of $31,247.972, against net current liabilities of $14.005,766, leaving the company working capital of $16.642,206.

Commenting upon the paper situation of the country, Philip T. Dodge. president, in a statement to stockholders, said:

"There were produced by the company during the year 537.927 tons of paper—the largest production in its history, and double that of any other producer in the world. Of this amount 352,518 tons were news print and the balance higher grade paper of various classes.

"The consumption of news print paper in the United States in 1923 was greater than in any previous year by 13 per cent. being substantially 2,800,000 tons, of which 2.600,000 tons were produced in North America, and the balance imported from European countries. The production in the United States was 1,485,000 tons.

"At the present time the company and its subsidiaries own in fee in the United States and Canada 1.639,000 acres of timber lands. and also control 2,875,000 acres of crown and leased lands."

NEW BOILER CLEANING METHOD SURPRISES MANUFACTURERS

An entirely new method of Cleaning Boilers was demonstrated by Seminole Chemical Company at the Paper Industries Exposition. This method, evolved and supervised by a group of chemists and engineers, utilizes a powder preparation possessing a unique physical action.

In the exhibit were specimens of sludge and scale removed from boilers of nationally prominent plants representing many different industries.

A microscopic exhibit clearly showed why Seminole had been successful in these feed waters of widely divergent character as well as in waters contaminated by oil returns, when soda and other chemical reagents had failed. In the case of chemical treatment, the slides showed that the sludges were not materially different from the crystals formed by the evaporation of *untreated* waters, and in fact, had the same ability to adhere to boiler metal as the crystals from untreated water. The Seminole treated sludges from a wide range of varying feed waters, invariably showed a "pebbly" formation due to physical absorption of scale forming particles by Seminole. These microscopic "pebbles", which contain all the original Seminole, plus a definite proportion of encrusting salts, readily settle out and lodge in the mud drum. The presence of Seminole prevents their adhering to the boiler metal.

Written testimonials, some of them from well known and conservative papermakers, corroborate the claims of the Seminole Chemical Company concerning the new economies introduced in boiler operation by the use of Seminole. Their claims of eliminating scale from boilers and in most cases, of doing away with turbining, their claims of eliminating tube losses due to scale and return oil, their claims of minimizing blow-downs and repair costs, are graphically supported by personal experiences over the signature of important engineers, among them Mr. Walter N. Polakov, the eminent consultant.

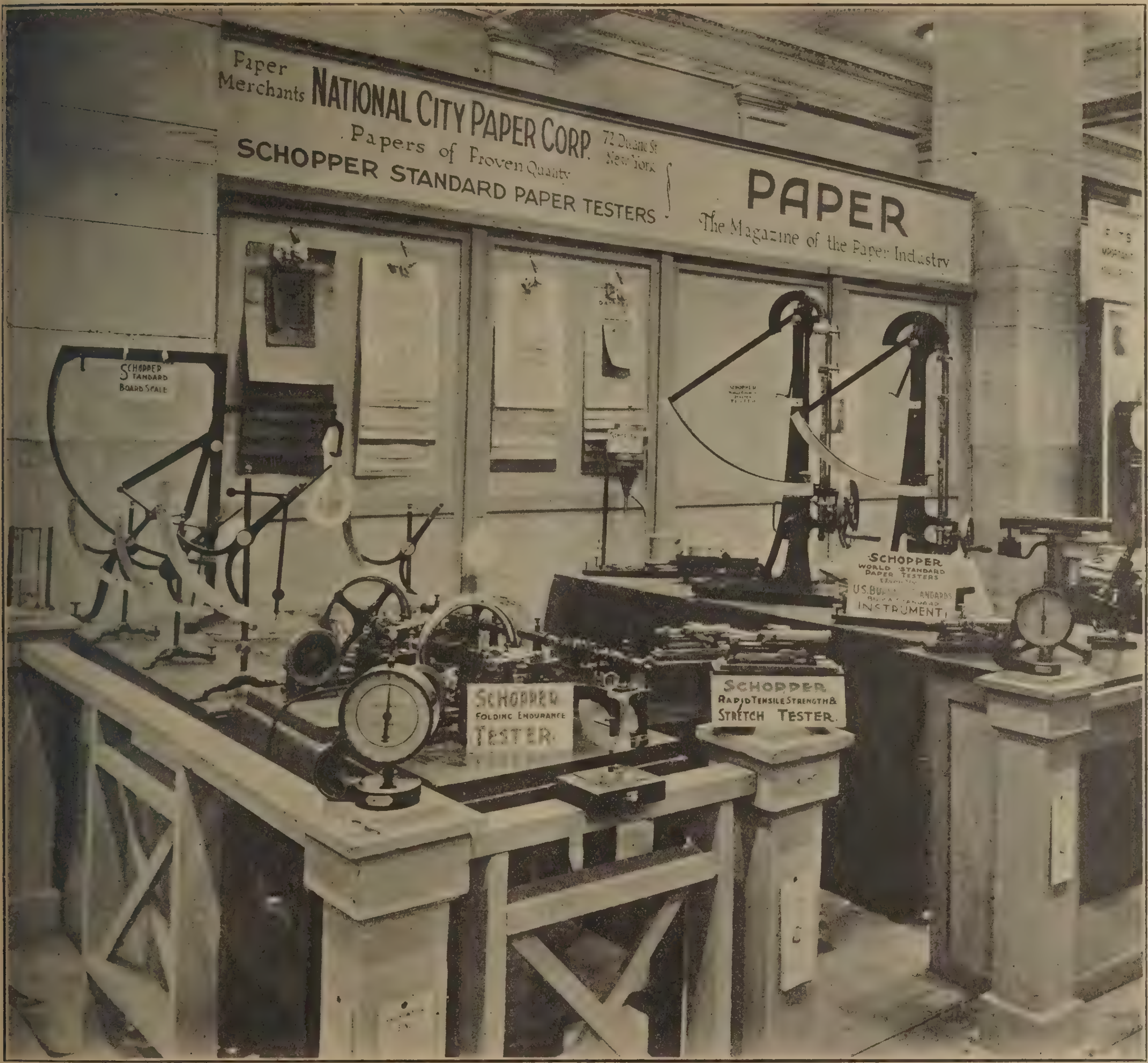
The Seminole Chemical Company stand ready to study the boiler operation of any paper plant, and submit their estimate of costs and savings by the use of their method. For further information, address

Seminole Chemical Co., Inc.
P. O. Box 126, City Hall Station New York City

CIATION
THE AMERICAN ASSOCIATION of PAPER SPECIALTY MANUFACTURERS.
THE GREETING CARD ASSOCIATION
NEW YORK
THE AI
J. O. ROSS ENGR. CORPORATION
ROSS ENGR. of CANADA LIMITED
JOHN WALDRON
SMITH & SERRELL
BIRD
ON
SODA
THE MATHIESON ALKALI WORKS
BACHMEIER & COMPANY
MATHIESON MULTI-UNIT TANK CAR
LIQUID CHLORINE

How a Few Other Booths Looked

THE SCHOPPER TESTERS ATTRACT THRONGS AT THE EXPOSITION


Paper Merchants
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Papers of Proven Quality
SCHOPPER STANDARD PAPER TESTERS
PAPER
The Magazine of the Paper Industry
SCHOPPER STANDARD BOARD SCALE
SCHOPPER FOLDING ENDURANCE TESTER
SCHOPPER RAPID TENSILE STRENGTH & STRETCH TESTER
SCHOPPER WORLD STANDARD PAPER TESTERS
INSTRUMENT

The Foreign Paper Mills of 72 Duane Street, New York, had one of the most interesting exhibits at the Paper Show. All the Schopper Scientific Paper Testers were on display, and operated and explained by those in charge.

The Schopper Folding Endurance Testing Instruments created a great deal of interest, as the demand for the Schopper Folding Endurance test is fast becoming recognized by the first authorities as one of the best tests of the wearing endurance of paper. It was shown that some of the best quality rag papers folded a thousand double folds whereas the same weights in a sulphite paper would only fold fifteen or twenty times, thus immediately showing that one sheet was suitable for long life under constant usage whereas the other was suitable for advertising purposes that found their way into the scrap basket in very short order. It was explained each quality should be used for the right purpose.

There was a large display of the Schopper Scales, as the Schopper line of scales meets every purpose, such as—for weighing full sheets giving a direct reading of the weight per ream of any size used; Small Piece Scales which give the weight of paper by weighing a small piece in the size of 4 x 4″; Board Scales which show the actual weight of one sheet and the number of sheets contained in a 50-Pound bundle. A new scale was exhibited showing the basic weight per 1000 Square Inches, which is in accordance with the new movement on foot to establish a standard weight in the paper industry by 1000 Square Inches instead of the old method based on various trade sizes.

The Schopper Standard Desk Micrometer is too well known an instrument for any comments. Recently the Testing Materials Association gave the Schopper Desk Micrometer another big boost on account of its past performance and its accurate and perfect construction.

DYESTUFFS DISPLAY AROUSES INTEREST OF PAPERMAKERS

BACHMEIER & COMPANY. INC.
NEW YORK
Boston ~ Philadelphia ~ Buffalo ~ Chicago
BACO DYES FOR PAPER
Domestic

Both the practical and the technical paper man was deeply interested in the dyestuffs exhibit of Bachmeier & Company, Inc., at the Paper Industries Exposition.

The vast possibilities of dyes was unfolded before the visitors at the show in a graphic, striking manner by the Bachmeier Company. The dyestuffs were particularly fitted to be used in

HIGH GRADE BONDS
WRITING PAPER
PAPER BOARD
NEWS BOARD, ETC.

Two special colors displayed with practical samples, and which were made under actual working conditions in the mill, were—

BACO INDATHRENE BLUE R S TRIPLE POWDER
(For Paper)
BACO PULP YELLOW G N POWDER

The Blue is a highly concentrated dye and produces tints, and shades which are absolutely fast to light, acid and alkali.

The Yellow is used for the very bright, greenish tone shades of cream and yellow, having excellent fastnesses to light, acid and alkali.

A full line of Lake Colors for coated papers was also shown, these being a very high grade line of dry colors.

Of special interest was the Composite Photograph showing all of the mills of the American Writing Paper Company, together with the Division in which the Blue for tinting high grade bond papers, is exclusively used.

A new insight into dyes for the paper mill was given by the staff of the Bachmeier Company to the visitors at the booth. The consumers of dyes especially displayed great interest in the colors shown and the discussion of the attendants. Throughout the week there was always an engrossed group about the booth.

Bachmeier & Company have long been leaders in dyestuffs for paper mills. Their prestige has been steadily rising higher and their business increasing.

H. I. PRANKARD, President GEO. F. WHITEHEAD, Treas.

Mohawk Paper Makers, Inc.

COHOES, N. Y.

Our many Regular and Special Grades enable us to submit satisfactory samples on practically every inquiry, whether White, Black or Colors. Our working organization is trained in carefulness. Our three machines in two mills guarantee certainty of service.

Our nearness to important centers cuts down time enroute.

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and

WATERFORD, N. Y.

OVERNIGHT BY BOAT TO NEW YORK

Special Soft Rubber Rolls for Paper Machines

By **R. H. WHITNEY***

THE results arrived at in this discussion are based almost entirely on the stated purpose of the Technical Association of the Pulp and Paper Industry:—"An interchange of ideas among its members in order that processes of manufacture may be made more efficient and improved along technical lines." We are indebted to S. D. Warren Company, Hammermill Paper Company, Michigan Paper Company, Fletcher Paper Company, and others for comparisons made between the new soft rubber rolls and those previously used. Especially do we appreciate the cooperation of H. F. Obermanns of Hammermill Paper Company who has given much time and assistance in obtaining accurate data.

Corrugation

Papermakers generally have wanted to use softer rolls but have not been able to do so because the old line soft rubber covers corrugated quickly. This resulted in constant regrinding and production loss. In our table we have had to omit figures on the length of time these new rolls have run without corrugating because none of these have yet corrugated. There are 50 in operation and so far only 2 have had to be reground. (Reports on these were not available for this paper. With 48 out of 50 running from 1 to 9 months and showing no sign of wear we believe that this question is answered to everyone's satisfaction.)

Water Removal

How much water will they remove? Naturally a harder roll should take out more water than a soft one. The pressure is applied along a small contact area and is greater per unit area with the hard roll. Yet looking at the tabulation of actual service results you will see that these new soft rubber covers testing 92 to 102[1] are removing as much as former rolls testing 45 to 60 with the same pressures, speeds and felts. In one case there is a slight increase indicated with the soft roll, in another a practically negligible loss of ¾ of 1 per cent is reported. All others are taking out the same amount as formerly. I could amplify this by ten verbal reports (some based on laboratory moisture tests) that show the same satisfactory result.

The evident conclusion was most surprising to me; it may be to many of you. The only way we can account for it is that the extreme resiliency and comeback of the new compounds aids in the squeezing action and compensates for hardness in the former covers which lacked this resiliency.

It is generally recognized that the use of a more open felt allows greater removal. The softer rolls have repeatedly proved that they go far in eliminating felt marks, thus making more open felts practical. In one mill they are now successfully using a more open felt with the soft rolls, and while it is not yet possible to publish the results we know these are satisfactory.

More pressure can be used with the soft rolls without harm to the sheet or felt. Naturally this is harder on the roll, but in one case an additional 3600 lbs. has been added and the soft roll has been running for 5 months without showing any ill effects. The increased pressure took out more water.

Summing up the investigation as to comparative water removal: we have found that the new soft stocks are satisfactory in all cases; also they pave the way for taking out more water in the press, which will reduce drying costs and make higher speeds practical on present machines.

Felt Efficiency

The reports tabulated give such a clear picture of the increased felt efficiency with the softer rolls that little discussion is necessary.

Wherever any attempt has been made, or other factors permit, felt washing has been reduced from 33 to 70 per cent. This is truly a big advantage in many ways, and measured in dollars and cents this item alone will in most cases more than pay the roll cost.

We find that felts last from 25 to 50 per cent longer with the new soft rolls than they did before. A score of additional verbal reports say the same thing and in only one instance can we find that felts have given only equal to previous service.

These results are fine, but they are going to be a lot better. Again we must recognize that the soft rolls allow for more open and harder twisted felts. These will be tougher and last still longer ,and they will not fill up so quickly. So once again, what has been accomplished points ahead to still greater efficiency.

General Application

We have been talking entirely of first press rolls. It may be interesting to note other applications of these new soft stocks in some of which they have already proved advantageous.

They are running on second and third presses showing no weakness and helping the felt and sheet. On a smoothing press their ability to maintain a natural surface longer than old line compounds makes them exceptionally good. You will be interested in the surface of the roll on exhibition in Booth 44A of the Exposition. This shows more clearly than I can tell, the extremely smooth finish which the new covers acquire after 1 or 2 weeks in operation and maintain throughout the life of the roll. One mill says they are the finest thing ever seen on a smoothing roll.

Running in hot glue at a temperature of 170 deg. Fahr., they have already exceeded previous service from other covers and are still going strong. We have them on waxing and sizing rolls and while it is not yet time to make established claims it is only logical to expect that wherever heat is encountered the new stocks will be a great improvement as you will see shortly.

For squeeze rolls and primary presses they have given absolute satisfaction and are now being tried out on the regular press of machines making heavy board. Two rolls have also been covered for top suction rolls although we make no claims for this work as yet.

Although, being less affected by age, maintaining a natural surface longer, resisting heat, and giving greater cushioning, these new compounds apparently offer opportunity for economy on paper machine rolls in general.

The New Rubber Compounds

Questions come up as to how these new stocks differ from the previous rubber roll coverings used. To answer this requires some consideration of rubber manufacturing problems and means of determining physical properties of different compounds.

The problem of covering a paper machine roll becomes involved by the necessity of tying the cover to the metal core with a hard rubber or vulcanite base. The coefficient of contraction of hard rubber is several times greater than metal and as it remains rigid after curing there is a powerful grip between the two. In turn, the base and cover being cured at the same time unites these and anchors the cover.

The roll is given one cure which must be long enough to cure the hard rubber. It is obvious that the soft rubber cover and the base must be perfectly balanced or the cover will have been overcured when the hard rubber is cured to its proper and necessary hardness. Practically all cover stocks were formely overcured when the base was properly cured.

The results of overcuring are not seen immediately after cure, but in the course of several months these compounds lose their resiliency and comeback. In addition an oxidized skin or crust forms on the surface, which offers little resistance to abrasion. On press rolls a soft cover is flattened out at the point of contact. The cover must have resiliency to regain its original shape during each revolution. As the old stocks lost their life this distortion showed itself by a washboard appearance on the surface of the roll, which simply means the rubber had lost its ability to resume its natural shape after being flattened out. Soft stocks compounded along new lines and adjusted to a hard rubber cure, when aged in the life oven and put through a hysteresis test at once indicated unusual ability to withstand internal strains over a long period, and to maintain a natural surface.

The life oven is used to artifically age rubber. By applying a predetermined temperature we may for instance represent a year's normal aging by 2 days in the oven. The hysteresis loop is the cure developed by a tension arm during constant stretching and contraction of the rubber. This measures the fatigue of the rubber from internal rearrangement (as evidenced by heat) and compares roughly to the action a roll must withstand in service.

A comparison of the new compounds with the best old line stock obtainable is shown in figures taken from several of these curves. The old line stock has a hardness of 50. Against this we show the new compound "Kraft" of the same hardness, and the new "High Speed News" testing 95. It is of course difficult to get an accurate relation between compounds of different hardness, but remembering that in each case the cure has been balanced to a hard rubber cure the results are of value, and have so proved in actual service. The efficiency of the first loop is of no value for our purpose as the internal arrangement to working conditions has not taken place. We have therefore taken results at the fifth loop or distortion of the rubber.

With results taken directly after curing, after a medium aging and after comparatively long aging we get these figures:

EFFICIENCY

Sock	No aging %	Medium aging %	Long aging %
H.S.N.	86.1	83.7	80.7
Kraft	82.7	68.6	42.4
Old compound	63.9	Broke down	Broke down

---

* Member T.A.P.P.I. B. F. Goodrich Rubber Company, Akron, O.

[1] All figures given on hardness, refer to penetration of a ⅛-in. ball point and 1 kg. weight on a Pusey & Jones plastometer.

McMahon Patent Friction Clutches

Our Style B patent friction clutch has been adopted as standard by many of the paper and pulp mills, and many of the mills have equipped their old machines with our clutches.

Specify McMahon "Style B" Friction Clutches

When ordering new machinery and provide against future clutch troubles, loss of production, and subsequent expensive changes. We guarantee our clutches to give satisfaction on calender and dryer drives of fast running machines and all other places.

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ACTUAL COMPARISONS OF SPECIAL NEW SOFT RUBBER ROLLS WITH FORMER ROLLS USED
Through Courtesy of Hammermill Paper Company, S. D. Warren Company, Michigan Paper Compan y, Fletcher Paper Company, and Others.

Machine widh, in.		94	110	100	128	100	132	111	150
Machine speed, f. p. m.		100-250	400	400	265	400	450*	390	800
Kind of paper		Book	Bond	M. G. Wrapping	Folio Tablet	Sulphite Bodd	Bond	Wrapping	News Print
Diameter roll, in.		18	20	20	20	20	20½	30¼	25¾
Thickness cover, in.		21/32	¾	1	¾	1	1	13/16	1½
Hardness of rubber ...	High Speeds News	92	95	96	95	93	94	96	100
	Former Cover	60	65	49	45	54	57	(Hard)	70
Dametrical crown	H.S.N.	0.036	0.040	0.040	0.035	0.043	0.048	0.040	0.080
	F.C.	0.030	....	0.033	0.025	0.025	0.040	0.024	0.065
Total pressure, lb.	H.S.N.	8,000	No Change	13,000	10,000	13,000	18,000	Less with H.S.N.	....
	F.C.	8,000		13,000	10,000	13,000	18,000		Same
Water removed, % ...	H.S.N.	As much or more with H.S.N.	Same	Same	Same	11.4	Same*	Approx. Same	....
	F.C.		....	....	....	11.-	....		0.75 Less with H.S.N.
Felts washed, hr.	H.S.N.	144	24	Same**	24	Same	Same**	36	96
	F.C.	72	12		12	....		24	30
Felts lasted, days	H.S.N.	Not determined	30	40	40	34	40	24	Satisafctory
	F.C.		24	26	24	28	30	18	10

---

* Speed with previous roll was 400 f.p.m. ** No attempt made to cut-down washing. These rolls have been in service for an average period of 4½ months.

The comparison with HSN must include the fact that being much softer it is distorted more in service, but the other two are on exactly the same basis and these figures leave no room to question the superiority of the new compounds.

This last chapter may have seemed so distinctly a treatment of rubber as to be irrelevant here. However, we have already shown that these newly developed soft rubber compounds as roll covers—

1. Do not corrugate quickly causing expense or production loss due to regrinding.
2. Remove the required amount of water.
3. Pave the way for taking out more water.
4. Cut down felt washing.
5. Increase felt life.
6. Decrease felt marking.
7. Allow the use of more open and tougher felts.
8. Make higher speeds and more continuous production possible.

In doing these things we believe they fairly earn at least this superficial explanation as to how they stand as a real advance in the chemistry of rubber brought to the service of the paper industry.

TELLS HOW SOME IMPORTED PAPER IS MIS-CLASSIFIED

Report of Import Investigations Tells In Detail How Fight Was Carried On in Last Few Months

INVESTIGATIONS of abuses of the customs laws, carried on by the American Paper and Pulp Association for many months past, warrant the following summary of conditions as seen by officers of the Association:

1. Abuses of the laws have resulted in the bringing into this country of paper in such a manner as to cause a serious disturbance of the domestic market in many grades of paper.

2. The effects have been rather due to the psychological reaction to the broadcasting of offers of small quantities of paper at absurdly low prices than to any actual large quantity imports of such paper.

3. Pernicious activity of the importers is rendered more serious by the engaging of specialists from the customs department to serve the importers as counsel.

(a) Legislation should be sought to prevent any government official's retainer by outside interests for practice before any government bureau in which he has been employed within a period of two years.

(b) The industry should use its efforts to secure for the customs division of the Treasury Department such salaries and additional assistance as may make it possible to keep in the government service these trained men of ability, and to give them sufficient assistance as they used to function most effectively.

Some of the Abuses Prevalent

4. Customs abuses involve the improper classification of foreign papers offered for import into this country, the dumping of foreign papers at less than the prices in the country of origin, and the criminal undervaluation of paper when it is brought into this country.

(a) Legislation is needed to make possible the collection of the proper duty upon paper which has been improperly classified, when it is found, after the fact of such importation, that the importers have successfully evaded the customs laws.

(b) Great difficulty is encountered under the provision that proof of injury must be presented by domestic manufacturers, before a ruling of dumping can be maintained. At present the customs authorities are forced to secure specific evidence of injury to individual manufacturers before a dumping ruling can be made; the successful sale of such "dumped" paper in competition with domestic manufacturers should be sufficient evidence of injury to American industry.

The details of the work done by the Association in its efforts to eliminate unfair competition from abroad would make an overlong report. It may be stated, however, that the investigations show that the importers are using the blanket provisions of the clauses providing duty-free entry of newsprint, and the clauses fixing duties on "printing" and wrapping papers as a cloak for constant efforts to get paper into the country improperly. In view of the widespread nature of these efforts, the customs service is to be complimented upon its vigilance in enforcing the collection of proper duties. The wonder is, not so much that much paper is coming in improperly, as that so many importations are caught and reclassified before they are offered in the domestic markets.

How Paper is Mis-classified

The chief abuses under the mis-classification headings are the efforts to bring in book paper as standard news, parchmentized paper (later marketed as parchment) as wrapping paper, typewriter paper as printing paper, and valuable special papers under the blanket clauses printing paper and wrapping paper.

The ending cases under the anti-dumping statute are chiefly on Canadian kraft, many shipments of which are now under investigation.

Under-valuation cases are handled directly by the customs authorities, through close contact with paper prices abroad.

The entire import situation involves highly complex problems, both of customs laws and customs, and of technical character of paper being brought into this country.

As a result of the activities of the American Paper and Pulp Association, many importers who had been devoting every effort toward tricking the government agents, are now more careful to enter their imports in conformity with the law.

It should be stated that many importers, men of high repute and honorable character have been careful to conduct their foreign business in accordance with the spirit and the letter of the law. Others, however, less scrupulous, are no better than the bootleggers of "Rum Row," devoting every effort to swindle the government by evasion of the law, to the detriment of honest business. It is against this unfair competition that American industry is justified in conducting a relentless warfare.

* * *

Mill in Louisiana

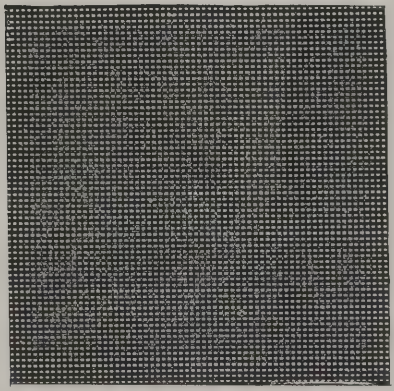
Plans are being made to establish at Bastrop, La., in the near future a large pulp and paper mill representing an investment of several million dollars. Citizens of Bastrop have secured an option on a site which they will tender the promoters of the mill, having already subscribed $30,000 toward the purchase. The Bastrop Pulp & Paper Co. is already operating a large mill here, having been attracted by the proximity of the forests from which pulpwood is obtained and also by the fact that natural gas can be used to operate the plant.

* * *

The Gatti Paper Stock Corporation, of which Joseph Gatti is president and which is one of the best known suppliers of papermaking material in the New York district, announces that it will move its offices on or about May 1 from 200 Fifth avenue to the Liggett Building, 41 East Forty-first street, New York, where Suite 805-806 will be occupied.

THOS. E. GLEESON, Inc.

WIRES



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Constitution and By-Laws of T. A. P. P. I.

Revised Articles of Organization of the Technical Association of the Pulp and Paper Industry, Adopted at the Ninth Annual Meeting in New York, April 8, 1924

Article I

NAME

This Association shall be called the Technical Association of the Pulp and Paper Industry.

Article II

OBJECTS

The objects of the Association shall be:

1. To further the application of the sciences in the pulp and paper industry.
2. To promote study, investigation and research of pulp and papermaking processes, their raw materials and products.
3. To promote education in the art and science of papermaking.
4. To provide means for the interchange of ideas among its members on scientific and technical matters pertaining to the industry.
5. To arrange for the collection of information relating to the industry and for the presentation, discussion and publication of papers and contributions submitted by its members.
6. To promote the professional, social and economic welfare of its members.

Article III

MEMBERSHIP

Membership of the Association shall consist of Members, Associate Members, Junior Members and Corporate Members.

1. Members only shall be entitled to vote and hold office except that Corporate Members shall have the privilege of designating one representative to vote in their name.

Associate Members and Junior Members are entitled to all the privileges of membership except voting and holding office.

2. A Member shall have a technical education or its equivalent and shall have been engaged in the manufacture of pulp or paper or in work of a technical character in industries or institutions related to the pulp and paper industry for at least ten years, which period may include the term of instruction in a technical school of recognized standing. He shall also have held a position of responsibility for at least three years. (Note: Related industries—manufacture of pulp, paper and power equipment, chemicals and general supplies for the pulp and paper industry; design and construction of pulp and paper mills; consulting chemists and engineers; pulp and paper mill cost accounting, plant management, forestry and vocational education. Related institutions—government bureaus and departments; technical schools; engineering, chemical and technical societies.)

3. An Associate Member shall have been actively engaged in the pulp and paper industry or in industries or institutions related thereto for at least five years, which period may include the term of instruction at a technical school of recognized standing. He shall also have held a responsible position for at least one year.

4. A Junior Member shall be under twenty-five years of age and shall have such technical education as will fit him for a subordinate position in the pulp and paper industry.

5. A Corporate Member shall be a firm or corporation actively engaged in the manufacture of pulp or paper, which endorses the policy and activities of the Association.

6. Applications: A candidate for admission to the Association shall make application on the form approved by the Executive Committee, upon which he shall give in detail a complete statement of his training and experience, with his agreement that if elected he will conform to the Articles of Organization of the Association. He shall give as references three members of the Association, to two of whom he is personally known. An application for transfer in grade shall be made in the same way as for admission to membership.

7. Admission or Transfer: All applications for membership and transfer in grade, with the reports of the references and the results of investigation, shall be presented to the Executive Committee which shall act thereon, assigning the applicant to the grade to which, in their judgment, his qualifications entitle him. Junior Members who have been in this class for five years, or shall have attained the age of 25 years and be otherwise qualified, shall be automatically transferred to Associate Membership.

8. Election: Six affirmative votes of the Executive Committee are necessary for election. Each person admitted to membership shall pay the initiation fee and dues for the grade to which he is assigned before his election is completed.

9. Initiation Fees and Dues: Initiation fees and annual dues for each grade shall be as follows:

Initiation Fee:

Members, Associate Members and Junior Members	$5.00
For Corporate Members there is no initiation fee.	

Annual Dues:

Corporate Members	$100.00
Members	15.00
Associate Members	15.00
Junior Members	5.00

10. Payment of Dues: Annual dues shall be payable in advance and shall become due on the first of January of each year at which time a bill therefor shall be mailed to each member, except that members elected after the thirtieth of June shall be liable for one-half of the annual dues for the year.

On the first of April members whose dues are three months in arrears shall be placed on the suspended list and carried as such until the first of July when, if still unpaid, they shall be dropped for non-payment of dues, due notice of the impending action having been given. During the period of suspension members shall receive no service but may resign in good standing by payment of one-half year's dues.

11. Reinstatement: Members dropped for non-payment of dues may be reinstated by vote of the Executive Committee on payment of the dues covering the year during which they were dropped.

Article IV

OFFICERS

The officers of the Association shall be a President, Vice President and Secretary-Treasurer, elected at the Annual Meeting for one year.

1. In event of the absence or inability of the President to serve, the Vice President, or in the absence of both, a president *pro tempore* shall preside at meetings of the Association.

2. The President shall be the representative of the Association on the Executive Council of the American Paper and Pulp Association.

3. The President shall present at each Annual Meeting an address discussing such subjects as may to him seem suitable to the occasion.

4. The Secretary-Treasurer shall receive an annual salary and in addition thereto the amount of his necessary expenses incident to the performance of his duties.

5. The Secretary-Treasurer shall keep fair and correct minutes of the proceedings of the general sessions and carefully preserve on file all reports, essays and papers of every description presented to the Association, and shall be charged with the necessary correspondence of the organization, and with editing, publishing and distributing of the reports and papers of the Association under the direction of the Executive Committee.

6. The Secretary-Treasurer shall notify the chairman of each standing and special committee of his appointment, giving him a list of his associates and stating the business upon which the committee is to act.

He shall notify the members two weeks in advance of the time and place of meetings.

7. The Secretary-Treasurer shall present an audited statement of the accounts at each Annual Meeting.

Article V

EXECUTIVE COMMITTEE

The President, Vice President and Secretary-Treasurer, *ex-officio*, with five members shall constitute the Executive Committee of the Association.

(The present (1915) Executive Committee shall serve for one year, at the end of which time five members shall be elected as follows: Two to serve for one year, two for two years and one for three years, and thereafter members of the Executive Committee shall be elected at the Annual Meeting for the full term of three years.)

1. Vacancies in any office shall be filled by the Executive Committee until the next annual meeting.

2. The Fall Meeting shall be held at on applications for membership as hereinbefore provided and shall have general charge of the affairs of the Association.

Article VI

MEETINGS

Two regular meetings shall be held during the year, the Annual and the Fall Meeting.

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Stereotype

190	W.	19x24
35	"	15x22

Repp Silver Tissue

161	reams	16 x24
74	"	19 x29
61	"	16 x22
4	"	15 x22
60	"	16 x28
66	"	17 x28
4	"	17 x27
56	"	17 x29
9	"	12½x17½
6	"	15 x27
4559	"	18 x29½

Colored

18	reams	Blue	15x20
8	"	"	20x30
13	"	"	17x27
129	"	"	20x30
16½	"	"	20x30
19	"	"	20x29
16	"	"	20x28
834	"	Yellow	20x30
16	quires	Brown	12x29

Manifold

2330	reams	8 x10½
837	"	8½ x11

Silver Tissue

11	reams	17 x27
142	"	12 x15

Laid Cigarette

10	reams	19x26
11	"	20x27
4	"	20x25
7	"	19x28
26	"	20x29
90	"	20x26

Colored Repp

12	reams	18x29½	Blue
101	"	18x29½	"
20	"	18x29½	"
82	"	18x29½	"
20	"	18x29½	"
69	"	16x22	Tan

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1. The Annual Meeting for the election of officers, presentation of reports and transaction of other business shall be held at the time and place of Annual Meeting of the American Paper and Pulp Association.

2. The Fall Meeting shall be held at such time and place and for such purposes as may be determined by the Executive Committee.

3. Special meetings may be called at the discretion of the Executive Committee.

4. Meetings shall be called in writing and every member shall receive due notice of the proposed program.

5. Thirty Members shall constitute a quorum for the transaction of business at all meetings.

Article VII

COMMITTEES

1. Unless otherwise ordered by a regular meeting, the President, with the advice of the Executive Committee shall appoint all standing committees. The President and the Secretary shall be *ex-officio* members of such committees.

2. Special committees may be provided for by regular or special meetings or by the Executive Committee as occasions warrant.

Article VIII

DISCIPLINE

Any member may be expelled or any officer removed for improper conduct but no person shall be expelled or removed from office except by a two-thirds vote of all the Members present at the meeting at which the matter is considered and after he shall have been given an opportunity to be heard in his own defense.

Article IX

HONORABLE MENTION

To mark the technical development of pulp and paper manufacturing the Executive Committee may, by unanimous vote, award Honorable Mention to those whose achievements have definitely contributed to the progress of the industry.

1. The awards shall not exceed two for each year.

2. Announcement of awards shall be made at the Annual Meeting with a statement of the contributions made by the recipients and their relation to the progress of the industry.

3. Honorable Mention need not be confined to the membership of the Association.

Article X

SECTIONS

To carry out more effectively the aims of the Association, Sections may be established wherever there are enough members to form an adequate local organization.

1. The formation of such Sections may be authorized by the Executive Committee upon the written petition of five or more members. A Section shall be known as the...(name of place)...Section of the Technical Association of the Pulp and Paper Industry.

2. The officers of each Section shall consist of a chairman and a secretary and such others as may be necessary.

3. Any Section may, subject to the approval of the Executive Committee, adopt for its own government such by-laws as it may find expedient, including the qualifications for associate members of the Section, provided that no part thereof shall conflict with the Articles of Organization of the Association.

4. No money from the general funds of the Association shall be appropriated or used for the expenses of a Section.

5. The Executive Committee shall have the right at any time to rescind the authorization of any Section and to terminate its existence.

Article XI

AMENDMENTS

These Articles of Organization may be amended by the vote of two-thirds of the Members present at any regular or special meeting provided that such proposed amendment shall have been offered at the last preceding regular meeting and approved by a majority of the Members in attendance at such meeting and provided further that at least two weeks prior to the meeting at which the amendment is adopted written notice of the action of the previous meeting shall have been given to every Member of the organization.

Comparison of Tensile Testers

By COLEMAN J. COSTELLO*

AN attempt has been made to compare the relative values of several commercial machines in common use for determining the tensile strength of paper. Because of the great variety of such machines, it was thought advisable to limit the number of those considered to four which would be representative of the many types on the market. Two of these machines are of the inclinable balance type, operated on the deadweight principle, and best suited to test strips of paper approximately 4 inches long, and 1 inch wide or 15 millimeters wide. A third machine was hand-propelled, and tested inch-wide strips of paper 4 inches long. This machine registered the breaking strain on a gage. The fourth machine was best suited to test strips of paper approximately 2 inches long and 15 millimeters wide. This machine is operated by a hand-lever which is connected with a set of springs and the strips are placed in a horizontal position.

Twelve lots of paper were selected for testing, these being representative of a wide range of types. The average of 10 tests was taken to determine the tensile strength of each sample and duplicate tests were made in each case. The specimens were tested in both directions of the sheet, more than 1900 tests in all being made. The strips for testing were all cut to the size best adapted to each particular machine, as given above.

Considering the amount of variation between individual tests made on the sample, two of the machines gave results superior to those obtained with the other two. All four machines gave good results as regards comparison of averages obtained for duplicate tests on the same machine. That is, as regards duplicate determinations made on the same machine, very close check results may be obtained. When the average results obtained by the different machines are compared, however, there is quite a wide variation. This is due, no doubt, not only to difference in size of the paper strips tested and the rate of application of the load. Apparently tensile testers of different types cannot be used for strictly comparative results and therefore, in reporting results of tensile tests, the kind of machine used should be specified.

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* Junior member T.A.P.P.I. Laboratory assistant, Paper Section, Bureau of Standards.

Report of the Soda Pulp Committee

By G. K. SPENCE

Chairman

DURING the past year the Soda Pulp Committee has devoted considerable time and study to a number of important problems relating to the industry.

The problems referred to are:

1. "Late developments in washing brown stock with continuous filters," which also includes the study of brown stock washing with centrifuges or in any other way.
2. "Evaporation of Spent Liquor."
3. "Deterioration of Color of Soda Pulp on Ageing."
4. "Reduction of Bleach Cost by Chemical Control."
5. "Chemistry of the Alkaline Wood Process."
6. "Various methods of reclaiming Lime from causticizing process in soda and sulphate pulp mills.

These are all important problems in the manufacture of soda and sulphate pulp. At our sectional meeting Wednesday afternoon, all of these subjects will be discussed and if time will permit, other questions will be taken up; such as disposal of black ash, continuous causticizing, destructive distillation of spent liquor and extraction of pine chips before cooking.

Owing to the inability to secure a chairman for the Sulphate Committee the sectional meeting, as in the past two years, will be a joint meeting to discuss soda and sulphate pulp problems, and all subjects taken up will be common to both processes.

Due to the discussions and work of the Soda Pulp Committee during the past few years, a number of mills have made material improvement in their operating conditions, especially in the process of causticizing, cooking, washing and bleaching. During the next year your committee will have collected and studied enough data to give definite recommendations regarding washing brown stock, and methods for disposal of lime sludge from soda and sulphate pulp mills.

Future work as planned will also cover disposal of black ash and improved methods of cooking and bleaching, as well as developments in destructive distillation of spent liquor.

Paper Testing Committee Report

By F. A. CURTIS
Chairman

I. Program

A DEFINITE plan or program of work was arranged at the beginning of the year and the members of the committee asked to take part as follows:

1. *Microscopic Analysis H. N. Lee*
Continue work of previous year and attempt to finish the corporative investigation and propose methods for adoption.

2. *Greaseproof Papers—H. A. Smith*
Develop suitable methods of testing greaseproof paper.

3. *Papers used in the electrical industry—A. L. Allen and A. T. Randall*
Develop special tests for various insulating and cable wrapping purposes.

4. *Coarse Boards—A. R. Harvey and M. C. Walsh*
Develop tests that are suitable for the various types of coarse boards, with especial reference to box board.

II. Microscopic Analysis

The report of H. N. Lee appeared in the *Paper Trade Journal* under date of November 22, 1923, under the title of "Microscopical Analysis of Paper by Eighteen Investigators using Different Methods." As a result of this investigation, two methods are proposed to the Association for their consideration.

On the publication of the report by H. N. Lee, a mathematical study was made of the results by E. A. Bergholtz of the American Telephone & Telegraph Company and his paper is preprinted under the title "Comparison of the Various Methods Used in Determining the Fibre Content of Paper."

A method for differentiating between soda and sulphate pulp in paper has been developed by E. Parke Cameron of the Forest Products Laboratory of Canada and has been tested by several laboratories. Reports of his method are very favorable. The method is presented in preprinted form.

III. Grease Proof Paper

The report of H. A. Smith is presented in preprinted form under the title of "The Turpentine Penetration Test for Grease Proof Paper." Considerable work has been involved in the development of this test and the co-operating laboratories are to be congratulated on the results of their efforts. It is believed that this proposed method will be of considerable value to the industry.

IV. Papers Used in the Electrical Industry

Reports have been prepared by A. T. Randall and A. L. Allen, working independently, of qualities that are necessary for paper used in this industry and this work is to be continued and tests developed to determine these special qualities.

Contract has been maintained with H. H. Brown, a member of a sub-committee on Unimpregnated Paper of Committee D-9 on Insulating Materials of the American Society for Testing Materials. The physical and chemical tests proposed by this sub-committee seem somewhat more rigid than necessary for ordinary mill laboratory work. They include the usual tests with the addition of the following: Porosity, Apparent density, Acidity and Heat endurance.

The tests desired on insulating paper are as follows:

Moisture, thickness, tensile strength, tearing strength, bursting strength, folding, porosity, absorption, water rise, apparent density, fiber analysis, Metallic particles, heat endurance, acidity, ash, flexibility, dielectric strength and size.

Fish Paper

Of course, different insulating paper to be used for different applications should have different qualities. However, no one paper would have to be tested for all of the above named qualities.

For example, thickness, tearing strength, dielectric strength, and flexibility, also porosity are required on thin fish paper. Fish paper is a cotton paper treated with either zinc chloride or sulphuric acid.

Condenser Paper

On a condenser tissue our tests would be confined to fibre, thickness, and porosity.

Rope Paper

On rope paper we would usually test for metallic particles, tearing strength porosity, absorption and thickness.

The Sub Committee on paper, of Committee D-9 of the A. S. T. M. has been working on a specification for tests of paper and has just about completed their tentative specification. At present they are trying out four methods including the Technical Association of the Pulp and Paper Industry for adopacidity. They claim that their preliminary data revealed the inadequacy of the Technical Association of the Pulp and Paper Industry method of determining acidity of insulating papers. They say that the three re-

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maining methods will be revised for further work on four samples to be tested by nine laboratories. They are collecting data on three machines for testing tensile strength with the view of describing a method that will permit the use of both machines. They are also collecting data on two instruments for the testing of porosity or air permeability, to ascertain the uniformity of results obtained with these two instruments. They are considering the two methods for fiber analysis now up to the Technical Association of the Pulp and Paper Indusary for adoption, of course, that the Technical Association of the Pulp and Paper Industry for adopmethods.

Practically all of the members of the A. S. T. M. Committee are users of electrical insulating paper and not manufacturers. I would think it very desirable for the manufacturers to seriously consider all of these tests named above and which will also be named in the A. S. T. M. specification.

V. Coarse Boards

Although a detailed report of this part of the program is not available, it is planned to continue the project. There are few, if any, really satisfactory tests for coarse boards. Although a large portion of this product used does not require any special tests, the very great tonnage and the large percentage of total paper made warrants an investigation as to test methods. A report is expected in the near future from A. R. Harvey and M. C. Walsh.

Through the courtesy of B. W. Scribner, a number of abstracts of reports from the Paper Section of the Bureau of Standards have been made available for this meeting as follows:

1. The Detection of Animal Size in Surface Sized Papers by F. T. Carson.
2. Effect of the Weight of the Gauge Needle of the Mullen Paper Tester upon the Bursting Strength Test by C. J. Costello.
3. An Analysis of the Strength of Paper by F. T. Carson.
4. Comparison of Tensile Tester by Coleman J. Costello.
5. A Measure of the Color Characteristics of White Paper by R. E. Lofton.

VI. Conclusion

Continued application to the development of paper testing methods is very desirable. It is hoped that the members of the Association will continue to lend their support to this work.

Heat, Light and Power Committee

DURING the year the committee has not been called upon to do any intensive investigation. Considerable information has been sent out to some of the members on specific problems such as illumination and power requirements. The committee undertook to prepare for the Annual Meeting a report on Power Losses but its investigations have not advanced sufficiently to report at this time.

Another subject of interest was the use of accumulators, and steam turbines for paper and pulp mills and this subject is under discussion by the committee now and no doubt something will be offered at the fall meeting.

The third subject is a moisture meter for automatically registering and indicating the amount of water in the sheet as it passes over the machine. We hope to have something to report along this line at the next meeting as the trial installation is now being put in.

The committee will undoubtedly confine its efforts for the coming twelve months to the study of the following subjects: Use of steam accumulators, heat losses, power losses, moisture meter.

In addition to the foregoing if any member has any suggestions to offer, the committee would welcome them.

Alexander's Stain

By E. PARKE CAMERON*

DIFFERENTIATION between Sulphite and Soda Wood Pulps. The stain consists of three solutions:—

I. 0.2 g. Congo red
   300 cc. Distilled water
II. 100 g. Calcium nitrate
   50 cc. Distilled water
III. Herzberg's chlor zinc iodide stain made up as follows:—
   (A) 20 g. Zinc chloride
      10 cc. Water
   (B) 2.1 g. Potassium iodide
      0.1 g. Iodide
      5 cc. Water

Add (B) to (A) and prepare in usual way.

Manipulation:—

The sample to be tested is first stained with 2 drops of the Congo red solution for 1 minute after which the excess dye is carefully blotted off and the sample allowed to dry.

The dry stained sample is then immersed in 3 drops of the Calcium Nitrate solution and then allowed to remain for one minute. At the end of this time one drop of the Herzberg stain is added, the whole quickly and thoroughly mixed and the cover glass placed on.

The slide may be examined immediately but there seems to be a slightly stronger tone to the colors if it is let stand for three or four minutes before examination. The sulphite should be an evenly stained *pink* and the soda a *deep blue*. The vessels in a hardwood soda pulp are the hardest portion to stain properly, and if these give a good color closely resembling that of the soda fiber the stain is working very well.

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* Pulp and Paper Section Forest Products Laboratory of Canada, Montreal, P. Q.

PULP AND PAPER IN LATVIA

New Nation Carved Out of Russia is Developing Increased Export Trade With Other Countries

LATVIA, one of the new nations of Northeastern Europe, of which Riga is the capital and Dorpat the University city, has a compact pulp and paper industry. Eighteen mills are listed in the 1923 edition of the Paper Makers' Directory of All Nations. Some of the more important plants are as follows:

Baltic Cellulose Works, Ltd., Schlock near Riga, manufacturers of sulphite and kraft pulp to the extent of 140 tons, and of poster, parchment and wrapping papers 350 tons weekly, with five machines in operation.

Baltic Paper and Pasteboard Mills, Ltd., Riga. Brown packings and printings.

Bruns & Co., Ed., Riga. Mill at Stintsee. Writings; 2 machines making 100 tons weekly.

Heflinger & Co., A., Riga. Sulphite pulp.

Knopp, G., Riga. Various papers and woodpulp. One machine and two vats making fifty tons of paper and fifty tons of board weekly.

Litener Paper Mill Company, Ltd., via Vex-Gulbene and Riga.

Semenows Paper Mills, Rappin, Werro. Blottings, wrapping, album and photographic paper. Two machines making 100 tons a week.

According to the *Scandinavian Weekly* the Latvian paper industry is developing particularly favorably, and, in addition to satisfying home consumption, exports to other countries are on the increase, recent exports having included Great Britain, Australia, the United States of America and other countries. The necessary raw materials, such as wood, woodpulp, rags, etc., are all obtainable locally, and the industry derives a great advantage from the suitability of the local water, which in most instances is used in its natural state.

Pulpwood Shipments Less

Shipments of pulpwood from the north wood and from Canada which the Northern Paper Mills, of Green Bay, have been receiving regularly since last fall, are beginning to diminish as the logging season comes to a close. The Northern's requirements are about 35,000 cords of pulp wood every year and approximately 70 per cent of this arrives during a 90 day period which usually begins about Jan. 1.

Small shippers of pulpwood, farmers and settlers who manage to cut a carload or two a year, often ship to the mills during the summer so there are occasional shipments straggling in all through the year. A comparatively small amount of pulpwood is obtained from Washington Island, off Door County in the Lake Michigan, but this is brought to the Northern by water.

From Appleton come reports that the receipts of pulpwood continue with no letup and expectations are shipments will be heavy for two or three more weeks. The receipts of wood for February and March at Appleton surpassed previous records, a large part of the Appleton business being with the Interlake Pulp and Paper Company, whose yards are stocked up as they have not been for some time.

A Big Job Ahead

Summary of a Talk Before the Woodlands Section of Paper and Pulp Association

By SAMUEL T. DANA

THE Northeastern Forest Experiment Station is a very young organization with a very big job. It was established during the summer of 1923, with headquarters at Amherst, Mass., for the purpose of doing in forestry the same sort of thing that the agricultural experiment stations have been doing in agriculture. Its main task is, therefore, nothing less than to determine the fundamental facts and principles on which sound forest practice must be based. Studies having to do with protection of the forests from fire, insects, and disease, with methods of cutting, with planting and nursery practice, with the measurement of existing stands, and the prediction of future yields, and with other phases of forest management, all come within its scope. Problems in wood utilization are, however, not included, and will continue to be handled by the Forest Products Laboratory at Madison, Wisconsin.

The field covered by the Forest Experiment Station includes the six New England states and New York, a region with a wide variety of forest types and with a total forest area of approximately forty million acres. With an annual budget of less than $25,000 it is clear that it is a physical impossibility for the station to undertake more than a very few of the large number of forest problems of urgent importance in the region. In selecting these, an effort is being made to concentrate attention on projects of outstanding importance on which comparatively little or no work has previously been done by other agencies.

Much of the station's work will necessarily have to do with problems in which the pulp and paper industry is vitally interested. This is true both because of the important place occupied by the industry and because of the fact that the bulk of the investigative work so far done in the region has been with white pine rather than with spruce and other pulpwood trees. More than half of the pulp mills of the country are located within the region covered by the Experiment Station. Yet, within this region the forest resources on which the mills are dependent for their supply of raw material are deteriorating steadily both in quantity and quality. One of the tasks of the Experiment Station is to determine the facts which will make it possible to reverse this situation and to increase forest production. It is a task in which the industry is necessarily interested, since its very existence is dependent on an adequate supply of raw material. More effective wood utilization will help, but increased production is equally essential to furnish the wood to be conserved.

The first study undertaken by the experiment station was that of the growth and yield of spruce and balsam fir. Dependable figures are now wholly lacking as to yields to be expected from these species at different ages and under different conditions. Yet, no company is in a position to make intelligent plans for the future unless it knows what growth is taking place on its holdings and what future yields may be expected at any given period after different methods of cutting. Only with the help of definite figures on these points can it answer such questions as to whether or not it is overcutting its lands, what acreage it must have to meet its needs, and when and at what cost merchantable material can be secured from plantations.

Closely allied with this investigation are studies of volume tables for pulpwood species and of the kind and amount of reproduction that may be expected as a result of different methods of cutting under the widely varying conditions of stand, soil, topography, and other factors found in the spruce forests of the northeast. Since volume tables are the basis for all estimates both of present stands and future growth, it is essential that they be as dependable

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as possible. A new method for the preparation of volume tables is being developed which it is hoped will go far toward putting forest measurements on a thoroughly sound and reliable basis. Intensive studies of the results of various methods of cutting are equally essential to give the timberland owner the facts needed as a basis for adopting the methods that will give him the kind of natural reproduction both as to species and amounts that he desires.

Aside from specific studies, an important result of the establishment of the Northeastern Forest Experiment Station has been the organization of a Forest Research Council. This is a body composed of seventeen men appointed by the Secretary of Agriculture who are already engaged in or interested in the results of forest research. Its functions is to act in an advisory capacity not only to the Experiment Station but also to other forest research agencies. The Council will not itself conduct any research, but will aim rather to encourage and guide research on the part of others without in any way attempting to interfere with their complete freedom of action. While its recommendations will not be mandatory, they will undoubtedly command respect, and should be effective in securing the adoption of a more comprehensive and better coordinated program of forest research than now exists. It should also be influential in calling attention to the results of investigations and in getting these results put into actual practice.

The station looks forward to conducting a considerable part of its work in the closest possible coordination with the pulp and paper industry. Representatives of the industry are included in the Council, one of the members of which is Chairman of the Sub-Committee for the Northeastern Station appointed by the Advisory Committee of the pulp and paper industry to the Department of Agriculture. Sub-stations will also in all probability be located in parts of the region in which the industry is particularly interested. Suggestions as to desirable sites for sub-stations as well as to problems in need of investigation and as to any other activities of the station will be gladly received.

Conditions in the Paper Industry

President Stokes Says 1923 Set a New Standard and that Present Conditions Are Governed by It

FOR a long time to come, in the opinion of many men conversant with conditions in the paper industry and with general business conditions, the calendar year of 1923 will be regarded as a basic year, with which to compare conditions in the years to come.

The establishment of a new basis for comparison may have been responsible for some of the disconcerting conditions that have been experienced during the past year, but instead of discontent with the state of business, the paper industry should look forward with optimism based on the fact that at least the business of the nation and of this industry in particular has reached a stable basis.

Prices Might be Better

It must be recognized that while prices have not been as satisfactory as the mills may have hoped, the production for 1923 was only a few thousand tons under the previous high production record of the industry. As has been said before in these columns, no business can be considered unprosperous in a year when its production totals have been practically of record-breaking volume.

Years of big profits and heavy demand may be pleasant to contemplate, but any such over-prosperity must be followed by the swing of the pendulum of business to a period of depression, and the period of normal activity is that in which, and in which only, the business man can dispassionately study his business status.

Conditions in 1914 Must be Forgotten

It is true that there are some uncertain elements existing at this time. First, the economists say the nation is facing a period of slowly decreasing prices, and this has had the reaction in the paper industry of a large volume of short-order business, and not a volume of large orders and heavy stocking of warehouses. This tendency has persisted in the face of increasing prices for raw materials for the finer papers, and an unchanged labor situation. It is questioned by many experts whether the view of the economists applies truly to the paper industry with its slowly but surely diminishing reserve of raw materials. Colonel Greeley, chief of the United States Forest Service, in a recent magazine article, prophesies the day when paper consumption will be diminished with the higher cost of raw material, due in turn to the diminishing acreage of usable forest. The great fallacy today is to consider present prices in comparison with those that obtained in 1914, as if that were a basic year. Prices and the conditions under which they existed in 1914 are past and gone. The new basic year for prices and the present conditions, which govern prices and which will long continue is 1923. Our gold reserve, European conditions; labor supply, our industrial expansion and domestic consumption all make 1923 a normal year for price comparison for some time to come and make any comparison with 1914 as unsound as it is dangerously misleading. Business must forget 1914 and think in terms of 1923.

Business Injuriously Affected by Politics

The second cause of uncertainty is the political situation, not so much the fact that this is a presidential year, but the playing at politics at Washington on tax and other matters affecting business, and the tendency of the legislature to sacrifice business and prosperity to partisan advantage.

The third difficulty is the importation of foreign papers, not in sufficient volume to disturb the market, but under such condition of unfair competition as psychologically to upset the market in which relatively small importations are pyramided by brokers into apparently large shipments.

High Production in 1923

In the face of such factors, it is truly remarkable that January and February paper production held up to the high record figures of a year ago, and estimates of car requirements for the first six months of the year by the big paper companies, made to the railroads, falling off from the previous high record of the first half of 1923. It is to be noted that in 1923, the first six months of business was above that for any similar period in the history of the industry. Only an unexpected change in conditions in the latter half of the year prevented 1923 from being a year of record breaking production in all grades.

Outlook for 1924 is Encouraging

January production as reported to the American Paper and Pulp Association was 17 percent in excess of December, and February, following such a high production month, only fell off 3 percent from January. All grades, even those showing the smallest degree of prosperity, are reporting high productions.

It is proper to record also that while the average was 3 percent less than in January, newsprint with its great vol-

PRESIDENT STOKES
Reelected Head of American Paper and Pulp Association

ume of production, showed a falling off of 9 percent, indicating that other grades had an actual increase in February over January to compensate for this falling off.

In general, therefore, it can be stated that the paper industry, can properly assume an attitude of confidence that present conditions, if there is any material change, will only change for the better with the steady increase of the nation's consumption of paper.

* * *

Interest in Convention

A great deal of interest is shown in the annual convention of the Pulp and Paper Makers Association which will be held in May in Middletown, Ohio. Practically all the superintendents from the Michigan Division plan to be present. Emil Yonke, of the Standard Paper Co. plans on driving through. Jacob Parent, secretary of the Michigan Division, drives first to Middletown for the convention, then goes to the Mammoth Cave, Kentucky. Jake plans on being away for three weeks.

* * *

Takes New Position

Charles Keelan, formerly superintendent of the Superior Division of the Bryant Paper Co., has accepted the position as superintendent of the LaSalle Paper Company's new plant at South Bend. This is still in process of erection. This mill has one Fourdrinier, and a high grade kraft is to be manufactured here.

* * *

Wheeler Takes New Position

James Wheeler, of the Sales Department of the Allied Paper Mills has accepted a position with the Western Paper Makers Chemical Co. leaving Kalamazoo and going to their Milwaukee office. Robert Van Peenan, of the Monarch Division of the Allied goes over to the sales department, taking Mr. Wheeler's place. George Weston, a recent graduate of the University of Michigan, goes to the Monarch Division.

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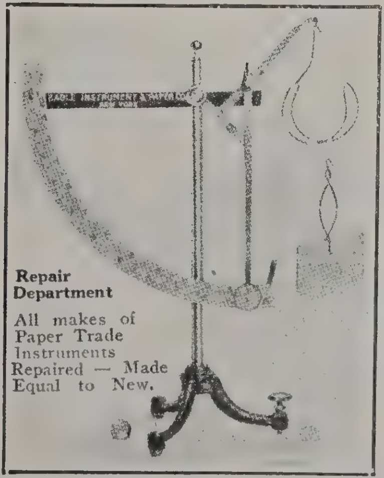

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Drying and Conditioning Gummed Paper

By J. O. ROSS*

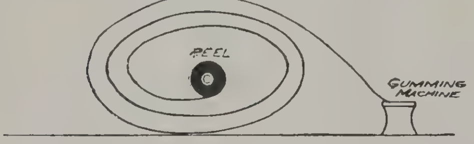
Chairman

DISCUSSING the proper kind of gummed paper drier is very much like discussing the proper type of house that a man should build.

Nearly every gummed paper manufacturer has his own ideas as to how the drier should be built and even has his own ideas as to the results that should be accomplished. There is probably no branch of the paper industry where there has been so little standardization as in the drying. Usually each man believes that his own particular drier is the best, although we encountered two cases where each man thought that the other man's system was better than his own. We suggested that they swap driers and find out the flaws in the other system at first-hand. I fully expect that many gummed paper men are going to disagree with many things in this paper. I feel that no one is in a position to say just what system should be used and can only present some of the different types and some of their advantages and disadvantages and depend on a discussion among the various interested parties to establish some sort of common ground.

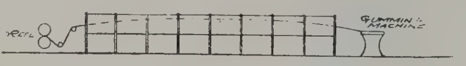
Two Classes of Gummed Paper Driers

In general gummed paper driers are of two different classes. First the driers which hold the paper under tension, and second those which dry the paper without tension. Perhaps the best known type of the first class is the so-called "Crowell Drier." This consists of a machine which takes the paper through the gumming machine and carries it over a spiral finally winding up in the center of the spiral somewhat as shown on the sketch. The entire Crowell machine is enclosed and the paper is dried by hot air directed on the surface of the sheet. The enclosure prevents the heat escaping into the work room and keeps it in contact with the sheet. There are many adaptations of the Crowell machine. In some cases the paper is carried over a large drum instead of a scroll. This drum may be enclosed, with steam admitted in the interior operating very much like a paper machine drier and the heat is transmitted through the paper to dry the gum on the surface. This is improved by blowing a blast of hot air on the gummed surface so that all the heat for evaporating the moisture does not have to go through the sheet. This works fairly well if speeds are maintained constant, if the gumming mixture is always the same, if there are no stops and if the paper must not dry too much. However, it is a good deal like passing a wet surface through a flame. It it passes through through rapidly enough no injury results due to the cooling effect by the evaporation of the moisture. If the material is stopped, however, and becomes dry it immediately burns up. In general this cylinder method has not been very satisfactory..



CROWELL DRYER
TENSION DRYER

A better scheme is to use a skeleton wheel or slatted drum, carry the paper around the circumferences of it and blow hot air on the outside of the gummed surface. Hot air is also often introduced inside the wheel so as to raise the temperature of the paper which assists the drying. In some cases two drums are used, the paper passing first over one then an idler roll and finally over the second drum in such a way that the gummed surface is outside.



TENSION DRYER
STRAIGHT TYPE WALDRON DRYER

Another system of drying where the paper is carried under tension is to carry it through flat after leaving the gumming machine being carried either on a belt or on rollers. In this case there is usually a combination of heating methods. Hot air is blown in at one end of the enclosed drier and taken out at the other and in addition to this steam coils are placed above the gummed surface so that the radiated heat and also the radiant heat helps to dry the gum.

The machines so far described operate with the paper under tension, that is they hold the sheet and in that way prevent undue curling of the paper, which is one of the very serious difficulties in drying gummed paper. Gummed paper will curl on the edges to an extent never encountered in coated paper or wall paper. If a sheet of paper is gummed and laid on a flat table, in an ordinary atmosphere it will often curl so much as to form a tube. This tendency has led to installing drum driers or roller driers crowned in the middle so that the paper passes through the drier in an arched form which has a tendency to stop the edges curling. Other means have been tried of wetting the underside of the sheet on the edges so that the edge of the paper is wet not only where the gum is applied but on the underside so that the shrinkage of the two sides is more nearly the same, eliminating part of the curling. The great trouble with all means of carrying the paper under tension is the very short time allowed for drying.

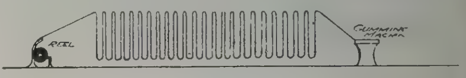
The Factors of Time and Heat

To dry a piece of gummed paper, two elements enter. The first is the time allowed for drying, and the second is the amount of heat or drying air that must be supplied. It will be very evident that the shorter the time allowed for drying, the greater the temperature and the more air that must be used. This brings in a complication. If a sheet of gummed paper is put through too high a temperature it has an injurious effect on the gum after it has reached a certain stage in the drying process very much like a sheet of coated paper, which can be subjected to a considerable degree of heat when the paper is wet. This is done in the case of double coaters by using a very high temperautre on the floater. No injurious effect is caused due to the cooling effect produced by evaporation. When the paper has been more than half dried, this high temperature is decidedly objectionable owing to the danger of overdrying. It is impossible to design or regulate a high temperature drier that will dry paper very rapidly until it reaches the proper percentage of moisture and which will stop at that desired point.

All paper contains a fixed percentage of moisture which is dependent entirely on the condition of the atmosphere surrounding the paper. If the paper is exposed to a low temperature and high humidity it will continue to contain a high percentage of moisture and will contain that regardless of how long it is exposed to this atmosphere. It the atmosphere is raised in temperature or decreased in humidity the paper will immediately dry out until it again reaches a balance, dependent entirely on the temperature and humidity of the surrounding air. It will then stay at that point until the atmosphere is again changed to a higher temperature and lower moisture content in which case it will immediately dry out the paper again still further.

The Ideal Drying System

It will therefore be evident that the ideal drying system as far as quality is concerned would be to surround the paper with an atmosphere which would be exactly correct in temperature and humidity to produce paper containing the proper percentage of moisture. A temperature of 70 deg. F. and about 60 per cent humidity, which is usual in an ordinary office or warehouse, will produce paper with about 6 per cent moisture content. Therefore if this paper could be dried during the manufacture with a temperature of 70 deg. F. and 60 per cent it would gradually give up moisture until it reached 6 per cent and would never go below that point regardless of how long it remained in the drier.



FESTOON DRYER
NO TENSION

The flaw in this kind of system would be that the paper would dry very slowly. When the paper reached 10 per cent moisture content it would become very slow drying and by the time it reached 7 per cent it would be so slow that it would probably take as long to drop from 7 to 6 per cent as it did to drop from 40 to per cent. Therefore it is not practical to install a drying system of that kind. With a high temperature drier, however, which is necessary if paper is to be dried fast, it means that if the paper is allowed to remain in that atmosphere it will be practically bone dry. The more time that is given to the drying, the less risk there is of overdrying the sheet so that the time element, as it is called, has a very important bearing on the quality of the sheet.

All tension machines have this inherent defect. If gummed paper is being run through at a speed of 100 ft. per minute and carried over a steam drum 30 ft. in diameter, which would be out of the question, it woul still have only 1 minute for drying. That is the reason that the Crowell drier uses the spiral. It operates about the same as if using a large number of cylinders but instead of mounting them one after the other they mount them one inside the other so as to save space.

The drier which carries the paper through flat either on rollers or belts also has the same trouble. If we are to allow 1 minute for drying and wanted to run 100 ft. per minute, it would mean a drier 100 ft. long. Experiments have been made and some driers have been built to carry the paper back and forth several times so as to cut down the total length.

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* Member T.A.P.P.I. Pres. J. O. Ross Eng. Corp., New York City.

Ohio Notes

PROMINENT "Paper" men in Cleveland have returned from the Paper Convention, held in New York—all claiming that the Convention was the "very best ever." Mr. White of the Union Paper Company reports that the displays were elaborate as well as instructing,—The results of the business meeting which was held April 10, indicated that the committees which rendered their annual reports concerning four groups of the Paper Industry had studied the situation well. A recent addition to the three former groups is "Paper Board Manufacturers." The Board manufacturers are working in collaboration with the American Paper and Pulp Association.

* * *

Cleveland is proud of their "Paper Association". This is an organization comprised of representatives of all the leading paper jobbers and dealers of the city, who meet once each week to discuss the paper situation in the city, and to compromise on various prices —this to eliminate "Cutthroat" price reductions. The group meets in the offices of the firms represented. Mr. Grossman of the firm Merchants Paper Co. was the founder of the organization—our hats off to him!

* * *

Many people feared that the recent flood in the vicinity of Dayton would cause damage to the many mills around that territory, but their fears were unfounded—all the mills, with the exception of one in Miamisburg which suffered a small loss, escaped damage.

* * *

The Continental Paper Bag Corporation is featuring grocers' bags, wrapping, toilet and tissue paper this week. The display at the Paper Convention in New York was a decided success.

* * *

Manufacturers to Back Paper Simplification

Members of the American Paper and Pulp Association, by unanimous action, have voted to back "to the limit" and to make "effective in the shortest possible time" the simplification of paper to eight basic sizes and weights recommended by the Committee on Simplification of Paper Sizes, it was announced today by William A. Durgin, chief of the Division of Simplified Practice, Department of Commerce. Mr. Durgin has been attending the convention of the Association in the interests of a simplification movement which has been under way since 1921, when it was first undertaken at the Bureau of Standards. Approximately 30 leaders in the industry were represented.

The National Advertisers Association reported at the meeting that within two weeks 189 of 280 members circularized in regard to the support of the basic paper sizes had pledged their aid, and that 250 would do so. More than 35 per cent of the 300 members of the National Publishers Association, it was announced, had pledged their support to the program. Representatives of paper machinery manufacturers declared that that branch of the paper industry was in accord with any movement which would lessen the variety of paper machinery; while the National Paper Trade Association sent a report that it not only approved the basic sizes, but indorsed the present movement.

Prediction was made that the National Purchasing Agents Association which had indorsed the tentative plans at its last convention would follow the others at its forthcoming meeting in May.

In a short time more than 150 of the 600 members of the National Association of Employing Lithographers have adopted the basic sizes and the Association as a whole is behind the movement, it was reported.

* * *

Would Welcome Mill

Albany, Linn County, Oregon, was recently told that it had one of the best locations in the state of Oregon for the erection of a large paper mill plant. The town would welcome such an industry.

* * *

Start Manufacturing Soon

Fred H. Fuller, superintendent, states that the manufacture of paper will begin about July 1 in the large new plant of the Columbia River Paper Mills which is located at Vancouver, Washington. The installation of the big paper machine at the plant is progressing in a satisfactory manner. The manager of the sulphite plant, John W. Van Alstyne, is supervising the lining of the digesters with fire brick from Pennsylvania.

* * *

Sparks Started Fire

Sparks from the sawdust incinerator of the Columbia River Paper Mills sawmill at Vancouver, Wash., were alleged to have been the cause of a recent fire which gutted the Columbia Bridge Hotel. The building was an old frame structure and the loss including the furniture is placed at approximately $3000.

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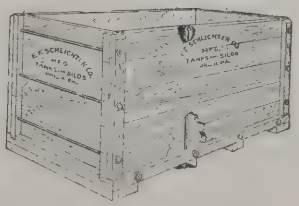

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Causticizing Plant of Penobscot Chemical Fibre Company

By W. D. MOUNT*

BEFORE describing the new causticizing plant at the mill of the Penobscot Chemical Fibre Company, Great Works, Maine, I think it necessary that brief mention be made of one basic factor underlying any continuous process of causticizing, and on which success must be predicted; namely, thorough agitation and boiling.

It has been my experience during a period of twenty-five years' active connection with the manufacturing and technical end of the alkali industry, and from what I have seen of operations in many plants, that with scarcely an exception the weakest link in the batch process is defective agitation and insufficient boiling. Mechanical agitation by means of equipment more or less standardized and common to the great majority of batch operations can lay no claim to 100 percent efficiency—if by efficiency it is understood that we mean the thorough mixing and agitation of the contents of tanks varying in size from 10 to 13 or more feet in diameter, and as many in depth.

Advantage of Continuous Process

A mere enumeration of the advantages of a continuous process such as that installed at Great Works clearly indicate by inference the disadvantages of the batch process displaced. These advantages are as follows:

1. The general advantages characteristic of a continuous method of carrying on any chemical process as compared to an intermittent or batch method of conducting the same process.
2. The continuous process, including a complete lime recovery plant, requires less than two-thirds the floor space required by a batch system of causticization of equal capacity but without lime recovery.
3. A marked reduction in the amount of piping and fittings needed and the entire elimination of the familiar battery of causticizing and settling tanks.
4. A reduction of alkali loss in causticizing to a uniform level of less than one-half of one percent.
5. A reduction in steam consumed to approximately 25 percent of that normally required by the batch system; if exhaust steam at 10 pounds pressure is available, the use of live steam can be completely eliminated.
6. All apparatus and piping in sight and easily accessible.
7. Decreased cost of repairs and maintenance
8. Uniform and positive chemical control of the process which tends to eliminate the factor of the personal equation which so often leads to inefficient operation.
9. A better place for the operatives to work, and a department which can easily be kept in a neat and orderly condition.

It must be distinctly understood that the claims which are made for continuous causticizing have not been based upon any one of these features alone. The advantages which I have mentioned are characteristic of the process as a whole and it has been demonstrated that they cannot be obtained in any other way than through the complete adoption of the continuous system. In other words, it would be impossible to change the batch system either in whole or in part and obtain the results which can be obtained with the continuous system.

Process One of Simplicity

The process is simplicity itself. There is no complicated apparatus or equipment to get out of order. Its maintenance does not add to the burdens of the superintendent nor does its operation require the attention of a corps of skilled chemists. Two men of average intelligence on each shift can handle the entire causticizing plant; if a lime recovery unit is connected with the causticizing operation, three men can look after both.

The special apparatus and equipment required for the process includes the causticizer, decanter, rotary filters, lime slaker, and certain auxiliary equipment such as vacuum pumps, lime and liquor pumps, etc. The causticizer, which is a tower formed of specially constructed rings, is supplied continuously with calcium hydrate and sodium carbonate in the proper proportions by means of pumps. A steady discharge of a mixture of caustic liquor and lime sludge is pumped from the bottom of the causticizer to the decanter whence the clear sodium hydrate flows from the top and the thickened sludge is drawn from the bottom. The operation of both causticizer and decanter is continuous yet the hydrate drawn from the decanter is clear. The sludge is pumped continuously to the filter where it is washed, and discarded, or reburned and reused for causticizing.

The following description of the Penobscot plant was prepared by my brother, J. E. Mount, who supervised the work of installation and the commencement of operations.

This plant was installed to replace a worn out batch system of causticizing, and at the same time effect various economies in operation which could not be obtained with the old system.

The apparatus consists of one causticizing tower, 6 x 34 feet, one decanter with a capacity of 40,041 gallons, two slaking pots for milk of lime, four continuous discharge rotary vacuum filters, 6 x 3 feet, and two duplex exhausters, together with such auxiliary apparatus as lime and liquor pumps, traps, etc.

The capacity required was to be sufficient to supply caustic liquor for a plant making 100 tons of soda pulp daily. The total floor space occupied by the plant as completed is 3750 sq. ft., or about one-fourth the space required by a plant of the same capacity making caustic by the old method. The saving in piping is fully as much as that in floor space.

Tandem-run Filters

The filters are so connected that two are run in tandem, the cake from the first being repulped with water and run over the second. This gives two separate filter units of such capacity that only one unit need be run at a time, the other being held in reserve. At present the cake from the secondary filter is discarded and washed away, but it can be easily used in a recovery plant should one be installed later.

In the operation of the plant, the lime to be used is first slaked in two slaking tanks. The milk of lime should contain from 150 to 200 g.p.l. CaO. When slaked in hot water it averages about 170 deg. fahr. in temperature. The liquor is pumped from the leach cells to two receiving tanks, and is pumped from each of these alternately and continuously to the causticizing tower. When the liquor, from one tank is being pumped to the causticizer the other is being filled from the leach cells. The average temperature of this liquor to the causticizer runs about 135 deg. fahr. From experience we have found that the strength at which the liquor should be held is about 40 dg. Twd., or 230 g.p.l. Na_2CO_3. This liquor is tested regularly and is held at as nearly a constant strength as practicable. The liquor is pumped into the top of the causticizing tower from whence it flows down around a series of mushrooms to the bottom.

Causticizing takes place in the lower third of the tower; the milk of lime is pumped into the third compartment from the bottom at which point it meets the descending carbonate liquor.

Steam and a small amount of air are admitted at the bottom of the tower and rise through the various sections agitating thoroughly the lime and liquor solutions. Before the steam reaches the top, it is completely condensed.

Pumping to the Decanter

The mixtures of caustic liquor and lime sludge is pumped from the bottom of the tower to the decanter, where the sludge settles to the bottom and the clear caustic liquor rises to the top and flows off over a launder to the digester measuring tanks.

We had no means of measuring the amount of steam used by the causticizer, but as all that was admitted to it was through a 2-inch valve one and a quarter turns open at a boiler pressure of 80 lbs., it was comparatively a small amount. I might mention here that the causticizer is completely lagged with magnesia blocks which in turn are covered with a steel jacket.

From Decanter to Primary Filter

The settled lime sludge is taken from the bottom of the decanter at an average temperature of 150 deg. fahr., and a consistency of 24.6 percent solids, and pumped to the primary filter. After passing over this and the secondary filter, the average percent of Na_2CO_3 in the cake for the first one and one-half months of operation was 0.95 percent. During the last month, we brought this average down to 0.72 percent Na_2CO_3, but as we had more or less trouble in getting a steady supply of wash water for the filters during the most of the time, no trouble should be experienced in holding the alkali content in the cake below 0.5 percent Na_2CO_3 when operating conditions become more settled.

The filtrate is pumped from the filters to the decanter where it mixes with the liquor from the causticizer. The average free CaO in the discarded cake from the filters was 3.66 percent. The average moisture content of the cake was 38.8 percent. The average vacuum carried was about 18 inches mercury. The moisture content can be decreased by raising the vacuum and by providing a better supply of hot water. The average thickness of the cake from the filter was about *one inch*.

We endeavored to carry the strength of the liquor from the decanter slightly above that required by the digesters, 8.0 percent NaOH by weight, so that a small amount of doctoring with water could be allowed for each digester cook. The average amount of liquor decanted when running at full capacity, i. e., present capacity of plant, was about 103,056 gallons per diem. This liquor was clear and free from lime and carbon specks. The capacity can easily be doubled should need arise.

Considering the fact that the plant has been running only about two months, that a set of green operators had to be broken in, that necessary adjustments to machinery had to be made, and that operation has been more or less intermittent, the results accomplished approximate those sought for to a marked degree.

What Plant Has Demonstrated

The plant has clearly demonstrated the following benefits:

(1) It has brought about a much better place in which to work, with less piping and fewer pumps to look after.

(2) It will show marked economy in steam consumption which will be reflected in the coal pile.

(3) It has shown a large saving in alkali.

(4) The lime loss is no greater than before.

(5) The causticity is better.

(6) The liquor to the digesters is clearer and better settled.

(7) The lime is delivered from the filters in a form where recovery can be had.

(8) There is a saving in power and in maintenance.

Memb. T.A.P.P.I. Consulting Engineer, Lynchburg, Va.

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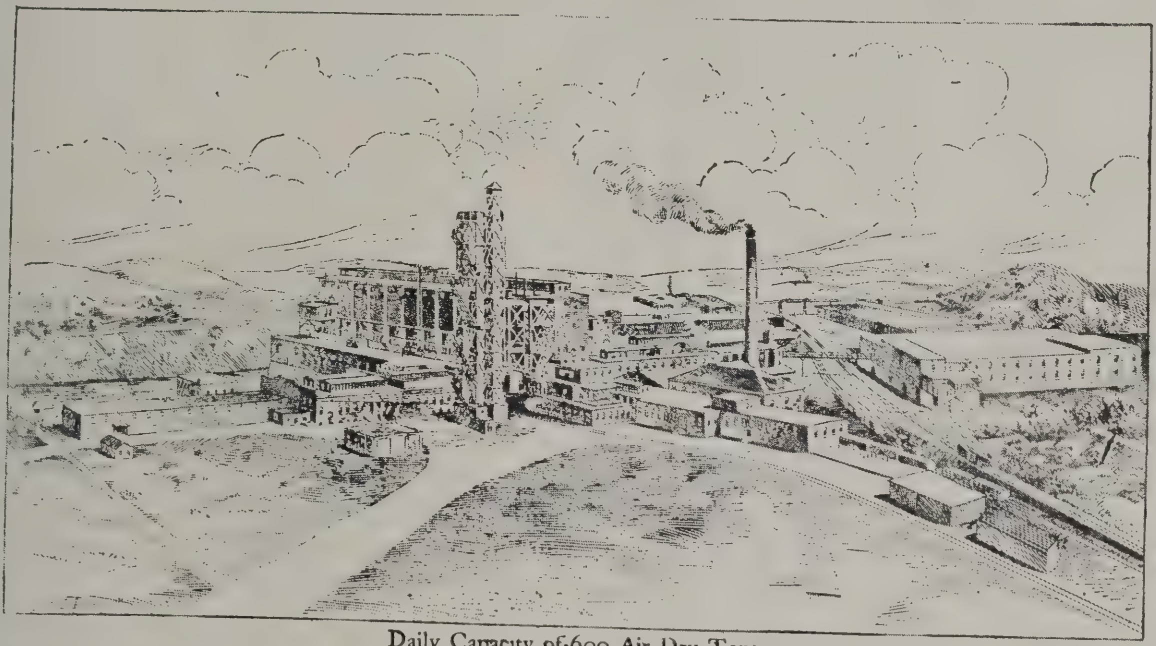

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Short Center Belt Drive

Important Points in the Design of the Lenix Drive—Operation of the Floating Idler—Essentials for Successful Working of Beater Drives

By VIGO SAHMEL, F. L. Smidth & Co., New York

THE short center belt drive and the theories upon which it is based do not now require an elaborate defense. The reason for this is that it has already stood the test of time and the test of results.

I have in mind the record of a short center belt drive in New York City installed June, 1908, and which is still in successful operation after sixteen years of service. Furthermore, a number of drives on the Pacific Coast installed by the writer in 1912. Quite recently, the manager of the plant in which these drives are installed informed me that they have been in operation twenty-four hours a day, eleven months of the year, since 1912 and that most of the original belts are still in service. All of these short center belt drives are equipped with automatic belt wrapping, floating idlers. When I use the word "idler" it is at the risk of confusing the reader, as many of the text books on Mechanical Engineering do not distinguish between the properly designed belt wrapping, floating idler and what are ordinarily termed "swinging idlers" placed at random against the tight or loose side of the belt, tension idlers, binder pulleys, jockey pulleys as they are called in England, not to mention belt tighteners. The last mentioned name is particularly confusing, inasmuch as the words, "belt tightener," are often used to describe belt screw clamps used to tighten belts in the field in making a joint or making a belt endless.

For this reason, manufacturers of properly designed floating idlers have found it expedient to protect their designs by trade names.

Without going too deeply into the scientific reasons for the various advantages of the short center drive, it may not be out of place to recall the following fundamental formula for belt drives found in all textbooks of mechanical engineering:

In this formula, the value are as follow:

T_1=tension in the pulling side of the belt drive.
T_2=tension in the slack side of the belt drive.
e=2.72 and is the base of the system of natural logarithms.
f =co-efficient of friction between the belt and the pulley surfaces.
a=the smallest angle of arc of contact between the belt and the two pulleys in question the angle expressed in radians.

This formula does not take into account the centrifugal force acting on the belt but is stated to show here that inasmuch as "e" is a constant, the only way of increasing the useful working tension of the belt (T_1) and making the tension in the slack side of the belt as small as possible is by increasing "f" and "a".

It is possible to increase "f" by the application of various dressings to the belt and facings to the pulleys. But experience has shown the practice of using sticky belt dressings as detrimental to the life of the belt. To add any sticky belt dressing also causes dust to accumulate and form lumps and cakes on the belt and pulleys. This remark does not of course apply to beef tallow or neatsfoot oil, which may be termed belt lubricants.

As to facing pulleys with cork, wood, canvas or paper, the co-efficient of friction between the belt and pulleys faced with these materials is somewhat higher than that between the belt and cast-iron, and for this reason this scheme is often resorted to.

To make "a" as great as possible is the aim of the short center belt drive. The belt-wrapping, floating idler is used to maintain as large an arc of contact on the smaller of the two pulleys as possible and by making the pulley centers short also to increase the arc of contact with the larger of the two pulleys. It goes to show that the ordinarily unused part of the pulleys is just as useful for transmitting power as the part ordinarily used.

Of the many advantages of the short center drive, I might mention the following four:

1. Saving in floor space.
2. Accurately pre-determined and automatic control of tension in slack side of belt, causing elimination of slip and excessive bearing pressures, maintaining a permanent high efficiency of about 98%.
3. Freedom in location of shafts and their rotation.
4. High ratio of transmission.

The great saving in floor space now permits the use of belt drives in plants where floor space is at a premium.

Of other advantages which are not as obvious I might mention the full and automatic control of the belt tension. With open belt drives this is difficult to determine and as a rule is left to the judgment of the operator. On small drives the tension may be felt by hand but this becomes rather uncertain on larger drives and for this reason, particularly in plants where the atmospheric and temperature changes are great, the belt is likely to be either too tight or too loose. In the first instance, the high tension is detrimental to the life of the belt and bearings. In the second instance, it means excessive slip.

In the correctly designed floating idler, these factors are carefully calculated for the average load, for the peak load and of course the sizes of pulleys and belt speed in question. Furthermore there enter into the calculations certain allowances which to a great extent are determined from experience, taking into account the stiffness of the belt when new and when well broken in. For this reason, you will find as a "hall mark" of the correctly designed idler adjustable counterweights. The counterweights are so proportioned as to overcome the initial stiffness of the new belt and as it limbers up, the action of the counterweights is decreased. In this way, the drive may be operated with the least tension in the slack side of the belt, limiting the belt slippage to the natural creep inherent in all elastic drives.

Another important point in the design is the perfect dynamic balance of the idler pulley, static balance having proved insufficient. A certain amount of lateral stiffness is also essential in the design so as to offer the necessary resistance to the sidewise movement of the rapidly-moving belt.

It is rather interesting to observe how the floating idler is entirely automatic in its action and does the right thing at the right moment. Whenever the load increases the pulling strand of the belt stretches, the increase in the belt length is immediately taken up by the wrapping action of the floating idler, if correctly located (and this is an important point) and added to the working arc of contact between the belt and the pulley, so as to give the maximum arc when the power is at a maximum and due to the contraction of the belt when the power decreases, returning to the light load or idle position of the drive. On certain drives where the load fluctuations are rapid

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* Presented at T.A.P.P.I. meeting at Paper Show, April 10, 1924.

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to the contraction of the belt when the power decreases, returning to the light load or idle position of the drive. On certain drives where the load fluctuations are rapid and violent, it is sometimes necessary to equip the floating idlers with oil dash pots.

It is well known that elasticity is essential for the success of beater drives and that belt drives possess an elasticity not found in the unelastic metallic mediums of power transmission.

The high starting torque of beaters requires oversized motors which are ordinarily operated at fractional load with poor efficiency and power factor. To overcome this, beaters are often installed in pairs and driven by double-headed motors of a size only slightly above the combined load of the two beaters.

One difficulty with the ordinary open belt drive with the double headed motor is the fact that two belts purchased under the same specifications, will not stretch to the same degree. This uneven stretch of the belts cannot be taken up by the shifting of the motor without producing unequal tension in the two belts.

This condition does not exist when the short center drive is used. The uneven stretch of the belts is taken up by the idler and used to increase the arc of contact on the motor pulley. The idler compensates for adjustment of movement of the beater shaft whether this is done by regulation or caused by impurities in the stock treated.

A steadily increasing number of paper mills are using the short center drive in connection with either individual or double headed motor drives.

While the horizontal beater drive is and always has been the most commonly used, there is also a growing demand for a vertical drive that would remove a good part of the belting and lineshafting from the beater floor. The vertical drive reduces to a minimum the danger of contamination of the stock.

The first installation in connection with vertical beater drives was made in September, 1916, at a New England paper mill producing a high grade of bond paper stock. In this installation three beaters are driven from one 150 H.P. motor direct connected to a lineshaft. The owner's doubts as to the success of this arrangement were dispelled when the drives were started.

The floating idler is used as a starting and stopping device. With a few turns of a hoisting winch mounted on the beater floor, any one of the beaters may be placed in or out of operation. Because of the great arc of contact established by the idler, the belt will move instantly and the necessary and desired slippage, equivalent to that of a friction clutch, is distributed over a large portion of the belt. Experience has proved that this method of starting is in no way detrimental to the life of the belts, according to a statement by the chief engineer of this plant.

I wish to quote a part of his letter, dated June 15, 1921, wherein he describes the working of these vertical drices. In quoting however I have substituted the words "floating idler" for the trade name under which these floating idlers were sold to his company.

"Our procedure in starting varies according to the condition in which the beaters are in, whether they are freshly furnished, well broken in, or empty. In starting with the beaters furnished and the floating idler raised, the motor is brought up to speed and floating idlers lowered until the belt picks up the load. We have found that this is in no way detrimental to the life of belts as our motors are comparatively low speed and the belts immediately turned to a new position during the slipping moments while the roll is getting in motion. We have run these floating idlers three and one-half years and do not know of a single instance when we suffered from a burned belt due to the starting operation. If a roll gets blocked and the engineer is not immediately aware of the fact it is pretty certain that a bad place will be made in the belt, but this feature is true on any kind of a belt drive whether equipped with floating idlers or otherwise. Our shutdowns Sunday mornings oftentimes come when a beater will be left empty in which case we find it unnecessary to raise the other two floating idlers inasmuch as the motor is able to start the other two beaters with the rolls well up. In a quick shutdown which we rarely have it is customary to raise the floating idlers and clear the rolls one at a time."

* * *

IS THE INDUSTRY STILL IN THE "CLAW PERIOD"

Arthur C. Hastings Is Not Sure and Tells Why Associations Are Necessary

Puzzle: Find the Third Lobster

Arthur C. Hastings, a former president of the American Paper and Pulp Association, was asked by PAPER *to contribute an article for the Convention Number of* PAPER *dealing with his reminiscences. In reply Mr. Hastings has sent a Kodak snapshot taken in* 1905. *The picture is reproduced herewith. It shows Mr. Hastings holding a pair of lobsters with big claws dangling. Mr. Hastings writes:*

A FRIEND of mine sent me the enclosed snapshot taken in 1905, and I have been wondering whether the papermaking fraternity, of which the subject was one, had changed very much in twenty years. While the picture shows two lobsters certainly, the question is whether there were not three there all the time, and whether times have changed much.

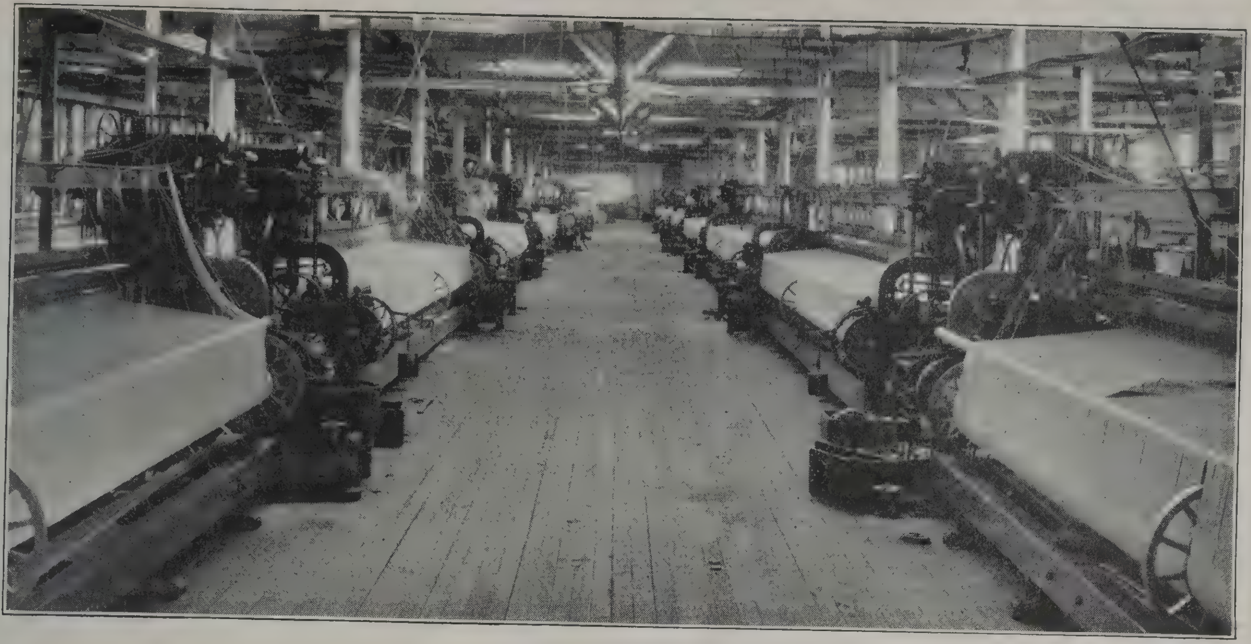
"I have always thought that there was only one salvation for any manufacturing industry, and that was to live up to the old law that has never been changed, known as the law of supply and demand.

"All efforts of associations in every line of business have been with a view to furnishing information tthat would enable manufacturers to conduct their business so that there would be no great fluctuations and resultant cutting of prices below cost.

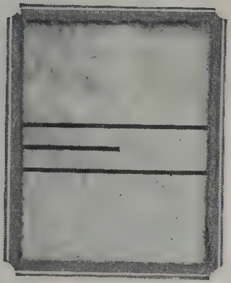
"Unfortunately, the selfishness of human nature leads some to believe they can take advantage of conditions and run their plants to capacity while their competitor holds the bag. Eventually, however, I believe they suffer. Therefore I say that the picture perhaps shows that we have not really risen above the claw period.

"Sincerely yours,

"ARTHUR C. HASTINGS."



Main aisle in one of the weave rooms



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Paper Trade Men War on Imports

Work to Devise Ways and Means of Meeting Problems to Come Up During the Coming Year

STRIVING to combat the iniquitous import problem, working to keep down selling and distribution costs and incidentally giving much good advice to the paper manufacturers themselves, the twenty-first annual meeting of the National Paper Trade Association of the United States was held at the Waldorf-Astoria on April 8. There were a wealth of spirited discussions and every person attending gained many new ideas of value.

The meeting was called to order by James A. Carpenter, Vice-President and Chairman.

Statistician Leslie M. Pape in his report said, "I would like to give a few statistics which have a bearing on the present situation in wrapping and tissue papers.

Following a decline in orders in November and December, 1923, there was a large increase in orders in January, 1923. This buying held up through February and March and then fell off rapidly, reaching its low about July. Buying continued at about the July rate until January and February, 1924, when again there was a substantial increase, and orders exceeded production for the first time since March, 1923. Shipments by merchants fell off about May or June of 1923, but showed a seasonal recovery in the fall. Stock in the hands of manufacturers were considerably higher at the end of 1923 than at the end of 1922 and a little higher in the case of the merchants.

Production of wrapping and bag paper and of tissue paper was estimated by the American Paper & Pulp Association at 1,003,000 and 182,000 tons respectively, representing a slight decrease from 1922 and an increase of about 15 per cent over 1919, a year which compares favorably for general business activity. It is felt, however, that the estimate for 1923 for wrapping and bag paper was too low and my own estimate is that production was at least equal to the 1922 production of 1,048,000 tons.

No change is contemplated in the statistical plan now in effect. It is believed to be wholly satisfactory and it will be our aim to put it across in the best way possible.

Assistant Secretary C. K. Higgins, in his report said:

This year we have done more business in the Collection Department and I am, I think justifiably, proud of our record. I might say that in every case, except in the New England Association, we have shown a marked increase.

One topic was running under weight. We have a number of instances reported to us of tissue that was marked 10 pounds, which was actually 9 pounds. That is a difference of 10 per cent under weight and we feel that no mill could do that accidentally. That is too large a percentage under weight, and we felt that if paper was run that way, it was probably not accidentally; and we realize that perhaps some of the merchants are equally to blame with the manufacturer, but we are trying very hard to correct it and do away with this practice.

The next thing we talked about was misnaming of Kraft tissue. We refer to sample which were part sulphate and part sulphite called Kraft tissue, but clearly it was not Kraft tissue.

The next topic discussed was napkins. Size varying from 12 by 12 to 18 by 18, inclusive, original size being 14 by 14. We included in the standard size the sizes 13½ by 13½.

We also strongly recommended that each bundle be stencilled at the mill showing exactly what was in it, and the same be stencilled on any carton, where they are used.

Also in the committee we discussed the subject of over-production in tissues. It doesn't take very much discussion when there is such an evident over-production; we simply have to admit it.

Another thing that was recommended was that we go back to the practice, which has evidently been abandoned of using the Tissue Association labels, which guarantees the count.

We took in the Executive Committee the ways in which the National Association has assisted in preventing certain changes in freight rates in connection with crepe napkins and towels. This is another phase of the situation which we would like to give some publicity to.

This is a very definite, tangible thing which we have accomplished. We assisted in preventing a change in rates which would have increased the cost to the consumer.

Opinion was expressed that when you sell paper you should not neglect to sell the service that goes with it; that the service the paper will render should be emphasized and that instead of having order takers you should have real salesmen, salesmen who instil in the minds of the buyers the service that the paper will do, and the reasons why that buyer should buy that particular sheet from that particular house.

N. A. Schoenbucker in his report said: Nothing has given me greater encouragement and gratification since I have been engaged in this Association work than the developments which have occurred in the Wrapping Paper Division during the past year. I do not infer that this feeling arises from personal accomplishment. What I mean is that:

First: It has been a pleasure to witness the constructive changes which have been affected by individual merchants as a result greater detailed study of their businesses arising from Association educational work, and

Second: It has been an even greater pleasure and really interesting to see how many Wrapping Paper Merchants have gone about the job of self improvement in net profit regardless of competitive conditions.

The behavior of the market in the calendar year of 1923 spoiled what would otherwise have been a very satisfactory year for some from the standpoint of net profit. Many did, however, show satisfactory net profits, all things considered, despite the unfavorable reaction of the market.

This again brings home the fact that a break in the market of ten per cent wipes out from three to five months of net profits on warehouse business. While merchandising margins are steadily approaching somewhere near the ideal, on warehouse sales, for the "average" merchant, such margins are by no means adequate to withstand even a slight shock from market losses.

Department stores universally follow the custom of adding into the regular mark-ups a percentage based upon past experience to cover sales, mark-downs, close-outs, etc. There is no reason why Wrapping Paper Merchants should not provide a similar reserve for market losses in their individual mark-ups. This could be done by adding a given percentage of the mill invoice cost along with freight and difference in discount, and then starting the mark-up from the total of these.

From a merchandising margin and also from a market standpoint, it would seem as if the first six months of 1924, namely the period we are now in, should be an excellent barometer for every Wrapping Paper Merchant to gauge the effectiveness of his management and policies.

In the wrapping paper field it may be interesting to note that the tonnage of orders placed for the week ending March 31st was about 30 per cent more than for the week ending March 14th and is higher than the average rate of consumption for the cycle of business running from March, 1922, to July, 1923. The volume of business in 1923 increased about 10 per cent to 12 per cent over 1922 and orders for the last week of March were in excess of that figure. And it seems to me that such an increase in March is rather unusual, unless there be a demand, particularly since we have all thought that buying was usually withheld until after the annual convention here. Apparently this has had no effect this year. Of course, the amount of orders placed in any one week has little to do with the year's business except as an indication of the immediate surface conditions, but there are some very important factors which should be considered when deciding what the business is going to be in the future. I think one of the most important features is that labor is well employed and at good wages and that the farmer is in a whole lot better situation than he would have the general public believe and the fact that both the wage earners and farmers are buying is evidenced by the fact that the carloading of all commodities for the first three months of this year are far in excess of the same period for any other year, not excepting 1920.

Perhaps the second thing to be considered is this much talked of overproduction which in my opinion is very much over-stated. It seems to be an easy matter to talk of six or eight new machines with a production of fifty to sixty tons each coming into the market every year, but I find that most of these do not materialize. You take the statistics of the industry over a period of time and will find that the productive capacity is made to pretty well fit the demand. The limitation of the mills to store stock, if for no other reason, will control this matter of overproduction. Analyze the stock on hand in the mills today, deducting from these the amount necessary to have on hand, of orders in course of manufacture, partially assembled cars, and so forth, and you have about three weeks' supply for the country. Suppose there was only three weeks' supply of some other commodities you may think of in the hands of the manufacturers and there would be a great commotion, but such a situation in the wrapping paper industry disturbs no one.

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Coupled with the matter of production is that of importations. This to me seems to be most serious and the most disturbing factor we have. Comparitively only a small quantity is brought in, I think it runs about 4,500 tons per month, but the prices at which it is sold help to fix the price on the entire domestic production of 75,000 tons per month, particularly in a period of liquidation or slow buying. It seems ridiculous that so small a quantity should have an effect, but it does, and in the long run it hurts the merchant just as much as it does the manufacturer.

With the variety of good papers made in this country there is no necessity to buy wrapping papers abroad and particularly from mills which are practically, if not already, bankrupt, and which are dumping product in this market without regard as to the cost. Paper bootleggers have made a business of getting in misbranded shipments but with the help we hope to get from government officials we may be able to stop some of this smuggling and improve the situation. Merchants can help in this situation by showing their loyalty to American institutions. Our neighbor to the north occasionally reminds her subjects of the slogan, "Canada for the Canadians," and I think it is about time we wake up to the idea of "United States for U. S., us."

I believe we have before us at least three months of good business, mills operating at actual productive capacity and shipping all they make and probably materially reducing such stocks as they may have at the mill.

Closer co-operation between mills and merchants will help this situation greatly. Our interests are identical, and the sooner we can come to realize it the better for all concerned. In the past, weak-kneed mill representatives, cold-blooded purchasers among the merchants, and Old Dame Unconfirmed Rumor have cost both merchants and manufacturers immense sums of money. These have done more to strangle good potential markets and reduce inventory values than any other factors. This condition I believe is improving and I hope that by co-operation we may bring about a desirable situation for all of us.

I believe that 1924 business will exceed 1923 and that that at the end of the year we may look back on it as one of the most satisfactory in the wrapping paper business.

The Fine Paper Division met April 9th.

Fritz Lindenmeyr, Vice-President in charge of Fine Paper Division, was unable to preside. He has been seriously ill.

The secretary's report said: As we see it, the Fine Paper merchant generally is dissatisfied with his lot. His dissatisfaction is primarily caused by the fact that in 1923 he distributed a tonnage of paper nearly equal to the record year, 1920, but at a net profit which was entirely inadequate based on the column of business transacted. He realizes that price competition, which on some lines was never keener than during the past year, is largely responsible for the failure to realize adequate net profit; that this unsatisfactory price condition was due to over production and that with the large increase in productive capacity little improvement can be expected until demand catches up, which in all probability, will not be for some years to come.

A considerable number feel it is possible to reduce expense and thereby obtain the desired relief, while others believe expense is incapable of sufficient reduction to meet the need, and increased mark-up is the only solution.

The paper merchant is spending large sums to promote and increase the sale of the papers he distributes and any increased sale he may obtain over and above the normal increase in the consumpton of paper is at the expense of his competitor. What we are wondering is whether if a considerable portion of these individual expenditures were pooled, they could not be used to better advanage for the industry as a whole. For example, if the buyer of printing could be educated to place his orders for quantities which would take full packages, the cost of breaking original packages would be reduced to a minimum and a real saving affected. Or, again, if the printer could be fully informed of the cost to the merchant of "returned goods" we cannot but believe he would be far more careful in his ordering with a resultant decrease in this growing evil. Again, is it not possible that this pool could be used to grow a printing order where none grew before and thereby increase the consumption of paper and without in any way encroaching upon the function of the printer? There are undoubtedly possibilities in collective advertising which are well worth serious consideration by the Association and by its members.

Statistician Leslie M. Payne reported: Production of Fine and Book paper was estimated by the American Paper & Pulp Association at 364,500 and 1,078,800 tons respectively. The 1923 production of Fne Paper represented an increase of one per cent over 1922 and six per cent over 1919, a year which compares favorably with 1923 for general business activity Book paper production shows a larger increase, as might be expected, being ten per cent over 1922 and 18 per cent over 1919.

It is estimated that production of all grades of paper in 1923 was equal to 76 per cent of the machine capacity for that year. This compares with 86 per cent in 1920 and 62 per cent in 1921. In the four years 1920 to 1924 machine capacity increased 29 per cent, whereas production increased 16 per cent. In Fine Paper, capacity increased 11 per cent against an increase in production of six per cent. Book paper machine capacity increased 34 per cent against an increased production of 18 per cent.

The Executive Committee were in session all of the afternoon of Monday, and they recommended the passage of the following resolution, which duly went through:

"Resolved, that the Vice-President appoint a committee of five to consider ways and means of promoting direct by mail advertising, which committee shall report at the next meeting."

The comittee also reported that it passed a resolution interpreting Section 9, subdivision B, of the Book Paper Trade Customs, which reads as follows:

"Paper shall be close to the weight ordered, subject to a variation in the nominal weight not exceeding five percent above or below the ordered weights, and eight per cent when below 45 pounds or above 100 pounds basic weight. Paper within this range shall constitue a good delivery.

"The interpretation of the Committee is that under this Section paper is presumed to be uniform in weight that it did not permit of as wide a variation as ten or sixteen per cent between material portions of the shipment."

This section has caused a number of misunderstandings in deliveries of Book Paper where portions of the delivery were above the normal weight and within the range of five per cent, and portions of it were below the normal weight, and still within the five per cent; and it is the belief of your Executive Committee that that custom was not passed and adopted and agreed to with any idea of permitting a delivery of that sort. It was simply to take care of manufacturing difficulties and that paper was presumed to be of uniform weight, that is, paper in one delivery.

It seems to me, from a careful study of the detailed statistics of the habits of the buyers of printing paper, that the cost of distribution in the paper business as we are doing it today has not reached its peak yet. As an example, is direct by mail advertising a good thing, and should some people use it and others not? I don't think there is a man in this room that would say that everybody shouldn't use direct by mail advertising or advertising of some sort, who has some service or some commodity to sell.

While sufficient facts are not available to prove the following statements as to degree they will be recognized to be generally true in principle, namely—

1. In 1910, a very large part of the value of stocks carried by a great many merchants were on consignment. Today the practice of consigning merchandise is uncommon in the trade with few exceptions.

2. In 1910, the turnover of merchants' stocks was more frequent than now because of the wide custom and practicability of selling job lots and because generally fewer items of merchandise were carried.

3. As late as 1910, printers stocked paper to a considerable degree. This made the selling of job lots practicable in those days. Now printers' paper stocks throughout the country show an average of less than two per cent of the total value of printers' sales. Practicaly no stocking of papers prevails among printers today. This change in the buying habits of printers between 1910 and the present time has been accompanied by a heavy increase in orders placed with paper merchants for quantities less than case lots, and less than ream lots, and also a great increase in orders involving fractions of a package along with full packages.

4. In 1920 the orders and tonnage distributed of the better grades of flat papers showed a much higher ratio to total orders and tonnage than prevails at present.

5. The two preceding factors jointly have driven the average sales value per order down to a much lower relative amount than that which prevailed in 1910.

The Present Situation

In view of the above, it hardly seems necessary to go to further ends in order to show why most paper merchants failed to earn legal interest on capital in a reasonably normal year such as 1922.

Adequate, sound remedies must be found to correct present condition. They will not just happen; they must be found. Let us review what has happened, before, during and after the war so as to crystalize impressions into a definite understanding of the effects of change in the underlying operating conditions of paper merchants.

1. Prior to the war:

(A) Large quantities of consigned stocks gave merchants an opportunity to do a large volume of business on a smaller capital, thereby increasing capital turnover, and reducing inventory losses.

(B) Turnover of merchandise owned was greater because of fewer items, unlimited territory and ability to sell job lots in large quantities out of stock.

(C) Ratio of fixed capital invested in delivery equipment, office equipment, etc., was far less than at present on total tonnage because a given tonnage was distributed with fewer deliveries, less bookkeeping, etc.

(D) There was no income tax to pay, or rather federal taxes were inconsequental

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A product 99½% in purity.

An enormous reserve under ground and stocks on the surface containing many hundreds of thousands of tons.

A mine located upon the Santa Fe System, and through its connections reaching all points, North East, South and West—and Galveston, Texas, one of the biggest ports on the Gulf of Mexico, as an ocean shipping point.

TEXAS GULF SULPHUR COMPANY
(Incorporated)

GENERAL OFFICES
41 East 42nd St., New York City

SULPHUR DEPOSIT & PLANT
Gulf, Matagorda County, Texas

Because of the above conditions, 2½ per cent net profit on sales was equal in those days to about 5 per cent net profit on sales today, in so far as returns on invested capital of many merchants are concerned.

2. During the war:

(A) Large gains were made from enhancement in the value of merchandise on hand.

(B) Rising prices caused gross revenues to increase at a more rapid pace than expenses increased.

(C) Heavy borrowings from banks, abnormally prompt payment of accounts by customers, and feverish demand for paper greatly increased capital turnover.

Because of the above conditions, good net earnings were made on invested capital (not sales) regardless of the unsound ratio of operating expenses to merchandising margins.

3. Now:

(A) With about double the amount invested for a given volume of sales with many merchants, capital turnover is cut in half and capital risks are doubled.

(B) Declining prices reduce gross revenues faster than expenses recede.

(C) Declining prices incur heavy market losses. A horizontal decline of ten per cent, in prices wipes out from five to seven months of good net profits.

(D) Federal income taxes takes one-eighth of net profits where prior to 1909 there were no Federal taxes and between 1909 and 1915 Federal taxes only took one hundredth part of net income.

These conditions have disclosed an unsound ratio of operating expenses to merchandising margins in the businesses of the rank and file of paper merchants. Do not fail to recall your net profits for such a good business year as 1923. If they appeared to be fairly good in your case remember how possibly three-fourths of your net profit may have been earned because of conditions beyond your power or influence as was pointed out in a previous paragraph.

The Cardboard Committee

The report of the Cardboard Conference Committee was made by William H. Holden, the chairman.

A. H. Seyler, of Alling & Corey Company, Pittsburgh, gave an address on business.

Among other things he said, "this mad scramble for price supremacy has had a reaction. This cutting of prices has carried with it a similar reduction in quality until the demand has swung the other way for a return to better value in paper. Twenty years ago seconds were a byword, but with standardized products the proportions of 75 to 25 were reversed; and it s encouraging to find some manufacturers advertising the return trend to better values."

He asked: "Are there too many paper alesmen? Freight? Sales promotion expense?

"Increase expense through mill convenions and customers' mill trips.

"Revamping of stocks. Encouraging the sale of better grades.

"Reduce sulphite bond stocks to two grades.

"Duplication of line.

"Strict adherence to list prices (out of tock orders). Transfer.

"Installation of cost accounting on diect, indirect and house sales.

"Careful revision of warehouse expense —of delivery expense.

"Insurance.

"Careful investigation of the recommenations of the accountants committee."

Noble Gillette of Chicago, spoke for the Western Association.

The General Meeting

The general meeting on Wednesday afternoon was called to order by Frank W. Power, the Chairman of the meeting.

Secretary's Report

Secretary Ridgway, in his report, said in part:

"This meeting marks the twentieth anniversary of the organization of this Association. A preliminary meeting was held late in 1903, but formal organization was not perfected until February the 8th, 1904, at the time of the annual meeting of the American Paper & Pulp Association.

"A comparison of conditions in the industry today with those of 1904 leads to the conclusion that they are now far more satisfactory from almost every angle and, without fear of contradiction, we firmly assert that the National Association was a most powerful influence in effecting the changes which have occurred and has unquestionably proved its value to the paper merchants of the country.

"The individual membership of the constituent associations shows an increase of 24 over a year ago and numbers 367 today as against 343. This increase is most gratifying but we believe it will require active effort on the part of the officers of the local associations to keep up present membership.

"We are strong in our belief, based on three years' experience, that the Cost Accounting Department, under the most able direction of Mr. Schoenbucher, has been of the utmost value to the Association and to the individual member. The greatest present need in paper merchandising is accurate knowledge of costs of distribution. Until relatively recently paper merchants almost without exception were satisfied to know the results of their operations annually or at most, semi-annually.

"We are confident that the work of the accounting department is largely responsible for this much to be desired condition and the department, in addition to promoting the adoption of the "Uniform Classification of Expense," so that figures of individual houses will be comparable, will continue its studies of costs of distribution both as a stimulus to the individual to seek like knowledge of his own business and to point out generally ways and means for the reduction of the cost of the distribution of paper.

"We again wish to bring specifically to the attention of the members the legal limitations of the Association's activities in this direction. It can develop the facts and, having done so, must leave the remedy entirely and exclusively to the individual. It cannot suggest the remedy and it would seem to us that to do so would be entirely unnecessary for, if the facts are properly developed and presented, and the individual finds upon investigation that they apply to his business, he will eventually find the remedy.

"A little over a year ago, Mr. Pape took over the management of the Statistical Department. He has a thorough training in statistical work, and a real interest in and enthusiasm for the development of the plan.

"Direct selling by manufacturers is decreasing in most lines of paper.

"If the view of the Federal Trade Commission, as reflected by certain of the provisions of the cease and desist order entered in the proceeding against the Pacific States Paper trade Association, represent the law, the Association is bound hand and foot and can make no move whatever. The provision of the order to which we refer goes so far as to prohibit the Association, or any two or more merchants, acting in concert, from even communicating directly or indirectly with a manufacturer upon the subject. An appeal to the Court to review this order has been taken and we believe this order of the Commission will not be sustained.

"Business has not been satisfactory. There seems to be no doubt that in tonnage distributed, 1923 was nearly equal to 1920, the record year, and had price competition been less severe, the year would have been entirely satisfactory. There is a measure of satisfaction, however, in the fact that it was better in all respects than either of the last two preceeding years. The basic trouble appears to be the large increase in productive capacity. We have heard it said, and are inclined to believe, that the increase in papermaking capacity in the past five years is sufficient to take care of the normal increase in demand for another ten years. Even assuming that this is an exaggerated estimate, the increase in some lines is so great as to warrant the conclusion that during the next five years at least, the capacity is ample to more than meet any demand which may arise. It, therefore, follows that for some few years to come competition, based on price, will be at least as keen as it has been the past year and it will require the most intelligent management on the part of the paper merchant to produce a net profit anywhere near commensurate with the volume done. As to values, there seems to be little likelihood of any declines based on cost of production which is probably higher than a year ago, and such declines as may come will be due to a lack of balance between supply and demand. A relatively slight recession in demand is likely to seriously effect this balance.

Conditions in general business are not entirely satisfactory. Some lines of business show signs of slowing down but others have recently and rather unexpectedly experienced serious falling off of demand. If we properly reflect the reports from individual members, the demand for paper since about the middle of last month has not kept pace with that of the first two and a half months of the year. This condition is of sufficient duration to permit of any conclusive deductions as to the future, but is is sufficient to warrant the exercise of caution.

The next feature on our program was an address "Simplification Program," by William A. Durgin.

The paper manufacturers think it will be tremendously to their advantage to have fewer sizes, the paper distributor knows it decreases his stock, increases his turnover, and by cutting down his investment runs up his profit, but the distributor feels very timid, that he can't do anything because the consumer demands the diversity. We have, therefore, used most of our influence these last few months, the last year and a half, in aiding the consumer to express himself. Only yesterday Mr. Sullivan, Secretary of the National Advertising Association, which as you know combines most of the major advertising of the country, told me that in circularizing his membership of 289, asking them to pledge their support in restricting the variety of sizes—eight sizes, to be specific, asked for a pledge of their support in issuing 68 standard sizes next year as their recognized limit. He secured in three weeks 189 pledges out of his entire membership of 289, and he says he will have at least 100 more within the next two weeks. There is a group of your large amalgamation, the National Publishers' Association, similarly getting pledges in support of standard sizes for their publications.

A motion duly made, seconded and unanimously carried, it was resolved that the sense of the meeting that the mem-

Following is a complete list of

WARREN'S STANDARD PRINTING PAPERS

CAMEO PLATE COATED BOOK
White, Ivory and Sepia (Dull Surface)
CAMEO PLATE POST CARD
Ivory and Sepia (Dull Surface)
CAMEO COVER
Ivory and Sepia (Dull Surface)
SILKOTE, DULLO ENAMEL
White, Ivory and India (Semi-Dull Surface)
SILKOTE POST CARD
White and India (Semi-dull Surface)
WARRENFOLD
White and Ivory (Strong Coated Book)
LUSTRO SUPERFINE COATED BOOK
White and Ivory (Glossy Surface)
WARRENTOWN COATED BOOK
White (Glossy Surface)
CUMBERLAND COATED BOOK
White and India (Glossy Surface)
WARREN'S LITHO COATED (One or Two Sides) Glossy Surface
WARREN'S LITHO SUPER
Super-calendered
WARREN'S LITHO MACHINE
Machine Finish
WARREN'S OFFSET
For Offset and Letter-press printing
PRINTONE
Semi-coated
LIBRARY TEXT
White and India (Fine English Finish)
OLDE STYLE (WATERMARKED)
White and India (Eggshell Finish)
CUMBERLAND SUPER BOOK
White and India (Supercalendered)
CUMBERLAND MACHINE BOOK
Machine Finish
WARREN'S INDIA
For extra thin editions
WARREN'S THINTEXT
For thin editions

Printed specimens of these papers will be supplied upon application to us or to anyone of our distributors whose addresses appear below:

DISTRIBUTORS OF WARREN'S STANDARD PRINTING PAPERS

Albany, N. Y.	Hudson Valley Paper Co.
Atlanta, Ga.	Sloan Paper Co.
Baltimore, Md.	The Barton, Duer & Koch Paper Co.
Boston, Mass.	Storrs & Bement Co.
Buffalo, N. Y.	The Alling & Gery Co.
Charlotte, N. C.	Caskie-Dillard Co., Inc.
Chicago, Ill.,	The Paper Mills' Co. Chicago Paper Co.
Cincinnati, Ohio	The Diem & Wing Paper Co.
Cleveland, Ohio	The Petrequin Paper Co.
Columbus, Ohio	The Central Ohio Paper Co.
Dallas, Texas	Olmsted-Kirk Co.
Denver, Colo.	Carter, Rice & Carpenter Paper Co.
Des Moines, Iowa	Western Newspaper Union
Detroit, Mich.	Beecher, Peck & Lewis
Fresno, Cal.	Zellerbach Paper Company
Grand Rapids, Mich.	Quimby-Kain Paper Co.
Hartford, Conn.	Henry Lindenmeyr & Sons
Indianapolis, Ind.	Crescent Paper Co.
Jacksonville, Fla.	Antietam Paper Co.
Kansas City, Mo.	Midwestern Paper Co.
Los Angeles, Cal.	Zellerbach Paper Co.
Louisville, Ky	Miller Paper Co., Inc.
Lynchburg, Va.	Caskie-Dillard Co., Inc.
Memphis, Tenn.	Tayloe Paper Co.
Milwaukee, Wis.	The W. F. Nackie Paper Co.
Minneapolis, Minn.	The John Leslie Paper Co.
Nashville, Tenn	Bond-Sanders Paper Co.
Newark, N. J.	Henry Lindenmeyr & Sons Lasher & Lathrop, Inc.
New Haven, Conn.	Storrs & Bement Co.
New Orleans, La.	The Diem & Wing Paper Co.
New York City	Henry Lindenmeyr & Sons Lasher & Lathrop, Inc. The Alling & Cory Co.
" " " (Export)	National Paper & Type Co.
Oakland, Cal.	Zellerbach Paper Co.
Oklahoma City, Okla.	Western Newspaper Union
Omaha, Neb.	Field-Hamilton-Smith Paper Co.
Philadelphia, Pa.	D. L. Ward Co. Charles Beck Co.
Pittsburgh, Pa.	The Alling & Cory Co.
Portland, Me.	C. M. Rice Paper Co.
Portland, Ore.	Zellerbach Paper Co.
Richmond, Va.	B. W. Wilson Paper Co.
Rochester, N. Y.	The Alling & Cory Co.
Sacramento, Cal.	Zellerbach Paper Co.
St. Louis, Mo.	Beacon Paper Co. Mack-Elliott Paper Co
St. Paul, Minn.	Nassau Paper Co.
Salt Lake City, Utah	Zellerbach Paper Co.
San Diego, Cal.	Zellerbach Paper Co.
San Francisco, Cal.	Zellerbach Paper Co.
Seattle, Wash.	Zellerbach Paper Co.
Spokane, Wash.	Zellerbach Paper Co.
Springfield, Mass.	The Paper House of New England
Toledo, Ohio	The Central Ohio Paper Co.
Washington, D. C.	Stanford Paper Co.
Wichita, Kansas	Western Newspaper Union
Australia (Brisbane, Melbourne, Sydney)	B. J. Ball, Ltd.
New Zealand (Auckland)	B. J. Ball, Ltd.
Argentine (Buenos Aires)	National Paper & Type Co.
" (Rosario)	National Paper & Type Co.
Cuba (Havana)	National Paper & Type Co.
Mexico (Guaymas, Guadalajara, Mazatlan, Mexico City Monterey, Tampico)	National Paper & Type Co.
Peru (Lima)	National Paper & Type Co.
Uruguay (Montevideo)	National Paper & Type Co.

S. D. WARREN COMPANY

BOSTON

Warren's
STANDARD
Printing Papers

bers were in hearty support of the simplification program.

O. D. Street, formerly manager of Distribution of the Western Electric Company, now Director of Distribution of Thomas F. Logan, Incorporated, said in part:

Efficient distribution is a matter of necessity not only to the individual manufacturer but to the man in the streets as well. Indeed, it is a national problem directly associated with the social and economic development of this country.

The Middleman Is an Economic Necessity

I propose to take no time in discussing the question as to whether or not there is a place in American business for the middleman. Volumes have been written on that subject, but I assume that we here are of but one mind in recognizing that in a country such as this there can be no doubt as to the need of the middlemen.

However, to say that the middleman is a necessity in our economic life is very different from saying that the middleman is a necessary link in the distribution of every commodity or is a necessary agency for disposing of the output of every factory. The middleman is not essential to all these, and the sooner the middlemen perceive what their true functions are, and then devote all their skill in performing these functions well, the better it will be for them and for all of us.

It is estimated that about 80 per cent of our merchandise is sold to wholesalers who in turn supply the retailers.

At the present time too many concerns are selling their products direct which would be better off if they worked with jobbers. There is another class which would be better off if they cut out the jobber and dealt with the retailers and consumers. By the same token, there are jobbers who would be better off if they limited themselves to that service which they can do better and more cheaply than the factory, and if they stopped trying to be all things to all men.

A Distribution Cost-Finding System Needed

I have contended that the chief reason why so many uneconomical methods of distribution are employed today is because so little is known, even by the most expert, of what it costs to sell and distribute merchandise.

The situation would indicate that, for the good of the public at large, too much competition may well be quite as bad as too much monopoly. It is a recognized fact that a large output is required in order to effect low production costs.

One thing we need is more men who, like Henry Ford, can visualize a possibility for trade development and who will, by mass production and by rapid turnovers in distribution, produce and market a product which will make the public feel, when they buy it, that they have secured their money's worth and then some. More men with brains and capital who will "Fordize" in the production and distribution of commodities is the answer to a part of the question. The inspiration that would result from a few more successes like that of the Detroit manufacturer would be more beneficial.

To develop a system of distribution that will be both efficient and economical is a task that will tax the capacity of the ablest business minds of this and the coming generation—yet it will be accomplished.

While I expect the general price level to go somewhat lower than at present, I do not believe we are justified in looking forward to the time when anything like the pre-war level of prices will again prevail in the United States.

Advertising has probably done more than anything else to raise the standard of living in this country, and that higher standard of living has, of necessity, increased the cost of living. The demands which are made for a reduction in the cost of living are never coupled up with a desire to reduce the standard of living, yet one cannot keep his cake and eat it, too.

Modern advertising has increased the standard of living because it has created in the minds of our citizens a compelling desire to possess more and more luxuries, more and more labor saving devices for the home, better and larger homes, more and more bodily taste and soul-satisfying things. That is exactly what the experts claimed advertising would do, and what it has done. We do not miss the things we have not had or seen. It is what the other person has, far more than what we lack, that makes us discontented and stirs within us the keenest determination to acquire.

From now on distribution is to be the big job and management must develop skill in distribution if it is to prosper or if it is to safeguard its investments in production facilities. Otherwise competitors with better vision, who have organized efficient distribution departments, will, through these, come along and dominate the channels of trade.

The National Paper Trade Association recognizes that the high ethical standards now prevailing in the paper merchandising business are directly attributable to an individual adherence to the principles herein below stated, and believes that the restatement and promulgation of these principles will perpetuate the present high ideals.

First: I will act honorably in my business of paper merchant, and conform in all things to the highest standard in the industrial world, so that my business shall be worthy of my devotion and ideals.

Second: I will conduct by business so that it shall compel the respect and confidence of all who trade with me.

Third: I will not bear false witness against my fellow merchants and competitor, nor belittle him, nor impugn his honor, or covet his success.

Fourth: I will deal fairly and courteously with customers, neither misleading them by false promises, nor misusing the confidence which I gain.

Fifth: I will seek the co-operation and good will of the manufacturers, and by treating them with fairness and by fulfilling my obligations to them, gain their faith and trust.

Sixth: I will be just to my employees, seek to earn their respect and loyalty, and inspire them to the practice of the principles.

Seventh: I will conform to trade customs that are honorable, and keep faith with my trade associations when their principles are constructive and tend to the advancement of the paper industry.

Eighth: I will do unto others as I would they would do unto me, for by my deeds will I elevate all business practices.

It was resolved that the Code of Ethics as presented by Mr. Wilson, Chairman of the Committee, be accepted and adopted.

O. A. Miller, the first President, spoke.

Thirty years ago the idea of dealers' associations was promulgated. I think it was established in 1894, thirty years ago. In the next decade there were six developed as follows: Boston, New York, Baltimore, Northwest, Central States and the Western, which was the first. I think at the time this organization was first started that I was President of both the Western and the Central States. The gentleman who more than anyone else is responsible for calling the meeting in this city in November of 1903, is John E. Linde, who has since gone to his reward. Mr. Linde was our first Secretary and served splendidly, and I think to his untiring work, more than anything else, we are indebted for the fine start that we got.

The others who were in at the beginning in November—the organization was made at that time and ratified in February—I think all of the original officers representing six associations that were then in existence, were made permanent in February following.

W. F. McMillien, President, Boston Association; W. B. ivermore, Secretary, Boston Association; W. D. May, President, New York Association; Hazard Lasher, Secretary, New York Association; E. T. Mudge, President, Baltimore Association; Gordon L. Reese, Secretary, Baltimore Association; E. J. Stillwell, President, Northwest Association; P. N. Myers, Secretary, Northwest Association; E. U. Kimlark, Secretary, Western Association; H. F. Woods, Treasurer, Central States Association.

These officers were elected.

President, William F. McQuillan, of Boston.

Vice-President in charge of Fine Paper Division, A. M. Miller, of Columbus Ohio.

Vice-President in charge of Wrapping Paper Division, J. A. Carpenter, of Kansas City, Missouri.

Treasurer, A. J. Corning, of Baltimore, Maryland.

Takes New Position

Walter J. Zaph, who has been assistant secretary and treasurer of the Carthage Sulphite, Pulp and Paper Company for the past several years, has recently been appointed assistant manager of the Dunn Sulphite Company of Port Huron, Michigan. He has already assumed the responsibilities of his new position. Therdore Dunn, prominently known throughout the United States is president of the company which Mr. Zaph has joined.

Mr. Zaph's family expect to join him in Port Huron in about a month and will make their home there. Both Mr. and Mrs. Zaph were well known in Carthage, where they had resided while Mr. Zaph had been connected with the Carthage company. Both took active parts in local organization and civic work.

* * *

Cut Down Consumption

The Ontario government, which is a large consumer of paper and printing is cutting down on its expenditure in this regard. The Printing Committee of the Legislature has decided to eliminate the printing of a lot of reports hitherto put out and the quantity of others will be cut down. The committee has also recommended the appointment of an editorial committee to supervise all government, including departmental publications and blue books, with a view to economizing on the use of paper and printing.

* * *

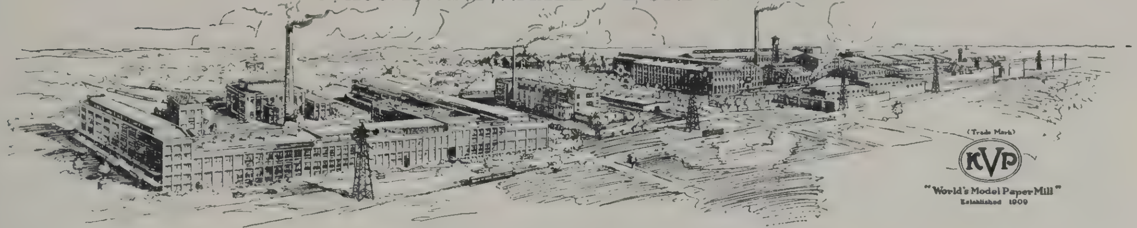
Postpone Meeting

It has been announce that the Northwest Division of the Superintendents Association would hold a convention at Marinette, May 2nd and 3rd.

The Committee has decided to postpone this meeting until the latter part of July. The main reason for postponing it conflicts with the meeting at Dayton.

Further information about the coming meeting will be published as soon as definite data is available.

KALAMAZOO VEGETABLE PARCHMENT CO.
Manufacturers of
PARCHMENT, WAXED AND BOND PAPERS



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PAPERS:

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BONDS LEDGERS

Six colors and white—Standard weights—White and Buff.
The most value for your money this side the pearly gates.

GENUINE VEGETABLE PARCHMENT

The accepted reliable protection for moist and greasy foods.
"Better Wet than Dry"

BREAD WRAPS

The "Stay Put" kind.
Printed or Plain.

WAXED PAPERS

For wrapping foods and lining cartons.

Paper Specialties for Homes, Institutions, Hospitals, Etc.

Handy Household Rolls:
Waxed Paper
Parchment
Shelf and Lining Paper

Papricloth Sheeting
Ice Blankets
Obstetrical Sheets
Druggist's Powder Papers

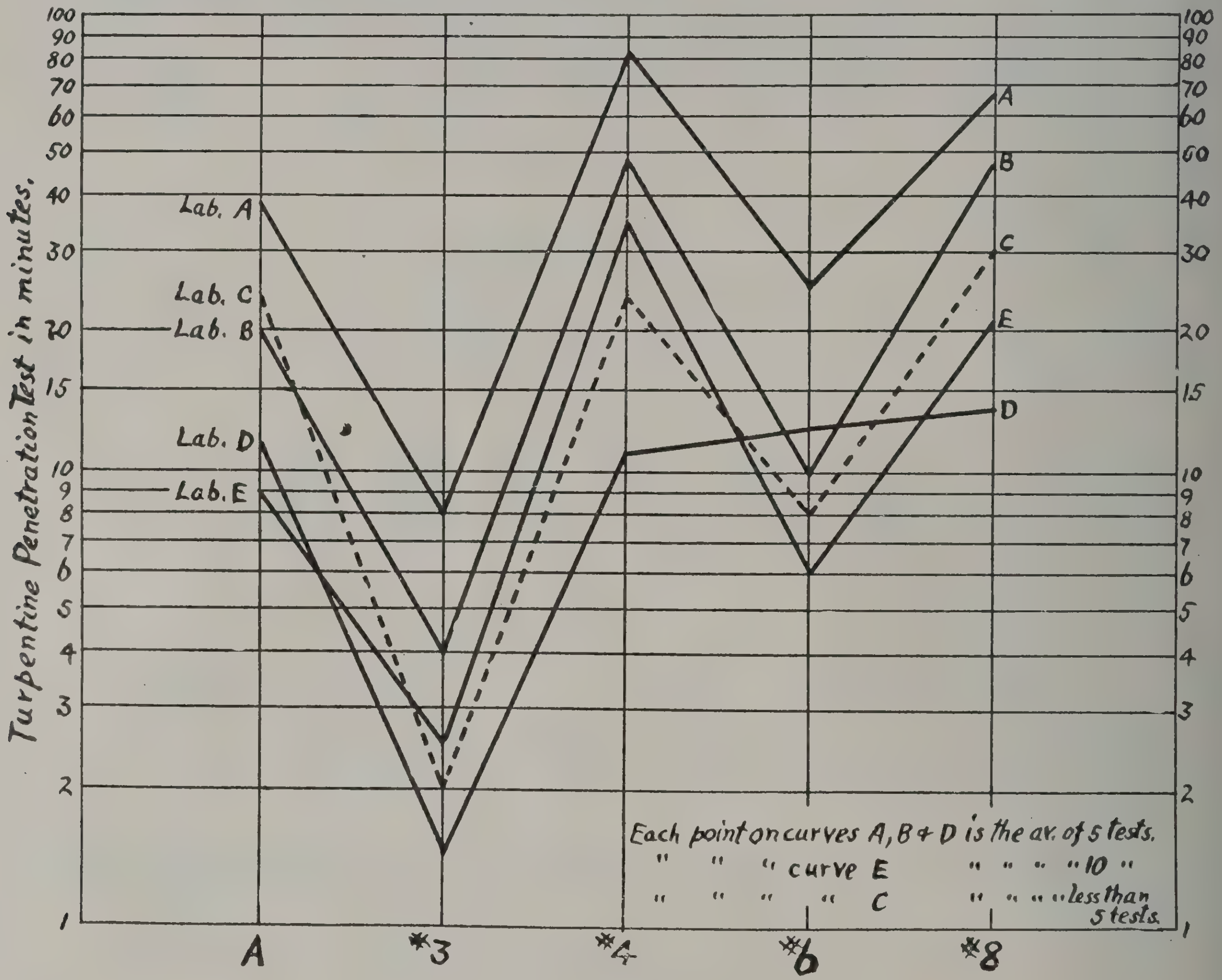
Banquet Table Cover Paper

For churches, lodges, societies, cafeteries, etc.

The Turpentine Penetration Test for Greaseproof Paper

By H. A. SMITH*

THE well known blistering test for greaseproof paper is made by holding a burning match close under the sheet and noting the magnitude of the resultant blisters as an indication of the paper's grease-resisting quality. This leaves much to be desired in the way of accuracy, as certain papers which blister only slightly may be more greaseproof than others which give large blisters. In an effort to arrive at a reasonably quick and more satisfactory method for determining the relative greaseproof quality of different papers several ways were tried.



COMPARATIVE RESULTS IN DIFFERENT LABORATORIES

Method of Bromley Tried

Greases of various sorts, or heavy oils, applied as a practical test took several hours or even days to penetrate the paper, and so unduly prolonged the test. The method of Bromley[1] was then tried. This calls for the drawing of a mark with a copy-ink pencil on one side of the sheet, reversing it, applying a large drop of water to the other side over the mark; and watching the effect on the mark as the water penetrates. The endpoint was very uncertain and in any event the test measured the waterproof, rather than the greaseproof, quality of the tested paper.

Turpentine has long been used to distinguish between greaseproof and nongreaseproof papers. The usual system is to place a little turpentine on the test sheet which is flat on a piece of white paper. If the turpentine does not make any spots on the under paper in several minutes the sheet tested is considered greaseproof.

A More Quantitative Test

The following more nearly quantitative test was developed using the penetration time of turpentine as its basis.

At least 5 *uncreased* sheets about 4 inches square are cut from each sample to be tested, marked, and each one placed on the lower part of a piece of clean white paper about 5 x 7 inches that is flat on a table. It is a help to have the upper righthand corner of each test sheet turned up sharply to serve as a handle, and to have a small weight on the upper lefthand corner of each sheet of white paper, but not on the test sheet. About 2 g. of fairly coarse sand (grains about 1 mm. in diameter do very well) are placed on the center of each test sheet in such a way as to give a low-pile about 1 inch in diameter. The time is noted, and with a medicine dropper or a piece of glass tubing several drops of turpentine that has been colored deeply with some oil soluble color ("Newport Oil Mahogany D" made by the Newport Chemical Works, Passaic, N. J., works well) are carefully dropped onto the pile of sand on each test sheet. Enough should be used to saturate the sand, but not enough to spread to the edges of the test sheet and so go over onto the white paper. A 2½ or 3 inch watchglass is then inverted over each sand pile to serve the double purpose of lessening evaporation of turpentine and of keeping the greaseproof sheet in better contract with the white paper. Every little while the test sheets are slid back horizontally, taking care not to disturb the watchglasses or piles of sand, the under white paper carefully examined for spots of color from the turpentine, and the greaseproof sheets slid forward into position again. As soon as the *first* spot of color appears under any sheet, the time is noted, the total time in minutes it took the turpentine to penetrate the sheet calculated, and recorded as the *turpentine penetration test* of that sheet. Later the 5 tests on the 5 sheets from one sample are gotten together and averaged to give the T.P.T. of the sample tested. In case there is doubt as to whether a spot on the white paper is caused by turpentine or not, it is often helpful to hold the white paper up to the light. A *fresh* turpentine spot appears translucent. It is necessary to carry on the test where the light is good, preferably before a window. If the test should last long enough to cause evaporation of turpentine, a drop is added from time to time,—enough to keep the sand practically saturated.

The caption on the cut on page 160 is in error. It should read "Comparison of Butter and Turpentine."

Keeping Track of Group Test Sheets

An easy way to keep track of a group of test sheets run at once is to jot down the time the test started, then every 2 minutes for the first 30 minutes; if the test runs longer than that every 3 minutes for the next 30 minutes; and, if the test continues, every 5 minutes till the last sheet is penetrated. Then all sheets being tested are examined at every listed time and the identification marks of the sheets found penetrated at that time are written alongside the time figure. When the test is finished the various figures for the 5 sheets from one sample are averaged for the T.P.T. of that sample. Working as outlined above at least 15 test sheets can be run at once unless the penetration time proves to be exceptionally short.

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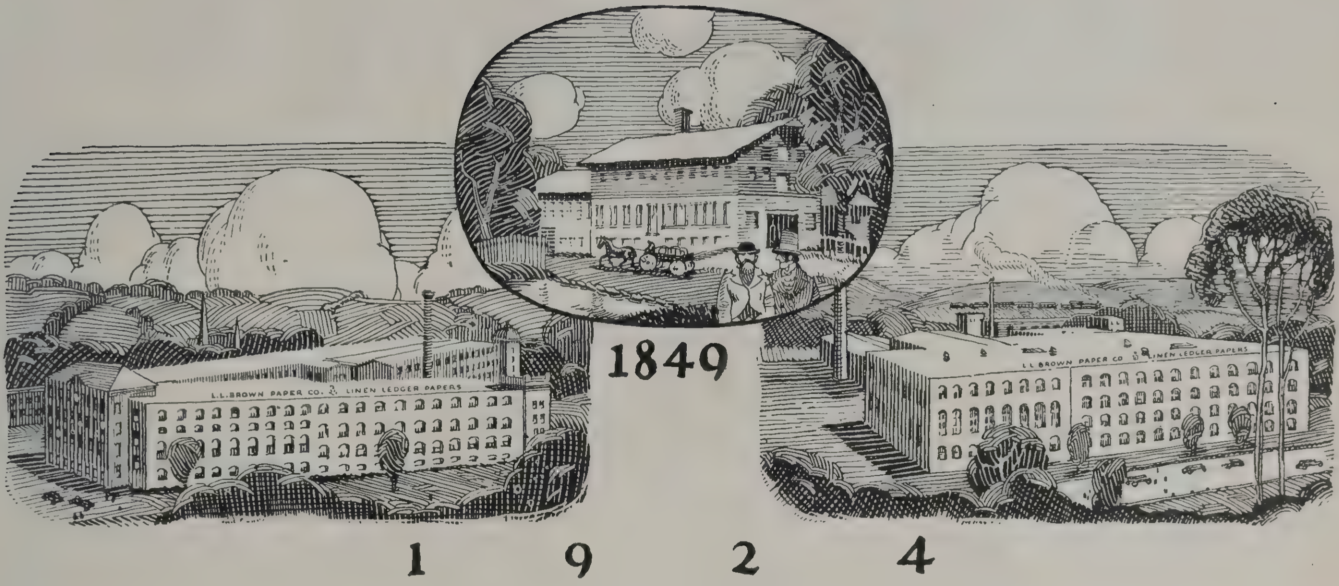
* Junior member T.A.P.P.I. Electrical Engineer St. Croix Paper Co., Woodland, Me.


1849
L. L. BROWN PAPER CO. & LINEN LEDGER PAPERS
L. L. BROWN PAPER CO. LINEN LEDGER PAPERS
1 9 2 4

75th Anniversary of L. L. Brown Quality

THE ORIGINAL L. L. Brown Mill started running in Adams, Mass., 75 years ago. It was founded on the idea of making rag-paper for record-keeping and business use,—rag-paper that would endure. For 75 years, these mills have kept to that ideal. Records inscribed on Brown's Linen Ledger, no matter in what year, are still as readable as when written. This is a remarkable proof of *quality* in a substance that only time can prove.

L. L. BROWN PAPER COMPANY, ADAMS, MASS.
Established 1849
MAKERS OF LEDGER, LINEN & BOND PAPERS

For the Future's Sake, Specify

Brown's Linen Ledger

Eliminating Errors

In order to eliminate possible errors due to differences in the turpentine used, to differences in the conditions under which the tests are made, or to the personal equation in determining the endpoint, this test should be made a comparative one whenever possible. That is, one set of sheets from a sample of known quality should be tested together with the sheets from the sample whose quality is being determined.

When carefully run this test gives the penetration time for the least greaseproof point in the tested area, which is what is wanted, as it is the weakest points that give trouble through penetration of grease in actual use.

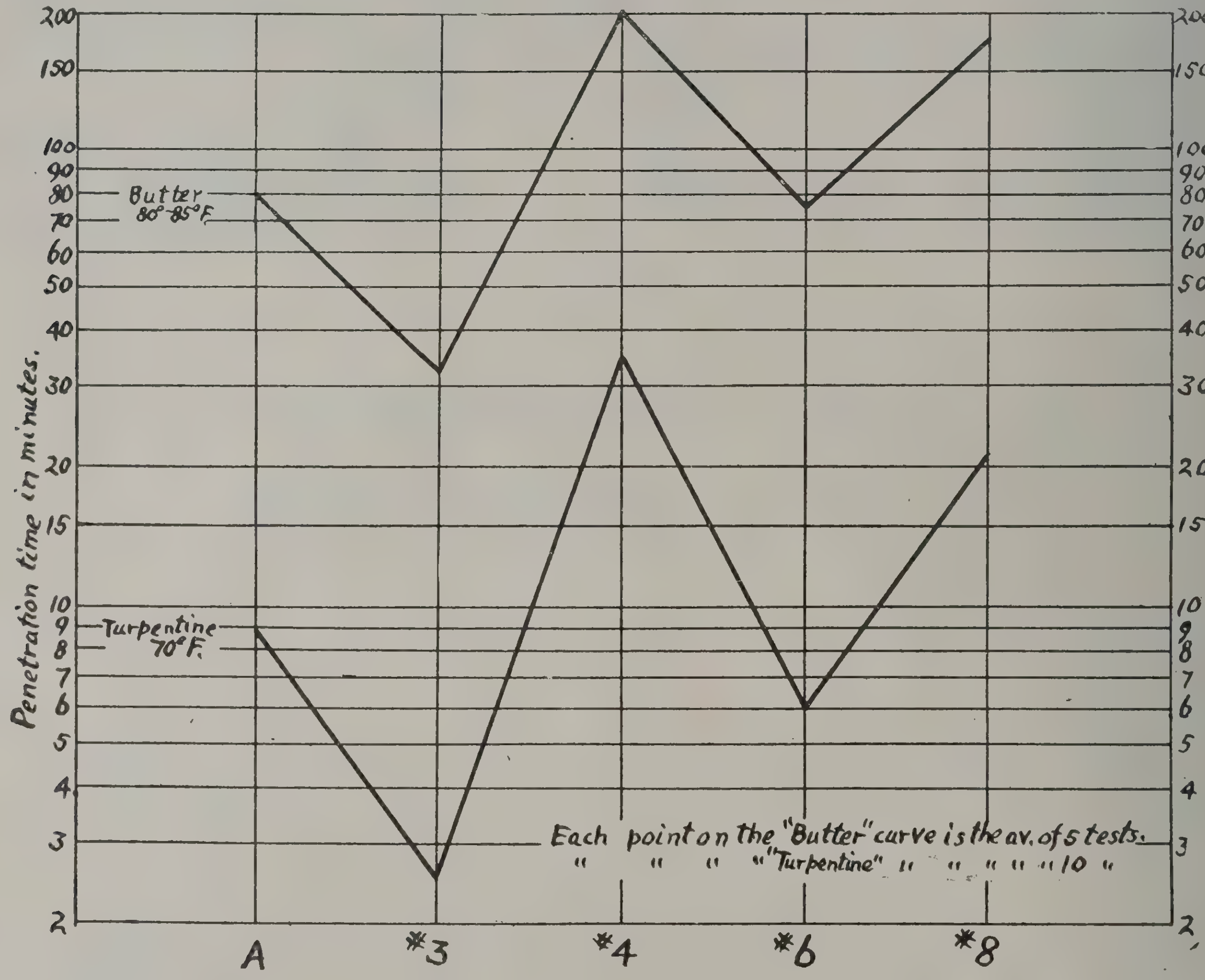
Penetration of Turpentine and Butter

Tests were run in order to find the relation between the penetration times of turpentine and of butter on a group of 5 samples. Ten turpentine penetrations were made on each sample at room temperature (about 70° F.) and five butter penetrations at 80° to 85° F. The butter tests were run at the higher temperature in order to cut down the time of testing by keeping the grease in a semi-fluid state. Results are given graphically in Fig. 1.

On a chart of this kind when two curves are parallel it shows that the values plotted on one curve bear a constant ratio to the corresponding values plotted on the other. It is easily seen that the two curves of Fig. 1 approach parallelism, and hence that the turpentine test has a reasonably constant ratio to the butter penetration test, on the various samples. At least the ratio is nearly enough constant to indicate that turpentine can be reliably used to test the greaseproof quality of paper.

Comparing Results

In order to see how results obtained by different people would compare, test sheets from the 5 samples used in the butter-turpentine comparison which were originally selected from the products of different manufacturers as covering a wide quality range were submitted to four other laboratories to be given the turpentine penetration test. The method they follow did not call for the use of any sand, and so differs in that slight respect from the one given here. Sand (the use of which was suggested by F. T. Carson of the Bureau of Standards) would have made no difference in the results which are shown in Fig. 2.



Comparative Results in Different Laboratories

Note the close approach to parallelism of the curves showing tests obtained by laboratories A, B, C, and E. Although the absolute figures on penetration times found by the different laboratories vary widely, each found almost the same relationship among the samples, and so checked each other fairly well when the test is considered as a comparative one. The result of Laboratory C are averages of less than 5 tests on each sample and so may be out somewhat on that account.

Why laboratory D should be so out of line in its findings on sample No. 6 is not known. It is possible that the paper from which these test sheets were taken was not uniform.

Causes of Large Differences in Figures

The large differences in the absolute figures found by the various laboratories may be due to any or all of the possible causes mentioned at the end of the testing method, but are most probably due chiefly to the last named,—the personal equation in determining the endpoint. In fact one laboratory reported difficulty in determining when penetration became general. It is the *first* appearance of color that should be noted, and not the much more indefinite time when penetration became general. Laboratory E had done a good deal of work with the method and through greater familiarity with the test may have selected an earlier endpoint. So far as is known the other laboratories had never tried the test before.

The following laboratories cooperated in trying out the proposed method: American Writing Paper Company, Holyoke, Mass.; Bureau of Standards, Paper Section, Washington, D. C.; Hamersley Manufacturing Company, Garfield, N. J.; Mt. Tom Sulphite Company, Easthampton, Mass., and United States Testing Company, New York City.

* * *

To Plant Trees

The planting of trees along the highways in Oregon is a movement that is sweeping across the state. The highway commission, women's clubs, commercial clubs, citizens of towns and ranchers along the Columbia highway are pledging to plant definite lengths in trees. Trees will be planted along other highways. Arrangements are being perfected whereby the school children of eastern Oregon may assist in the tree planting movement.

That the best results may be secured it will probably be necessary to establish certain rules and regulations governing the tree planting. The highway commission could do this work. School nurseries are already being established and trees for planting are to be raised from seed. Governor Pierce of Oregon says that the "executive department will assist in every way possible in making the highways of Oregon the most attractive of any state in the country."

Wayagamack

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BECK SPEAKS ON THE NEWSPRINT SITUATION

Secretary of Canadian Pulp and Paper Association Makes Frank Statement

As much has appeared in print respecting a profitable break on the Canadian newsprint market, the following statement on the situation made by Secretary Edward Beck of the Canadian Pulp and Paper Association is of interest:

"There is absolutely nothing in the newsprint situation, either in the United States or Canada, to support the pessimistic statements originating in certain quarters and being widely circulated through the press to the effect that a break in the newsprint market is imminent. The industry is in a perfectly healthy condition and while Canadian production for the first quarter of the year shows an increase as compared with the same quarter last year, shipments have kept pace with increased production. Individual mills may show a smaller production than last year, but the gross is greater. There has also been a falling off in United States importations of newsprint from abroad.

"Consolidations of daily newspapers, such as those that have taken place in New York, and of which so much has been made, have not affected the situation at all, except in a favorable way. The consolidated newspapers, experience has shown, actually consume more newsprint than when they were operated as separate units. The explanation is that readers as a rule do not purchase more than one newspaper, and that when the one they patronize stops, they simply transfer their patronage to one of the survivors. It is also a fact that one strong newspaper is a much better customer for the newsprint manufacturer than two weak ones.

"Canada produced 30,511 tons more newsprint in January and February this year than in the corresponding months last year, and the United States 4,031 tons more. The total increase thus amounted to 8 per cent. The production of newsprint in January and February, 1923, however, was greater by 16 per cent than the production during the same months of 1922. For March this the figures, when available, will show an even smaller relative increase. Imports of European newsprint into the United States declined 12,000 tons during the first two months of this year, as compared with last, so that talk of the market being over-stalked is not warranted by the facts.

"Consumption is well up to the average. A group of representative Sunday newspapers in the States averaged 100 pages in March, the highest since October, 1923. A similar group of dailies averaged 28 pages for the first three months of 1924, exceeding the number for the corresponding period of 1923. Advertising ran about 3 per cent more than last year.

"At the meeting of the American Pulp & Paper Association in New York last week the suggestion that a break in the price of newsprint was probable was ridiculed by the newsprint manufacturers as entirely groundless. There have been no decrease in the costs of production, it was pointed out, and the tendency both as to wages and to wood costs is toward a raise rather than a fall. The costs of woods operations during the last winter were higher than at any time since 1920. There is less spot paper available than at any time since 1920. There is less spot paper available than at time for months, and the price of this is holding up well. There is no abnormal supply in the hands of the consumers, nor is there any strong demand on the part of newsprint publishers for a lower price. The publishers are said to be realizing very fully that the stabilized newsprint market of the last two years has contributed very largely to their own satisfactory business, and they do not desire to see the situation disturbed.

"No Canadian newsprint manufacturer, so far as I am aware, has reduced his contract price, or is contemplating doing so, nor is there any reason to anticipate such a development in the near or remote future. The mischievous rumors that have been going around have evidently been put out for a purpose, and while their effect is annoying, they are without foundation of the slightest authority."

* * *

Rothermere Explains

Lord Rothermere, the well known English publisher, when in Montreal recently threw a little light on conditions that are affecting the Canadian export trade in pulp. He said that it was impossible to sell Canadian pulp in Europe just now. The low value of sterling in terms of dollars, made this impossible, and this was quite evident from what had happened to Chicoutimi. The simple truth was that the low value of European currencies in terms of Canadian dollars made the Canadian price too high. As far as Canadian newsprint was concerned, he considered the prospect bright and believed that Canada would capture 80 per cent of the American market within the next 10 or 15 years. This was not an unwarranted prediction, for already Canada was supplying about 50 per cent of the American demand. Asked if there were any danger of Russia, with political quietude restored, becoming a dangerous competitor of Canada, Lord Rothermere considered this quite improbable. While Russia's supplies of pulpwood were undoubtedly great, they are largely inaccessible. However, there might be some competition in chemical pulp produced from the forest areas on the shore of the Baltic.

* * *

International Paper Rallies

International Paper has recently rallied with the remainder of the list on the New York Stock Exchange. There is something more back of the advance in this stock, however, than an oversold condition. Paper common has never responded as it should have to the favorable 1923 earnings statement, which showed the equivalent of $11 a share for the junior issue. There are those who declare that the 1923 record of the company shows that it has turned the corner as regards profits and that it will never again run into such a period as that of 1921 and 1922, when it had to absorb heavy inventory losses. Entering 1924 International Paper had floating debt of nearly $12,000,000. So far this year the company is reported to have pared this item down to about $8,000,000.

* * *

Granted Charter

The Henry Rose Company, Boston, Mass., has been granted a Massachusetts charter to deal in paper stock, linters, and cotton waste with an authorized capital of $50,000. Henry Rose, 77 Walnut Street, Roxbury, is president and treasurer of the concern.

* * *

To Build Addition

The Oxford Paper Company, Rumford Falls, Maine, will build an addition to their paper mill to cost $150,000. The company is busy and reports a substantial order balance.

* * *

Cary Heads Company

The Worcester Paper Goods Company, 40 Foster Street, Worcester, Mass., recently organized to deal in all kinds of paper goods, is headed by Robert S. Cary, 125 Hillcroft Street, Worcester.

Mills Have Plenty of Water

Due to the exceedingly warm weather which has caused the snow in the North to melt and the few spring rains is the result of the present high stage of water in the Wisconsin River.

A short time ago most every mill on the river was suffering from lack of water, some even being forced to shut down for one or two days a week, and it is now necessary to sit sadly by and watch enormous quantities flow over the dams and through the gates. Lack of rain last fall sent the water in the reservoirs controlled by all the power users on the Wisconsin River to an exceedingly low level and they now contain only 7% of their normal capacity. In March only 12 inches of snow was reported north of Wausau a condition which indicates that the stream may not be severely taxed by surface water running off.

At the present time all of the plants are able to handle this high stage of water by use of their tainter in the dam, some of the users only using one-half of their equipment to control the situation.

Grinders, as well as electrical units are being run to full capacity which will keep all the mills in the Wisconsin River Valley in full production from this time on as they will all be able to grind enough wood to make groundwood for their requirements.

It is not expected that the river will reach a flood stage this year nor will there be enough water at any time which will necessitate a shut down to any of the mills on account of high tail water forcing any of them to close. If this water had only been available through the early spring and winter just passed all of the mills in the valley would have been able to run.

* * *

Short Newsy Items

The San Francisco Paper Company has moved from South Manes Street to 263 7th Street, San Francisco, Cal.

The Rose Paper Company has engaged in business at 229 Clare Street, San Francisco, Cal.

The new administration building of the Pioneer Paper Company, 55th and Alameda Streets, Los Angeles, Cal., is to be finished within 90 days, at a cost of $50,000. This company has just added three men to its list of experts. J. D. Beatty has taken charge of the felt mill, as superintendent, having had 25 years' experience in the manufacture of felt and building papers. C. W. Conant, an authority in the production of slate-surfaced shingles, with 17 years experience, will become production manager in that department; and G. H. Campbell joins the technical staff as chemist, being a specialist in properties and reactions of asphalt and oils.

The Gate-Burns Paper Products Corporation, has been chartered in Los Angeles, Cal., with a capital stock of $200,000, by A. E. Gates, John J. Walther, R. J. Burns, J. P. Newell, and W. D. Curtis.

The Hale Paper Company has been incorporated in Kansas City, Mo., with a capital of $10,000, by R. F. Wood, Virgil A. Hale and others.

The Ramier-Hall Wax Paper Company, 1200 Shrine Building, Memphis, Tenn., has been incorporated with a capital stock of $50,000, by J. F. Ramier, R. W. Hall and others.

The Southern Pulp & Naval Stores Company, is soon to build the first unit of a 50-ton pulp mill on the deep water harbor of St. Andrews bay, near St. Andrews, Fla.

* * *

Must Take License

The Ontario government now stipulates that all new lumber, pulp and paper mills must take out a provincial license before they begin operations. This action has been taken with a view to preventing the undue multiplication of mills beyond the capacity of the demand to take care of the product.

Established 1886

Looking Both Ways

Some organizations look backward, because they have nothing to which they can look forward. Some look forward because they have nothing inspiring in retrospect. Some live only in the present because they have had no past and are apparently without any future.

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This has a definite meaning for every buyer of Bleached and Unbleached Sulphite, Kraft and Ground Wood Pulp. For in this age of keen competition, only leadership that is based upon the highest integrity, service, quality and fair dealing, could remain so long unchallenged. This organization recognizes in its past a clearly defined responsibility for the future. The high ideals and sound methods have and will be steadfastly maintained.

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O'CONNELL PREDICTS RUINATION

Unless Imports of Paper Are Curbed in Reasonable Time

THE ruination of the paper industy in the United States is threatened by foreign manufacturers, who are permitted to dump their products into this country at a price to the consumer far below what it can be manufactured for in this country, according to John H. O'Connell, general manager of the Diana Paper Company at Harrisville, and well known throughout northern New York and Canada as an authority on the importation of paper into this country.

"If this competition continues much longer, the paper manufacturers of this country might as well shut up shop," said Mr. O'Connell, in discussing the subject recently. "I have personally experienced this competition in several instances and at all times I have had to give way to it, as the price of the foreign product delivered was a great deal less than what we could manufacture it for."

"I approve of the vigorous campaign that is being carried on to bring the matter before the authorities at Washington and show them the unfairness of this foreign competition that all manufacturers in this country are up against at the present time."

"All paper manufacturers should co-operate to see that this competition is immediately eliminated in order to give all a fair chance for a living as it is absolutely unfair to have us pay a high rate of taxes to do business and then be confronted with such conditions."

The foreign paper is being brought into this country in such quantities that some of the weaker companies are facing bankruptcy unless something is done. Many domestic manufacturers favor the plan of Attorney Henry A. Wise to compel a careful Classification of all foreign paper that is brought in.

It is declared here that many purchasers of the foreign paper have found to their sorrow that they have received stock of an inferior quality and then have been unable to get any redress for the manufacturers would not take it back nor would they return the purchaser's money.

The quality of the foreign product is said to be of irregular quality. Some shipments of it have been fairly good and others have been so poor that the paper would constantly break on the presses.

* * *

New Firm Starts

The Economy Service Corporation, 1511 S. Sangamon Street, has been incorporated to manufacture and deal in paper and paper products, specializing on a new fixture for dispensing paper napkins in restaurants.

The capital stock of the new company is $50,000 and the incorporators are Elmer C. Morris, Emil Schoemann and Edward Perrizo.

The new fixture, which will be manufactured by the company has been received already with much favor by restaurant owners throughout the country.

It automatically dispenses folded paper napkins and is of great advantage in that it saves from 10% to 50% on the use of napkins in restaurants where installed. The device is being used at some of the John R. Thompson restaurants and the Raklios System.

The Economy Service Corporation is distributing this device and its other products through paper jobbers throughout the United States.

ROBERT WARK PASSES AWAY

Superintendent of St. Regis Paper Company Dies from Pneumonia

ROBERT WARK, aged 52 years, superintendent of the St. Regis paper mills at Deferiet and well known among paper manufacturers of this country, died at his home last week after an illness of about two weeks. During that time he had suffered from an attack of pneumonia.

Mr. Wark became associated with the St. Regis Paper Company four years ago last fall. At that time he was employed by the company as power boss. He came to the local paper company from East Angan, Canada, where he had served for about a year as superintendent of a paper mill. After serving for a short time as power boss Mr. Wark was promoted to assistant superintendent to the superintendentship. In that capacity he served until the time of his death.

Robert Wark was born, February 28, 1873, in Montreal, Canada, the son of the late Robert and Janet Morrison Wark. He received his education in Montreal schools and at an early age entered the papermaking industry. While a young man he served his apprenticeship as a machine tender but 36 years ago came to this country and entered into the same business in which he had been engaged in Canada.

His first position in this country was as night superintendent of a paper mill at Wilder Vt. He was with the paper company there for about 20 years and during that time served in the capacity of night superintendent. While a resident of Wilder he became affiliated with the Masonic order at White River Junction, which was only a few miles from Wilder.

From Wilder, Vt., Mr. Wark went to Glens Falls, where for the next two years he served as assistant superintendent for the paper mill of the Finch-Prynn Company. From Glens Falls he went back to Canada and St. Raymond where for the next eight years he served as superintendent for the News, Pulp and Paper Company at St. Raymond.

After completing eight years of service in St. Raymond, Mr. Wark went to East Adgan, Canada, where he served for a year as superintendent. From East Adgan he returned to this country and entered the employ of the St. Regis Paper Company at Deferiet.

Mr. Wark was a member of the First Presbyterian Church, of the Masonic Order and of the Knights of Birmingham.

Mr. Wark leaves his wife, to whom he was married 15 years ago, two brothers and a sister.

The remains were removed to Montreal and the St. Regis Paper Company at Deferiet.

* * *

More Mills Rumored

It is understood that American pulp and paper capital is being interested in the locating of mills in the Lake Winnipeg district. The Seamans interests of Chicago are believed to be among the number. The McArthur enterprise at Fort Alexander is taking quite a while to get under way, but it is now believed that it will come through all right.

* * *

The Heaviest Cut

Last winter's cut in the forests of Quebec was one of the heaviest recorded in recent times. Over 3,000 lumber camps have been in operation, employing nearly 25,000 men. The Department of Lands and Forests has had men engaged in patrolling the forests in certain portions of the province, mostly the western part, which is regarded as the most dangerous. These men in addition to doing their own special work, have been checking up on lumber operations and reporting to the department.

PORTABLE PUMPS USED IN FIRE FIGHTING

Experiment Proves Success In State of Washington Recently

A RECENT demonstration of the fire-fighting value of eight pumps was witnessed near Longview, Washington, by approximately 200 men, representatives of national and state forest agencies, and officials of leading timber companies of Washington and Oregon.

"The demonstration showed amazing progress in portable firepump construction," declared George H. Cecil, district forester. "I predict that thousands of dollars will be saved annually by the use of mechanical means to fight fire. Three years ago they were impracticable, now they are the greatest weapon we have against forest fires."

The eight machines weighing from 37 to 150 pounds were set up near a small stream at the base of a hill several hundred feet high. From their positions they threw long streams of water up the hillside. In a pressure test the machines forced water through a hose to the top of the hill. A 52-gallon barrel was stationed at a 300 feet height and one of the machines forced a stream through 1,450 feet of hose and filled the barrel in three minutes and fire seconds. The tests included pressure, height, hose connections and time for filling hose.

These machines are so designed that they can be taken by a forest ranger or a pack horse to a stream near where a fire has been located and used from the stream to put out the fire. A relay of pumps can be used if the fire is a considerable distance from the stream.

"For a small investment portable machines are among the greatest protectors of forests," declared Roy F. Morse, general manager of the Longview division of the Long-Bell Company. "Timber is the greatest resource of the northwest and every move to prevent fire waste is commendable."

"Oregon, Washington and British Columbia are the districts in which these pumps have been developed," said Shirley Buck, who was in charge. "We feel that the tests have demonstrated great progress in their construction, and that the fire danger in the forests will be materially lessened by their general use."

Lumbermen and chief owners of timber in Washington and Oregon expressed themselves as favorably impressed by the demonstration with the value of portable firepumps for fighting forest fires.

The machines demonstrated were: Northern Fire Apparatus Company, two machines; Fairbanks-Morse; Wonder Pump; Evenrude, two machines; Pacific Ross, two machines.

* * *

To Visit St. John

Lord Rothermere, the noted English publisher, who is so heavily interested in the Canadian pulp industry, will, it is reported, visit the Lake St. John district during his stay in Canada. This, as is well known, is the district in which are to be found some of the largest pulp and paper operations in Canada. As a result of his visit final decisions will be reached with respect to the new mills of the Gulf Pulp & Paper Company, which are to be built at Sillery, near Quebec city, for the working up of the wood purchased on the Manicouagan limits. It is estimated that from $5,000,000 to $8,000,000 will be spent on this large plant. The necessary power for operating purposes will be secured from the Shawinigan Water & Power Company.

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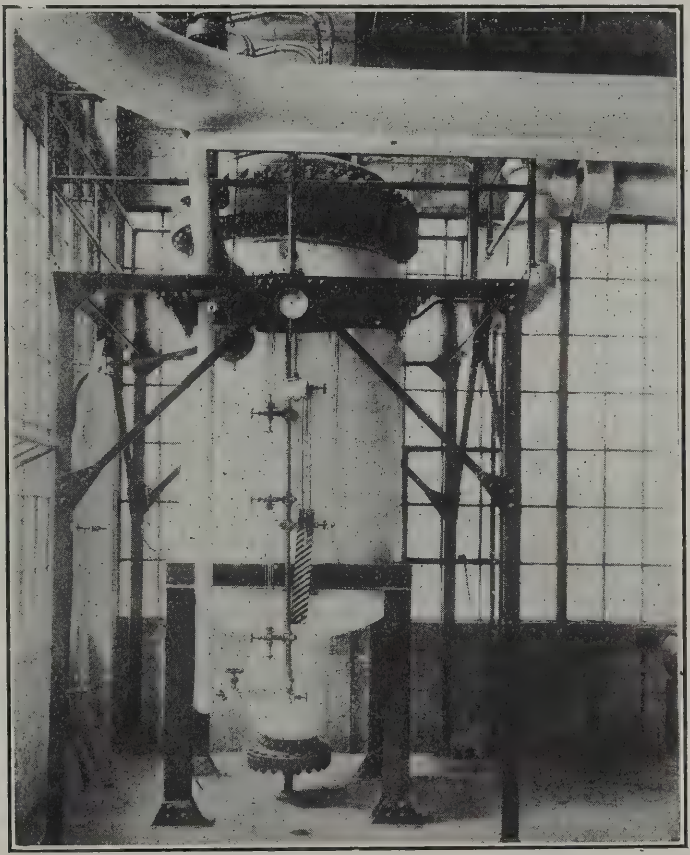

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PROTEST EMBARGO ON PULPWOOD

United States Mills Will Seek Other Sources of Supply Rather Than Move Plants to Canada

A MEMORANDUM has been filed at Ottawa, with the Royal Pulpwood Commission on behalf of the pulp and paper manufacturers of the United States, asserting that it would be preferable to seek new sources of supply in the United States or abroad than to move the American mills to Canada in the event of an embargo on the exportation of pulpwood.

"The moving of American mills to Canada would either involve the scrapping of large investments in the United States or duplicating a part or all of them in Canada" the memorandum said, adding that "the growth of this industry will be the result of economic laws and not the statute law."

It also pointed out that about 90 per cent of the Dominion's forest area was publicly or crown owned and asserted that from the standpoint of conservatism of forest resources the embargo would seem "absolutely useless" because of restrictions against exporting wood from the public lands.

The proposed embargo would affect only 1.7 per cent of the total lumber cut, the memorandum said, if farmers' and settlers' lands were exempted as provided by an order in council passed last year.

At hearings before the Royal Pulpwood Commission the Canadian Pulp & Paper Association, declared itself emphatically in favor of an embargo, whereas the pulpwood dealers are no less emphatically against it. The farmers side with the latter; but they would not have the least objection to the embargo if they were assured that the Canadian mills would take the wood they are now exporting across the border at the same price that is being paid by the American mills.

F. N. McCrea, M. P., president of the Brompton Pulp & Paper Company, declared himself in favor of an embargo on wood cut on Crown lands (which already exists in several provinces), but against extending it to freehold limits, on the ground that it would be an unwarranted interference with private rights. F. J. Campbell, manager of the Canada Paper Company, refused to commit himself directly insofar as the embargo was concerned, but he contended that if pulpwood and woodpulp were allowed to cross over to the United States the same conditions should apply to book paper and other miscellaneous papers manufactured in Canada.

In the meantime the exports of pulpwood to the United States have declined considerably, showing that American mills are not very greatly alarmed at the likelihood of the embargo.

* * *

Makes Good Showing

The St. Maurice Paper Company owes much of its favorable showing in 1923 to the strong market for groundwood pulp that has existed in the United States. This company has an excess production of 100 tons a day over its own needs, and was able last year to market this readily at good prices. This, in addition to steady newsprint production and sales, enabled it to show an operating profit of $1,255,413, as compared with $696,594 in 1922. After allowing for depreciation this was equivalent to about 12.76 per cent, as compared with 5.63 per cent in 1922. The market for groundwood is not now as good as it has been, but the company is determined not to take chances on the wood pulp market. So it has planned to install new machines that will take care practically of its excess production of 100 tons a day of groundwood pulp and 70 tons of sulphite.

Wisconsin Mill Notes

Sprinkling systems are being installed in the two plants of the Peshtigo Paper Company at Peshtigo, Wis. The work, which was temporarily abandoned last fall, is being completed under the direction of Eugene Teeter.

E. Lambrecht has been elected president of the Employes' Mutual Benefit Association of the Hummel and Downing Company of Milwaukee, manufacturers of paper and boxes. F. Kleiber is vice-president, and F. W. Collins, secretary and treasurer. Directors are G. Ponik, C. Baier, Anthony Hart, F. Massman, A. Walker and Nell Fletcher.

Douglas E. Bishop, formerly connected with the Peshtigo Paper Company, recently was made superintendent of a new mill at Plattsburg, N. Y., according to reports in Peshtigo where he is visiting. He is preparing to take his family east.

The Yankee Paper and Specialty Company of Neenah has taken out a permit for an addition 30 feet wide and 50 feet long, to be built on its property on De Pere Street. The addition will be used for warehouse purposes, it is reported.

The S. and S. Paper Products Company of Cudahy has been incorporated with a capital stock of $100,000.

* * *

Improving Locks

During the last winter considerable improvement has been effected by the government on the locks in the village of Kimberly and in the vicinity of the mills of the Kimberly-Clark Company. New gates have been installed and are expected to be ready for the opening of navigation on April 12. Raising of the banks all along the canal will prevent water overflowing during the spring flood season in the future, it is expected.

* * *

Annual Report Out

Pacific Burt Company's fiscal year ended on April 1 and the annual report will be mailed out from Toronto to the shareholders in the course of a few weeks. The quarterly statements during the past year have shown that earnings have been well maintained and were even considerably ahead of the corresponding periods of last year. Profits amounted to $235,999 for the year ending March 31, 1923, and this was the largest experienced in the history of the company. It is stated that business conditions on the Pacific Coast have been very satisfactory for the company during the past year The sales during the final three months of this year were well ahead of the corresponding quarter of the preceding year.

* * *

Gets Appointment

The Canadian paper trade last week were interested in the appointment of A. A. Mulholland, of Toronto, to a place on the Toronto Board of Harbor Commissioners. Mr. Mulholland, who is widely known in paper manufacturing circles, was formerly a resident of Campbellford, Ont., where he was president of the Northumberland Paper Company.

* * *

Again at Capacity

The Nipigon Pulp and Paper Mills, Limited, which established a groundwood pulp plant of 70 tons capacity at Nipigon, Ont., and afterwards went into liquidation, changed hands some time ago and is now operated by the Nipigon Corporation, Limited, at Nipigon. The plant has been completely overhauled and is running at full capacity.

SAFETY CONTEST ENDS IN BLAZE OF GLORY

Tie at Kimberly-Clark Company Ends With Yellows in the Lead

THE Yellow division has been declared winner in the great safety contest conducted in the Kimberly mill of the Kimberly-Clark Company, the competition having closed on March 31. The contest was originally planned to run to March 1, but a tie developed. During that time the Green division had one off time accident which broke the tie. At the end of the contest the Yellows were leading by three points. The Kimberly mill will continue its safety work in an effort to land the world's safety record now held by the Niagara mill of the same company.

Officials and employes who co-operated in the contest feel that they accomplished the purpose for which it was arranged. They have installed into the employes of the mill the spirit of safety and have made each individual feel that he should be a champion of safety.

The Green division was the last to stage a program in the contest. It took place at the clubhouse and was the most exciting and forceful of any in its lesson. A fire scene was staged to show some of the dangers which are caused by fire. The chairman reviewed disastrous fires that had visited the Kimberly-Clark mills. Then came a fire scene. A small red schoolhouse had been built on the stage. The teacher rang a bell to summon pupils to classes. They assembled and while they were busy with the opening exercises the janitor was busy about the school cleaning. The teacher informed him there was no drinking water, the pipes being frozen, and he began thawing them out, using a blow torch. Suddenly teacher and pupils rushed from the building crying "fire."

A fire alarm was sounded, bringing the fire department. A student in the meantime rushed back into the building to get his books. He was trapped and suffocated by smoke before he could be rescued. This gave an opportunity for an exhibition of artificial respiration methods. A fireman, overcome, was treated with a lungmotor.

To conclude the practical demonstration of fire hazards Chief George P. McGillan of the Appleton fire department, who has charge of the Kimberly mill fire squad gave a talk explaining artificial respiration and reviewed fire dangers that could be avoided by taking precautions.

Programs will be put on in the mill from time to time to keep up the spirit, it was said, although the contest has officially closed.

* * *

Dies Suddenly

In excellent spirits and apparently recovering from a week's illness, Mrs. Albert F. Meisterhaim, 1023 Egleston Avenue, Sunday morning, urged her husband and two sons to hasten or they would be late to Palm Sunday services. Only a few mintues more than an hour later, the three hurried from church in response to an urgent call and reached home as the wife and mother was breathing her last. She was a victim of heart trouble.

She is survived by her husband, two sons, Carl and Philip; her mother, Mrs. Anna Baumann; four sisters, Mrs. E. C. Winburn; Erie, Pa. Mrs. H. H. Neumaier, Mrs. Frank McAllister and Mrs. Eugene McAllister, Kalamazoo and one brother, N. J. Baumann of this city.

Albert Meisterheim was for years purchasing agent of the King Paper Company. Leaving that position, he organized the Kalamazoo Trading Company dealing in paper stock and rags. In this line he has been very successful, and within the last two years has purchased from the Bryant Paper Company the plant, formerly owned by the Gumbinsky Brothers and operating both plants under the Kalamazoo Trading Company.

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Vicksburg, Michigan

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Commander Bond
Orchid Linen Bond
ReOrder Bond

Sentry Bond
Asset Bond
High Speed Bond
Scottdale Mills
Bulletin Mimeograph
High Speed Mimeograph

PAPER PRODUCTS

Conducted by J. E. Willert

The Paper Can Industry

By W. R. LENDERKING

Vice President and General Manager, Purity Paper Vessels Co., Newly Elected President American Association Paper Specialty Manufacturers

In discussing the subject as represented by the title of this article it could perhaps be truthfully said that the term "Paper Can" covers a multitude of sins. Unfortunately, the industry is in such an embryonic state that when one makes mention of a "Paper Can" it does not convey any particular meaning. I don't believe that the layman has any definite picture in mind when someone from the trade begins talking of a Paper Can and the question, "Just what do you mean?" would be a very natural one.

The use of metal containers, dating back for hundreds of years, even to the time of the Egyptians, has gradually brought about the use of the word CAN. Consequently, when the word CAN is used today the first thing that is thought of is some sort of a metal container, be it square, oblong, round or any other shape. Consequently, some descriptive word is usually used at the same time that anyone would make use of the word CAN.

Now certainly "paper" is a very general term, and even the layman's point of view when the word paper is used is somewhat limited. The layman knows a box by it being a shoe box, a sugar box, or a cracker box, but he does not know that it is chip board, news board, straw board, patent coated, etc., so that when the term "Paper Can" is used, very little is known as to just what is being talked about.

Through the slow but orderly processes of development, a great many types of paper CANS have come into use and perhaps the first of these to be used generally is the chip board container with ordinary drawn covers that is commonly represented by the container used for table salt. This container came into more general use after the development of spiral-winding machines in the early 1890s, and it seems that the spiral-winding method produced tubes cheap enough to make the product commercial. This same type of container is seen in many sizes in the drug-store for the packing of all sorts of dry and powdered drugs. But these containers are called "Paper Cans," and I believe wrongly so.

Then, of course, there are the many kinds of containers with paper side-walls and a metal friction top cover also referred to as "Paper Cans." There should be some distinctive term applied on the part of the manufacturer of these various products so that anyone, regardless of who it might be, could readily understand just what was being talked of by the mere mention of a descriptive word along with the word CAN. In order for everyone to know just what I am talking about, I am going to say that my article will deal chiefly with the cylindrical-shaped liquid-tight paper containers also called "Paper Cans."

W. R. LENDERKING

As far as I know, the first container of this type was produced by Charles Marthinson at Washington, D. C. I am told that Mr. Marthinson was engaged extensively in the lumber business and before retiring he desired to devote his effort toward the production of a commercial paper container that would hold liquids. His connection with such a proposition in their minds and patents were issued on various combinations of attaching the bottom to the side-wall. Mr. Marthinson was undoubtedly the first to get into the actual manufacture.

I don't know whether any of his containers were actually produced the year that his original patent was granted, namely 1909, but in 1910 some few containers were manufactured and he applied the trade name of Purity Paper Bottles to his product.

In the construction of this container the tube was made spirally wound from two-plys of manila board and carefully paraffined. The bottom was put into position by a special crimping process which was later called "locked-crimping," and no glue or other adhesive was used in applying the bottom to the side-wall. Through the locked-crimping process an absolutely liquid-tight joint was made.

So far as is known, the first use for these liquid-tight containers termed Purity Paper Bottles was for beer. The containers were sold through jobbers in the Metropolitan District of New York, who in turn sold them to the owners of cafes. But since the word "cafe" has taken on a different meaning after Mr. Volstead got in his deadly work, we can perhaps say that the first of these Purity Paper Bottles was used by saloons for draught beer. In other words, anyone desiring to take home a "schooner" would not first have to scout around for a pitcher or CAN, but simply went into a cafe, made the purchase and it was put into a liquid-tight paper container. Of course, these containers were found to be very satisfactory, consequently they were used for other purposes but the principal use in the early days was by the cafe owner.

Now shortly after the first Purity Paper Bottle appeared on the market, a container for the same purpose was produced by the Single Service Package Corporation of New York City. The side-walls were constructed in the same way, being a spirally wound tube, but the bottom was not crimped into the side-wall. There was a depressed groove put in the wall and the bottom (a disc) laid against this groove, the paper of the sidewall being turned over until it came in contact with the disc to hold it in place.

Early in 1914 the Paper Vessels Company of Baltimore, Maryland, came into existence and its first efforts were on the manufacture of a conical-shaped liquid-tight paper container and designed exclusively for use by the dairy trade. Toward the latter part of 1914 the Company put on the market what was termed a Pavesco Paper Can and in constructing the bottom, a sealing disc as well as a flanged cap was used in order to render the container liquid-

OUR SERVICE

THE BEST SERVICE WE RENDER PAPER MANUFACTURERS IS NOT AS PRODUCERS OF ENDLESS FELTS AND JACKETS, THOUGH WE DO THAT WELL. IT IS IN PUTTING AT YOUR SERVICE OUR ACCUMULATED EXPERIENCE OF THIRTY YEARS AND A THOROUGH UNDERSTANDING OF ALL THE PROBLEMS CONFRONTING THE PAPER MANUFACTURER IN HIS DESIRE TO PRODUCE MORE AND BETTER PAPER AT THE LOWEST COST PER TON.

IN OUR MANY GRADES OF FELTS AND JACKETS YOU WILL FIND ONE OR MORE GRADES THAT WILL MATCH YOUR MOST EXACTING CONDITIONS.

AVAIL YOURSELF OF OUR SERVICES BY GIVING US THE MAIN FACTS ABOUT YOUR PRODUCT AND WE WILL RECOMMEND THE GRADE OR GRADES OF FELTS AND JACKETS THAT WILL HELP YOU TO SECURE THE BEST RESULTS.

THE ORR FELT BLANKET CO.

Piqua, Ohio

tight, this construction being the patent of Dr. Wilbur Wright, who was the Vice-President of the Paper Vessels Company.

In February, 1917, The Purity Paper Vessels Company of Baltimore, Maryland, was formed, taking over the Paper Vessels Company as well as the Purity Paper Bottle Company of Washington and the plants of the two organizations were consolidated in Baltimore.

Early in 1918 the Sealright Company came into existence, manufacturing cylindrical-shaped liquid-tight paper containers and operating at Fulton, N. Y. The Sealright container generally conformed to the types previously discussed in that the side-walls were spirally wound and the bottom was a combination of disc and flanged cap.

It was really not until this time that the general possibilities of the liquid-tight paper containers were realized and the general broadening of the field of consumption was then started. One by one new uses were found and I believe that it can safely be said that these cylindrical-shaped liquid-tight paper containers are known to everyone who purchases foods from the fish and oyster dealer, the grocer, the butcher, the delicatessen, the soda fountain and lunch counter, the restaurant, the caterer, the ice cream store, etc. Some of the products for which they are being used are as follows:

Oysters, crab meat, shrimp, pickles, olives, mince meat, chow chow, cottage cheese, jellies, honey, syrup, lard, nuts, tea, coffee, cocoa, spices, sausage meat, pigs feet, brains, salt fish, hamburg steak, chipped beef, liver, hearts, tripe, scrapple roll, cornmeal mush, hominy, butter, salads, soups, baked beans.

Of course, there have been other manufacturers who have started into the business of manufacturing the same type of liquid-tight paper containers, but this article deals principally with the early development.

That the development of these liquid-tight all paper containers has added something definite to the distribution of food products goes without saying. From a sanitary standpoint they have filled a long-felt want as so many articles of food are not really adapted to packages made of metal or partly of metal. The entire tendency of modern times is to Paper packages and certainly the liquid tight all paper container has contributed a goodly share to the march of progress.

I hope that if I have done nothing more than advance the thought that the word combination "Paper Can" does not mean anything, that this article will have been of value. Certainly it behooves all of the manufacturers of paper containers to find some way of identifying the particular type manufactured, so that each and every one coming in contact with them will know exactly what is meant in an instant.

J. E. WILLERT
Secretary of American Association Paper Specialty Manufacturers

TWILLER SALES TALKS

Exhibition and Exposition are different. Make a good exhibition, give a fine exposition.

* * *

The wandering eye gathers no knowledge, the intensive look absorbs information.

* * *

Talk for talk's sake is a dusty wind. The short incisive question gets the clear comprehensive answer.

* * *

Chairs and tables have legs, so have men. Chair and table legs are made to stand on. Men use theirs to get there with.

* * *

Pay your debt to the world with your best, but don't kick about where or through whom you are paying it.

Union Men Confer

During the next two weeks representatives of the unionized workers in Canadian pulp and paper mills will confer with the representatives of the latter on wages. In view of the fact that a reduction in newsprint prices is in prospect the indications are that the mills will stand for revision downward, instead of in an upward direction. It is understood that the Spanish River and the Abitibi Companies, two of the largest Canadian producers, with some American mills, will favor downward revision. Certainly there is nothing in the Canadian situation to warrant an increase.

* * *

Fred C. Clark, at one time in charge of the Paper Section of the U. S. Bureau of Standards, and more recently general manager of the Pejepscot Paper Company, at Pejepscot, Me., has become connected with the Hawthorne Paper Company, manufacturers of bonds and ledgers at Kalamazoo, Mich.

American Association of Paper Specialty Manufacturers

THE accomplishment of the forming of the American Association of Paper Specialty Manufacturers is of great importance to the paper industry. The ever increasing production of paper specialties is continually enlarging paper tonnage, therefore the paper manufacturer should be intensely interested in the association, as one of its objects is to increase the use of presently manufactured specialties and to always seek the creation of new ones to fit in the changing conditions of life.

The association is now functioning, it is of so much value to the Paper Specialty manufacturer that he should seek it. The secretary is ready to answer all inquiries.

The following are the officers: President, W. R. Lenderking of the Purity Paper Vessels Company, Baltimore, Md.; vice-president, Karl Becker, of the Westfield River Paper Company, Russell, Mass.; vice-president, Emil J. Hensen of the Fort Howard Paper Company, Green Bay, Wis.; secretary and treasurer, J. E. Willert, 152 West 42nd Street, New York City.

* * *

Is Made Manager

John A. Frost, for the past four years head of the purchasing department of the National Paper Products Company at Carthage, was last week promoted to manager of the sales organization, to become effective at once.

Mr. Frost succeeds J. J. C. Downey, who has been sales manager since 1920, who resigned last week. C. J. Roberts, assistant sales manager, also resigned his position with the National Paper Products Company following Mr. Downey's resignation.

Mr. Frost is a former resident of Watertown, and at one time was connected with the Watertown National Bank. His father was the late A. E. Frost, who was in the lumber business here for many years.

* * *

Denies A Rumor

Floyd L. Carlisle, of New York, former president of the Northern New York Utilities Company, last week denied that the rumor that was current to the effect that the Northern New York Utilities Company would take over the power of the International Paper Company at Glen Park and Brownville.

It had been rumored for some time that the Utilities Company would take over the two mills and use them as power plants. It was also rumored that the Utilities would take over the Sewall Island power. This, Mr. Carlisle did not deny.

* * *

Named General Manager

A. M. Irvine, who has been director of several companies operating in the Saguenay and Bay Chaleurs districts, including the Saguenay Pulp and Power Company and the Bay Sulphite, has been appointed general manager of coal sales of the British Empire Steel Corporation and its subsidiaries.

* * *

New Mill Starts

The new 100-ton paper mill which was erected at Kenore, Ont., by the Backus-Brooks Company, has begun operations. The first sheets of paper were turned out a few days ago and stood the test thoroughly. The paper is of excellent texture and the initial run was satisfactory in every way.

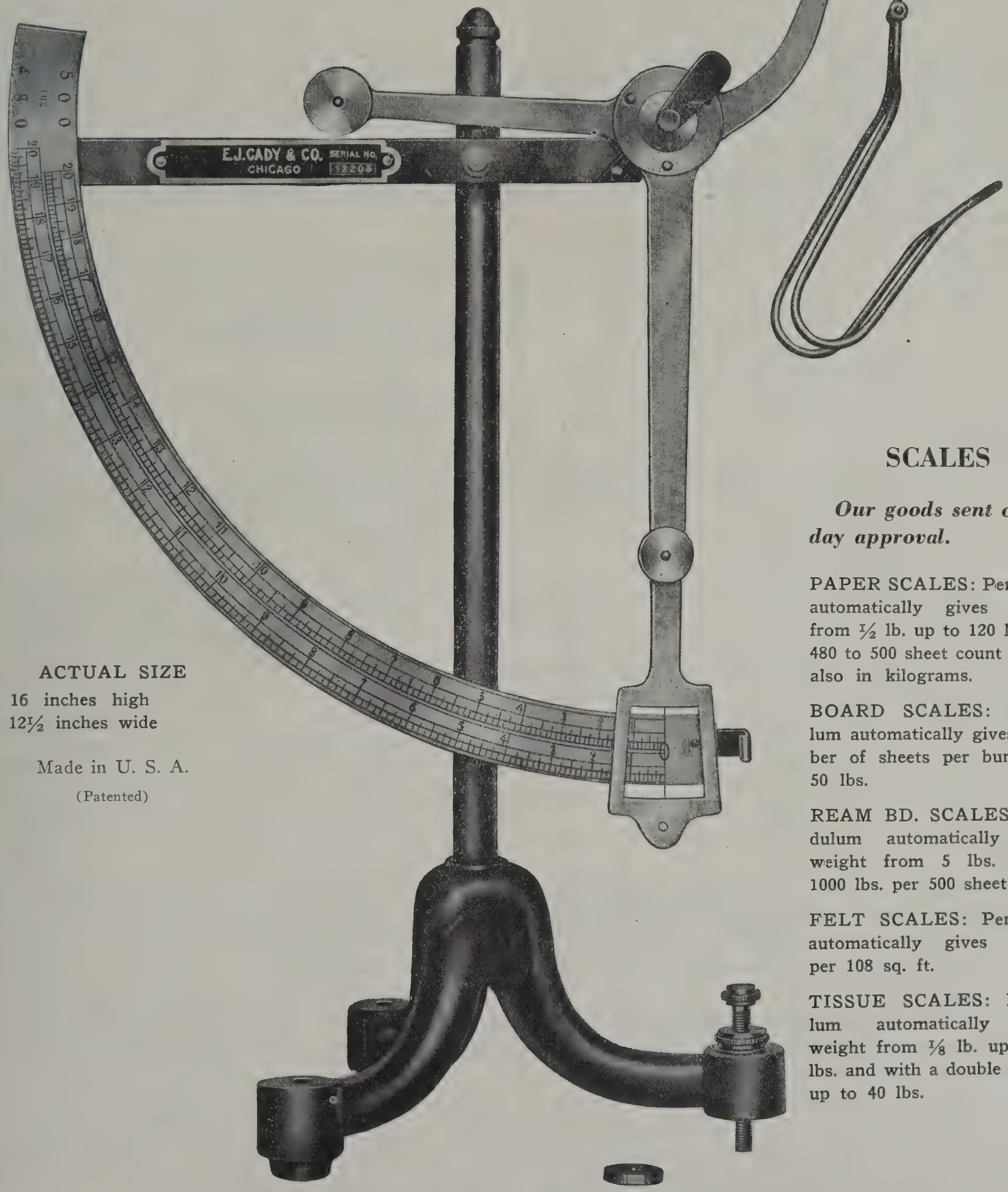
* * *

Incorporated for $100,000

The Sherman Paper Box Company, Inc. of Boston, Mass., has been incorporated with a capital of $100,000. The incorporators are President, Beatrice B. Sherman; treasurer, George Cummings, Cummings Road, Brighton, Mass.; clerk, Sanda R. Herron.

BUILT STRONG

there is no solder or paint about the scale. Standards are of black enamel, pendulums and discs are of white brass and baskets of heavy aluminum rod.



ACTUAL SIZE
16 inches high
12½ inches wide

Made in U. S. A.
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SCALES

Our goods sent on ten day approval.

PAPER SCALES: Pendulum automatically gives weight from ½ lb. up to 120 lbs. per 480 to 500 sheet count in lbs., also in kilograms.

BOARD SCALES: Pendulum automatically gives number of sheets per bundle of 50 lbs.

REAM BD. SCALES: Pendulum automatically gives weight from 5 lbs. up to 1000 lbs. per 500 sheet count.

FELT SCALES: Pendulum automatically gives weight per 108 sq. ft.

TISSUE SCALES: Pendulum automatically gives weight from ⅛ lb. up to 20 lbs. and with a double weight up to 40 lbs.

Write for life size circulars.

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Selling and Salesmen

By J. E. WILLERT

Secretary Treasurer American Association American Paper Specialty Manufacturers

SELLING and trading are as old as the hills and will live so long as the world lasts. Mankind will always be demanding, its needs will ever be present. The meeting of these demands, the satisfying of these needs creates the employment of all the people. Each individual is engaged in some part of it, either in the production of commodities, selling the labor of their hands, the creative power of their brain, or in the distribution of commodities by their wit and ability, selling to each other. Every person sells something and the sale is made according to the power within the person.

Selling commodities or products of any kind is the work of an artist. The salesman to produce a finished work, the sale, must be endowed with talent and ability.

In the olden day when one commodity was traded for another, the need made the value and the basis of the trade. Wit and shrewdness were the determining factors of the transaction.

Present day trading requires more than wit and shrewdness.

Today the salesman must be incisive. not only must he knew human ntaure, he must be a psychologist, a psychoanalyst, a drawer of word pictures, a creator of ideas, a solver of problems.

His source of information must be wide, his fund of knowledge large, he must be prolific with ideas, fertile in suggestions, versatile, tactful, diplomatic, newsy in conversation, no historian, plausible in argument.

In disposition he must be optimistic, sympathetic, imaginative without being a dreamer or fanciful, full of veracity, confident, positive without stubbornness, loyal to himself and his position, dignified, not a sycophant.

He must be a student of the needs of the people, knowing the effect on humanity of the environment in which they live and their trend of mind.

All these attributes will be valueless unless there is a perfect coordination with the firm he represents and complete intimacy with their merchandise.

For the firm he is the ambassador, the intermedio, the prophet, from him the customer gathers the character of the firm he represents, visualizes it. The salesman's personality impresses itself so firmly on the customer that all the dealings of the customer with the salesman's firm will be governed by this impression. The salesman is the breath of the firm, their full expression.

This being the case he must so comfort himself that the customer will gain a lively respect for his firm and a perfect confidence in them.

His relation to the merchandise he sells must be a close one, he must have a firm belief in its quality, its selling virtues must be strongly imbedded in his mind.

There must be no partiality towards any particular item which he sells, but an even distribution of interest over all. Well balanced orders will be the result, a welcome condition, making prompt deliveries easy.

To know the population of a city or town, to get a true reflection of the people, a salesman should cultivate an investigating acquaintance with the employees of his customer, they should be friends, made so by the confidence they have gained in him through the veracity of his dealings and his helpfulness.

His continuous interest in the customer's stock, his carefulness in the recommendations and suggestions he makes on his customer's purchases is helped by his knowledge of city, town, neighborhood and people.

There is great danger in selling an article to a customer merely because it is cheap or special reduced to close out. Any article sold must surely fit the neighborhood, specials do not always fit and do not sell, thus causing a loss to the customer which may alienate him permanently.

Too much stress cannot be laid on the necessity of carefully studying a customer's wants and the needs of his trade. This is the cornerstone of a perfect customer following.

When the attributes of a salesman and the operation of practice which I have cited are closely linked in rhythmical movement complete selling success is sure.

High motive and dignified representation with intellectual grasp result in an efficient selling organization. Every sale deterrent is removed and certain confidence maintained.

Keeping pace with the world's progressive selling has become an art, a science. Great strides forward in civilization have followed the trader.

Selling and the salesman must remain on the pinnacle of integrity, stable, unswerving and sure, that commercial supremacy may be maintained.

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Log Hauls and Deck Machinery
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Chippers
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Wausau, Wis., U. S. A.

Paper Machine Felt and Press Rolls

Selection and Proper Treatment of Papermakers' Felts—Functions of Press Rolls and Advantages of Soft Rubber Surfacing—Merits of Wooden and Stone Rolls

By HENRY F. OBERMANNS

General Superintendent, Hammermill Paper Company, Erie, Pa.

In this article, which is reproduced from the Wochenblatt fuer Papierfabrikation, for March 10, 1924, the general superintendent of the Hammermill Paper Company gives a good account of American mill practice with regard to the felts and press rolls used on paper machines making different classes of paper. The kinds of felts used in newsprint manufacture differ from those for the production of fine papers where felt-marks must be avoided. Some suggestive thoughts are expressed concerning the choice of material for top and bottom press rolls. The lower press roll works best when covered with soft rubber, a softer rubber being used nowadays than was the practice in former times. As to the choice of material for top press rolls, stone appears to be preferred, though soft rubber gives better results when the stock is in that condition known as free. Mr. Obermanns writes with a good practical knowledge of the subject and has brought out several matters of great interest to papermakers.

THERE is perhaps no article in daily use in the paper mill which is treated with so little consideration as the papermakers' felts. The average machine tender and unfortunately a great many superintendents as well, often fail to appreciate the many advantages that can be gained by the proper selection of the right type of felt as well as the proper treatment of the felt after it has been placed on the paper machine. Just as important as the proper selection of a felt is the proper selection of rubber press rolls which are to operate in conjunction with the felts.

Function of a Felt

What is the function of a felt on the paper machine? The most apparent purpose for which it is there is, of course, to guide the delicate, very wet sheet of paper through the presses, to act as a sponge, to absorb the water which is removed from the paper by pressure. Good felts must possess three very important qualifications; they must be strong enough to have good wearing qualities; they must be open so as to allow the water which is removed by pressure to pass through readily; they must have a good finish and surface so as to impart a good surface to the paper and to avoid felt marks which would cheapen the appearance of the paper produced by them. It is very difficult to combine these three features successfully in a felt, very often it becomes necessary to sacrifice one of the qualities in order to get the best results.

Essentials in Newsprint Manufacture

Again, we have to consider carefully just what grades of paper are to be produced with the felt in question. On paper machines making newsprint the essentials are high speed and production and thorough water removal. The latter is particularly important in locations where fuel is very expensive as every pound of water removed by evaporation on the dryers will cost from ten to twenty times as much as when this amount of water is removed by pressure in the presses. Felts combining strength with openness are therefore ideal for this purpose. This fact has been recognized by a number of the largest newsprint paper manufacturers in Canada who meter carefully the amount of water removed by each press. A felt is removed from the paper machine as soon as the amount of water removed drops to a certain minimum regardless of the physical condition of the felt.

Fine Papers Need Different Felts

Quite different is the analysis if we are considering the purchase of a felt for the manufacture of fine paper. While here of course, a certain amount of strength and openness is also needed, one of the most important features is perhaps the surface or "finish" of the felt so as to produce a sheet of paper of the desired surface and free from objectionable felt marks. The threads of wool in the felt cannot be twisted quite as hard, which means of course, lower strength.

At this point I wish to bring out the important part which the lower press roll, usually covered with rubber, plays. These rolls can, as a rule, be made out of considerably softer rubber than has been the practice in the past and by doing so stronger and more open felts can be used without producing any felt marks, while the life of the felt is at the same time very materially extended.

Use of the Plastometer

At this place I wish to say something regarding an instrument made by the Pusey & Jones Company, of Wilmington, Del., which is used quite extensively in this country; it is known as the Plastometer, that is, an instrument measuring the plasticity of rubber. The instrument consists of a vertical shaft ending on its lower extremity in a ball ⅛ in. in diameter. This shaft supports a weight of 1 kilogram, a weight which, when permitted to rest upon the rubber, sinks into it according to the softness of the rubber, the distance being recorded by a delicate micrometer. Rolls commonly in use on paper machines will show a density of 30 to 40 points. This means that the kilogram weight supported by the ⅛ in. ball sinks .30 to .40 mm. into the rubber.

Softer Rubbers Work Best

Newsprint paper manufacturers in recent years have experimented with softer rubbers up to .75 mm. density and while it became necessary to remove their rubber press rolls after every two weeks for regrinding, this expense was justified by the smoother operation of the paper machine and increased water removal. There seemed to be a limit of softness at which the rubber manufacturer was able to produce his rolls as the softer the rubber the quicker a roll would corrugate, that is, the rolls would not retain its perfectly round and true shape. About a year ago, however, the B. F. Goodrich Rubber Company, of Akron, Ohio, experimented with a new rubber compound and with my aid, experiments were carried on at the mill of the Hammermill Paper Company. These rolls were made of extreme softness, the ⅛ in. ball of the plastometer making a 1. mm. indention but the result on the paper machine was very gratifying. Rolls after six months service on the machine, showed absolutely no change either in their crowning or in their diameter and no sign of corrugation was noted after even this long running period. The felts have lasted 50 percent longer than heretofore, and felt marks in the paper were wholly eliminated, although the softer press rolls enabled us to use a very much stronger and more open felt. Today we have all of our machines equipped with rolls of this kind and while it would seem hypothetically that a softer roll should not remove as much water as a harder one, this has not been true in practice, as the more open felt which we are able to use fully compensates.

KEITH PAPER COMPANY

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"*Keith* K-P-Co *Quality*"

Manufacturers of Standard Lines
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PAPERS *and* BRISTOLS

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Bonds
- Keith
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- Papers and Bristols
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The American Papeterie Company, of Albany, N. Y., is the exclusive manufacturer of Keith's Watermarked Papers in stationery form. Parsons & Whittemore, Inc., 299 Broadway, New York City, Export Agent.

Treatment of Felts on the Machine

Now a little about the treatment of the felts on the paper machines as practiced here in America, and I feel certain that these things will be of interest to some of the German papermakers. Squeeze rolls for felt washing such as are used in Germany particularly for first presses, are never used in America. We, as well as other people, have tried them but the idea has never appealed to us. In American paper mills it is customary to shut the paper machine down every 24 hours during which time the felts are washed and other minor repairs made to keep the machine in the best physical condition.

One-Sided Felts

During recent years felts are being used more and more which have the soft woolen cushion only on one side, which means that the felts can not be turned over. It has, however, this advantage that the extra heavy cushion protects the heavier threads and felt marks are less apt to occur. I am also inclined to believe that the felts made in this manner last longer as the soft fluffy wool on the outside of the felt does not come in contact with as many felt rolls, or felt suction boxes all of which are located on the inside of the felt. Great attention is also paid to the condition of the felt-carrying rolls over which the felt has to pass. Wooden rolls are not now used, except perhaps on very small machines. Iron rolls are entirely objectionable as in course of time, they become pitted and corrode, and in this way materially aid in reducing the life of the felt. Felt rolls covered with brass and copper tubing are usually used, though in recent years felt rolls covered with hard rubber are coming more and more into use. These rolls are always smooth and render satisfactory service.

Trouble from Defective Worm

Usually one felt-carrying roll on each felt is replaced by a worm roll. In former times when small machines and wooden rolls were used a worm made of felt was tacked to the wooden rolls. Today copper-covered rolls with copper worm soldered to its surface are largely in use but here also rubber is gradually and satisfactorily replacing them. It is important, of course, that these metal worms do not have any sharp edges and that the worm is of a uniform and even pitch. I had an interesting thing occur in this connection about a year ago when on one of our paper machines the felts began to give out very persistently after only about 50 percent of the regular running time. Careful analysis at last brought out the fact that the worm roll on this particular felt had several months ago, been repaired in such a manner that the pitch of the worm was somewhat irregular. After replacing this defective worm with a new one our troubles immediately ceased.

Types of Press Rolls

As previously stated, rubber is usually used in this country for bottom press rolls, while for top press rolls chilled iron, wood, bronze, steel or rubber are employed. Wood makes a very satisfactory press roll and this perhaps is more extensively used particularly on the older machines. Hard maple is the wood usually employed. With the faster and larger paper machines it is getting more and more difficult to find logs of the proper soundness. One disadvantage of the wooden press rolls is that it is difficult to maintain good fitting doctors on the press rolls and that the press rolls also frequently have to be turned down in order to maintain a smooth surface. Chilled iron press rolls are still being used quite extensively, though the paper very persistently stick to them, particularly if the stock is somewhat "free." In recent years the stone press roll has made its appearance in this country and wherever this is used it is entirely satisfactory. On certain grades of paper, particularly book papers, where the condition of the stock is always rather "free," comparatively soft rubber rolls are used as top press rolls. If these rolls are pressed very hard the paper almost refuses to stick to the rubber and they are accordingly used quite successfully by a number of mills making book papers.

Crowning of Bottom Press Rolls

Nothing definite regarding the crowning of the bottom press rolls can be said, as that, of course, depends on the density of the rubber, the construction of the press roll body, and the width of the paper machine. I want to mention, however, that on a 100-in. machine with press rolls of 1.00 mm. plastometer reading I am obtaining the best results with a crown of about 45/100 in. in diameter.

* * *

Handle Most Wood

According to recent word from Morrisburg, Ont., the Waddington Pulp Terminal will handle between 50,000 and 60,000 cords of wood this season. A second conveyor, 750 feet long, and two drum barkers to take care of the rough wood, have been installed. The new conveyor will replace the old one blown down three years ago. Last year thirty-four vessels, with a cordage of 21,000 arrived at the terminal.

* * *

Scouts Make Profit

Boy Scouts of Kalamazoo Saturday netted about $100 in their second collection of paper in the cleanup campaign now is progress.

This paper is taken directly to the plant of D. Graff and Sons and disposed of in bulk. This is not sorted at all by the Scouts.

Turn to the Clearing House and Read Every Line—It Will Pay You

Report Is Made

The Dominion Bureau of Statistics has just published its review of the pulp and paper industry for 1821 and 1922. The British Columbia mills reporting show that in 1921 they consumed 225,240 tons of pulpwood or 10.3 per cent of the total for all Canada and in 1922, 274,649 tons which although an increase of material, showed a lesser percentage of the Dominion total, demonstrating that the increased B. C. production did not keep pace with the eastern provinces.

The following production table is part of the statistical report:

B. C. Wood Pulp Production

Kind of Pulp—	1921	1922
Ground Wood Pulp	89,348	100,483
Soda Fibre	.....	......
Sulphite Fibre, bleached	17,273	24,077
Sulphite Fibre, unbleached	51,544	63,997
Sulphate Fibre	6,888	9,869
Screenings	.....	.....
Total Tons (of 2,000 lbs.)	165,053	198,426

B. C. Paper Production

Kind of Paper—	1821	1822
Newsprint	92,594	124,555
Book and Writing Paper	.....	......
Boards	.....	......
Wrapping Paper	5,407	6,045
Total tons	98,001	130,600

* * *

New Plant at Longview

August F. Beisse, prominent contractor, will have supervision of the construction of the Pacific Straw Paper & Board Company's plant to be erected on the 15-acre site recently purchased in Longview's industrial center. Work will be started about May 1, according to Charles F. Schaub, who is president of the company.

Three units of the plant are to be built now at a cost of approximately $60,000. Machinery to be installed in these buildings will cost about $100,000.

* * *

Future in West

An editorial in a Portland, Oregon daily newspaper urges reforestation, making the statement that the last great coniferous forests of the continent are in the Pacific northwest.

The editorial says, "Reforestation looks toward the future. In this it is broadvisioned beyond the ordinary enterprises of man. Those who sow shall not reap, but the nation will. Idealism has entered the project. True, reforestation is profitable in a commercial sense, but the investment is so protracted that one may well conclude it to have been made out of humanitarian motives, or at least to assume that these enter largely into the plan."

* * *

Completes Her Contract

Mrs. Kate Bowerman, a lumberwoman contractor of Silver Mountain, Ont., was in Fort William a few days ago, after completing her winter's work and delivering 400 cords of wood to the Hammermill Paper Company. The wood was on her own property, and she took out the contract in the ordinary way, superintended the construction of her own camp, employed her gang of bushmen, put them to work, supervised the cutting of the pulpwood, and drove a team herself when any of the teamsters took ill. Mrs. Bowerman says that next year she will take out another contract, probably on a larger scale.

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BOOKS— *for the Technical Worker*

SOME of the books which were on display at PAPER'S booth in the Paper Industries Exposition are listed below. Among these are volumes which will have a special appeal to different workers in pulp and paper operations. We are now taking orders for the books which will be sent postage paid on receipt of price.

FOREST PRODUCTS: Their Manufacture and Use, by Nelson C. Brown, Professor of Forest Utilization at the New York State College of Forestry, Syracuse University	$4.00
ELEMENTARY CHEMICAL MICROSCOPY, by Emile M. Chamot, Professor of Chemical Microscopy and Sanitary Chemistry at Cornell University	$4.25
GENERAL CHEMISTRY, Emphasizing industrial Applications of Fundamental Principles, by Horace G. Deming, Professor of Chemistry at University of Nebraska	$3.50
APPLICATION OF DYESTUFFS, To Textiles, Paper, Leather and Other Materials, by J. Merritt Matthews, Ph.D.	$10.00
THE TEXTILE FIBERS: Their Physical, Microscopical and Chemical Properties, by J. Merritt Matthews, Ph.D.	$10.00
AN INTRODUCTION TO THEORETICAL AND APPLIED COLLOID CHEMISTRY, by Dr. Wolfgang Ostwald, translated by Dr. Martin H. Fischer, Eichenberg, Professor of Physiology at the University of Cincinnati.	$2.50
CHEMISTRY OF PULP AND PAPER MAKING, by Edwin Sutermeister, S. B.	$6.00
FRENCH-ENGLISH DICTIONARY FOR CHEMISTS, by Austin M. Patterson, Ph.D.	$3.00
GERMAN-ENGLISH DICTIONARY FOR CHEMISTS, by Austin M. Patterson, Ph.D.	$2.50
WALL PAPER: Its Origin, Development and Manufacture, by George Whiteley Ward	$1.00
PAPER, by H. E. Maddox	$1.00
PRINTING, by H. E. Maddox	$1.50
PRINTING FOR SCHOOL AND SHOP, by Frank S. Henry	$1.50
THE MANUFACTURE OF PULP AND PAPER, a series of text books prepared under the direction of the Joint Executive Committee on Vocational Education of the Pulp and Paper Industry. Four volumes now issued	$5.00 each
ONE THING AND ANOTHER, by Judge Charles F. Moore. This book contains 200 pages of the Judge's wit and wisdom, printed on fine paper with a photogravure portrait of the Judge. His speeches and lectures are those of a philosopher, wise, kind and altogether good humored. Every man connected with the paper industry should have a copy of this book as a memento of "The best friend the paper industry ever had."	$10.00

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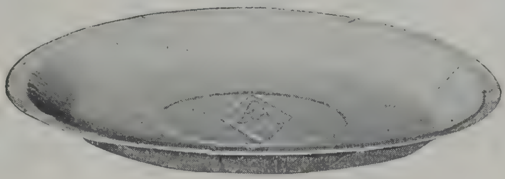

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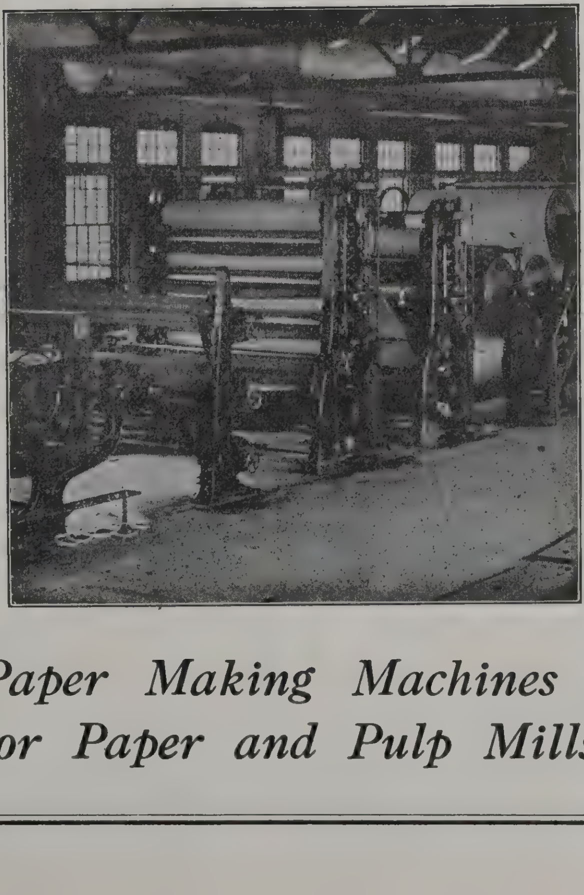

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Decker Cooking System

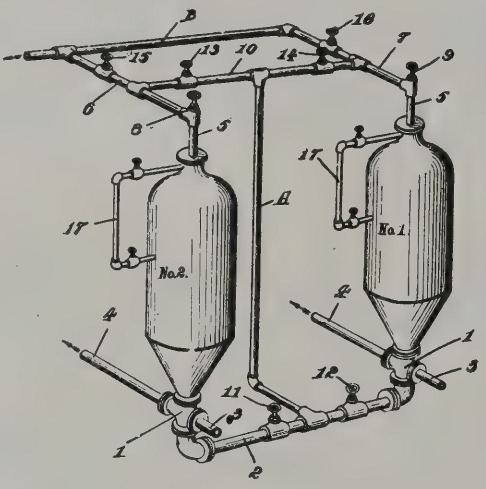
Particulars of a New Method of Using Relief Gases and Heat for Cooking Wood in a Series of Digesters

IN view of the discussion which has been carried on in some of the German paper trade periodicals concerning priority and validity to title of the patent taken out by Lemuel B. Decker, of Kenogami, Quebec, Canada, covering an improved method of cooking wood by the sulphite process, readers of PAPER will be interested in a statement of the claims made by Mr. Decker for his invention. It may be stated briefly that, while it is called a recovery apparatus, it is in reality a method of connecting up digesters in series in such a way that the relief of the first digester is carried over into the second and so on, as many as six digesters being connected in this way.

The accompanying illustration shows a pair of digesters connected as above stated. Mr. Decker represents his invention as being designed especially for the recovery of sulphur dioxide gas, relief liquor and heat in the process of cooking. As stated in the specifications of Patent 1,477,041, the invention is employed in connection with two or more digesters connected in such a manner that the gases created in one of them may be conducted into the other for use in a subsequent operation of the latter digester. Likewise there is an effective transfer of heat from one digester to the next one during the successive operations, as a result of which the apparatus recovers and conserves heat energy that would otherwise be wasted in the ordinary cooling system.

An additional feature of the invention resides in a means whereby all the digesters of the system are connected to an acid storage tank into which the gases given off may be conducted as desired. It is stated that in practice the apparatus gives a greater yield of No. 1 pulp per digester as well as a more uniform and better quality of stock. As illustrated herewith, the device consists of a pair of digesters indicated as No. 1 and No. 2 respectively. The coupling 1 into the lower openings of which is fitted a cross pipe 2 placing the digesters into communication at their lower ends. One of the lateral branches of each cross receives an acid supply pipe 3, properly fitted with valves or the like (not shown) for controlling the flow of acid thereinto. These pipes 3 may also be joined to a suitable steam supply as is already known in the art. The remaining lateral branch of each cross receives a discharge pipe 4 which communicates with a blowpit.

Each digester is provided at its top with an outlet pipe 5 communicating with the lead-off pipe B by means of the branches 6—7. The lead-off pipe extends to an acid storage tank (not shown). The outlets 5 are controlled by means of valves 8 and 9 fitted in the junctions between these pipes and the branches 6—7. A cross pipe 10 joins the two branches and communicates with the cross pipe 2 by means of a by-pass A connected into the intermediate portions of these pipes. The two sides of the cross pipe 2 are controlled by suitable valves 11 and 12, while opposite sides of the cross pipe 10 are provided with valves 13—14. Similarly the portions of the branches 6—7 rearward of the cross pipe 10 are fitted with the valves 15—16. The digesters may be equipped with gauges 17 for an obvious purpose if desired.



In operation, digester No. 1 is filled with chips and acid in the usual manner. Digester No. 2 is then filled with chips and ¾ full of acid. Steam is introduced into No. 1, thus raising the interior to the desired pressure in the usual manner. The valves 9, 14, and 11 are opened, the remaining valves being closed whereby hot acid and gas pass from digester No. 1 into the bottom of No. 2 through branch 7, pipe A and cross pipe 2. Valves 8 and 15 are now opened, valve 13 being kept closed, thus allowing the gas rising from digester No. 2 to flow into the lead-off pipe B and to the storage tank.

When the cooking process in digester No. 1 is finished, valves 9 and 12 are closed so that the product may be blown out through the discharge pipe 4. Valves 9, 14 and 11 are now closed, and the digester is filled with chips and a ¾ charge of acid instead of a full charge as in the previous instance. Digester No. 2 is brought to the proper pressure with steam through pipe 3. Valves 8, 13 and 12 are opened, valve 15 being closed, to allow the hot acid to enter the by-pass A, whence the acid gas enters the bottom of digester No. 1 for completing the acid charge therein. Valves 9 and 16 are now opened to allow the gases rising from digester No. 1 to flow to the acid storage tank. When the cooking process in digester No. 2 has been completed, the contents are blown off and the operation may be repeated in the manner described.

* * *

To Make Boxes

The Alfred Frost Paper Box Company, 448 High Street, Central Falls, R. I., recently organized under the laws of the State of Rhode Island to manufacture paper boxes of all kinds, is headed by Joseph Stenhouse and Charles L. Hawes.

* * *

Club House Opens

At the formal opening of the new club house of the Spruce Falls Company at Kapuskasing, Ont., E. J. Jones, general manager of the company, outlined the objects of the club and said that he hoped it would be the means of bringing about a proper community spirit. Mr. Shattuck, a director made the presentation of the building to the employees and in so doing said that the directors had but one request and that was that its facilities be used to the utmost capacity. Addresses were given by prominent municipal officials and others from various places in the district. The Spruce Falls Company are turning out 120 tons of easy bleaching sulphite pulp daily at its plant at Kapuskasing.

* * *

Operated at Capacity

The MacLeod Pulp and Paper Company at Milton, N. S., operated at full capacity this winter, the latter part of the season especially having proved very favorable to logging operations, permitting the farmers and small woodlot holders to get out and draw to the mill large quantities of pulp logs. The company will have 3,000 cords floated down the Liverpool River, from the hinterland, as far back as Maitland Bridge, Annapolis county. The S. S. Bornjholm loaded a cargo of pulp from the MacLeod mills, the first week in March, at Liverpool, for Brooklyn, N. Y. and will make regular trips between the two ports for the next two months.

* * *

Observes 97th Birthday

John R. Booth, the "Grand Old Man" of the Chaudiere, at Ottawa, veteran lumberman and pulpwood operator, and one of the monarchs of the timber industry in Canada, celebrated his ninety-seventh birthday on April 5. Mr. Booth, despite his weight of years, is a picture of rugged health. Undeterred by a recent illness which confined him to his home from December up to a couple of weeks ago, he is driving daily to the mills at Chaudiere—not in an automobile, but with a horse and buggy. He makes a daily inspection of the mills.

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He has helped the legislation that helped the Industry—fought proposed laws that were against it and clearly earned the summing up of one of the most prominent men in Paper—"The best friend the Paper Industry ever had."

The Judge was a wonderful orator. His speeches and lectures are those of a philosopher, wise and kind and altogether good humored.

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An Association Paragon

By **B. F. McBAIN**

WRAPPING Paper Manufacturers the world over seem about the same. All are fine and dandy good fellows, but they don't seem to have the confidence in each other they should have. They have too many organizations, however. About 50% belong to one, 30% to another and 20% don't just belong at all.

Too many of them have good cost knowledge but don't use it. Others don't know what their products cost and trust to luck that they are charging enough to come out whole, or a little better.

It would seem that it is about time for the Wrapping Paper Manufacturers of Minnesota, Wisconsin and Michigan to form an Association of their own, separate and distinct from any other association and get together regularly to their own good. If the law allows National Associations, it will allow like Inter-State Organizations and then those manufacturers who are competing in a certain market would have an association that should be worth while, providing they got the right sort of a man to manage it; one who knows the manufacturing game; one who would visit all of the mills of the Association at least twice each year and go over their costs with the Managers; one who would be confidential in every way as between the private business of the different mills; one in whom all the mills would have confidence; one who understands costs and methods of arriving at same; one who knows the places where the one great sin of all manufacturing, waste, is committed and one who could show each mill just what he makes at a profit and what he makes at a loss.

There are not many such men available but what such service would be worth to the Manufacturers of any section would be impossible to estimate.

We now have our Cost Associations, our Sales Association, our Association this and our Association that, but when you get right down to brass tacks what do they accomplish? True, they spend a lot of money and if gone after they will serve, but it is a case of go get it, if you expect to get your money's worth.

This would not be so of such an organization of the Lake States Wrapping Paper Mills as I outline above, and, in the end much of the present foolishness of the wrapping paper game could be eliminated.

Why wouldn't it be a good idea to get a bunch of manufacturers together and then send someone around to all the mills in the district named to get the names of all the mills on the dotted line, organized for efficiency in Manufacturing, in production, and in everything now before the Industry that is detrimental that in the end all may live.

Start Enlargement

Work will begin shortly on the construction of the first unit of a scheme of general development and enlargement of the plant of the Powell River Company, pulp and paper manufacturers of Vancouver, which will entail an ultimate expenditure of between $5,000,000 and $6,000,000 it has been announced by Norman Lang, managing director of the company.

Before the work of enlargement of the capacity of the big pulp and paper mills can be gone ahead with it is necessary to raise the height of the dam at the falls on Powell River and to increase the wharf facilities. Contracts approximating $600,000 have been let for these works and Messrs. W. C. Ditmars, Stuart Cameron and J. Connell, contractors of Vancouver, have been awarded the preliminary contracts.

The dam will be raised eight feet, providing additional water storage and power for an increase by 75 per cent. of the present capacity of the mills. The wharf will be 600 feet in length and slightly larger than the present docks.

It is expected that these undertakings will be completed within eight months.

In addition to the plant the company is spending large sums in town improvement. Forty homes have been constructed recently and there are 112 families on the waiting list for houses.

Hanna Again President

Mark A. Hanna, formerly of Watertown, and now residing in Cleveland, Ohio, where he is connected with a newspaper syndicate as well as the Champion Paper Company, was re-elected president of the Champion Paper Company at the annual meeting held in Carthage, N. Y., last week.

Other officers were re-elected as follows: C. H. Hanna of Cleveland, vice-president; R. B. Maltby of New York City, secretary and treasurer and C. T. Wright of Carthage, assistant secretary and treasurer.

In addition to the officers the board of directors is made up of F. P. Wadley of Watertown, George M. Seaman of Chicago and J. B. Seaman of New York.

Owing to the absence of the president and vice-president, the business was conducted by Mr. Maltby. Besides the election, the regular routine business of the organization was taken up.

Getting Much Pulpwood

An average of 20 cars of pulpwood a day is being received and unloaded at the Port Arthur Division of the Provincial Paper Mills. The Thunder Bay Company and the Fort William Paper Company are also receiving a large number of cars daily. It is believed that over fifty cars of wood daily are coming into Port Arthur and Fort William.

* * *

Already at Work

J. H. Black, of Toronto, president of the Great Lakes Paper Company, which is to commence a two million dollar newsprint mill at Fort William, and which has a groundwood plant under way, has completed arrangements for the booming of the pulpwood, having secured from the city the right to boom in front of the required properties fronting on the Kaministiquia River.

* * *

Planning New Plants

The International Fiber Board Company, Limited, which some time ago was burned out at Penetanguishene, Ont., and later reestablished a plant at Midland, Ont., are planning on the installation of another plant at the latter point but particulars have not been given out concerning it. The company are doing excellent business in fiber board products and it is stated that their present plant is not sufficient to take care of their expanding trade.

* * *

Recovers From Injuries

George C. Winlow, of Toronto, sales manager of the Lincoln Paper Mills, has so far recovered from the effects of injuries received in a recent train wreck at Bellville, Ont., as to be able to leave the hospital. His many friends in the paper trade were pleased to greet him again. Mr. Winlow will shortly leave on a business trip through the Canadian west to the Pacific Coast.

* * *

Plan For Meeting

Committees representing the Canadian Paper Box Manufacturers' Association have been meeting in Toronto recently making initial arrangements for the annual meeting of the organization which is to be held in Ottawa in June next. The gathering will bring together many men prominent in the paper box making industry from all over Canada and the United States. Efforts are being put forth to make the gathering the biggest the organization has yet held.

Something New For Pacific Coast

For the past six months Mr. B. T. McBain has been working with Western Engineers both Hydraulic and Civil, in the locating of a new pulp and paper mill project for the Pacific Coast, and his resignation at this time from the Nekoosa-Edwards Paper Company management at Port Edwards and Nekoosa, Wisconsin, effective July first is understood here to mean that he expects from then on to give his entire time to this new enterprise.

During the month of February Mr. McBain spent most of his time in the States of Washington and Oregon and returned with a large supply of surveys, estimates, blue prints and complete figures for the development of some water powers and maps of two manufacturing sites.

The representative of PAPER has talked with him and has been promised the first real story of his new proposition; which he has given us to understand will be part Eastern and the balance Western Capital.

The location, however, and the names of his principals, he cannot disclose at this time.

* * *

New Firm Organized

Savery-Shea Company, Inc., Stamford, Conn., was recently organized under the laws of the State of Connecticut to engage in the wholesale and retail paper business with an authorized capital of $25,000. Lester L. Savery, 97 Grove Street, Edward F. Shea, 4 Bell Street, and Kathleen M. Shea, all of Stamford, are the officers and principal stockholders of the company.

* * *

G. W. Wheelwright Dies

George W. Wheelwright, Glen Road, Jamaica Plains, Mass., head of the George W. Whelwright Paper Company, 70 Franklin Street, Boston, Mass., died at the Charlesgate Hospital April 12 in the 80th year of his age.

Most of Mr. Wheelwrights life was devoted to the interests of the paper industry; and he did much to improve his chosen business.

Mr. Wheelwright was a member of the Union Club. He is survived by a daughter and five sons. Mrs. Wheelwright died about one year ago.

* * *

Sherman Company Organized

The Sherman Paper & Box Company, Boston, Mass., is a recently organized manufacturing concern with a capital stock of $100,000. Beatrice B. Sherman, George Sherman, Cummings Road, Brighton, Mass., and Sanda R. Herron head the organization.

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Paper Testing Methods
(1922)

A large edition of this handbook for paper mill laboratories was exhausted shortly after the type had been distributed. In view of the insistent demand the Technical Association has arranged for a republication and *Paper Testing Methods* is again available at $3 per copy.

The work covers detailed procedure for microscopical analysis, physical testing and chemical analysis of the paper with descriptions of the apparatus employed.

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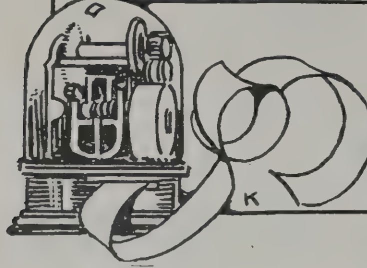

LATEST MARKET REVIEW

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Bond	8.00 @ 40.00
NEWS	
Contract Basis	3.75 @
BOOK	
S. & S. C.	6.25 @ 6.75
M. F.	6.00 @ 6.50
Coated and Enameled	8.00 @ 12.00
TISSUE	
White	.80 @ .90
Manila No. 1	.70 @ .80
WRAPPING	
No. 1 Domestic Kraft	6.25 @ 6.75
No. 1 Jute	8.25 @ 8.75
No. 1 Wood	4.75 @ 5.25
Butchers	4.00 @ 4.25
BOARD	
News	45.00 @ 50.00
Chip	40.00 @ 45.00

Paper and Board

New York, April 15—Convention Week witnessed no important changes in the paper market in New York. From all accounts there was a fair amount of business transacted between members of the trade during the week as local paper jobbers and distributors in quite a few cases took advantage of the opportunity to get together with mill officials and place orders in person, but, generally speaking, there was little development of other than routine character in the consuming market.

With the convention now a matter of history, it is more than probable that business in paper will undergo some expansion since it has become largely a custom for buyers of paper to hold off in instances where their requirements will permit just before the annual gathering of paper producers and jobbers in this city in anticipation of learning something about the market or manufacturing conditions from the visiting paper mill executives that will help to guide them in their purchasing operations.

Reports from the mill men attending the convention bore out the information recently obtained from local paper dealers and mill agents regarding market condition. Some kinds of paper, it was stated, are in good demand, with manufacturers amply supplied with orders warranting the operation of mills at close to full capacity,; on the other hand, a decidedly slack and unfavorable market exists for other descriptions of paper. In other words, buying is spotty, with demand reflecting the different situations prevailing in the various paper consuming industries, and with outside circumstances, such as the large importations of certain kinds of paper, having a pronounced effect on the market position of some papers.

The movement of newsprint continues on a heavy scale. As previously noted, publishers in New York and throughout the country are in the midst of their busy season at present, so to speak, and are using print paper in big tonnage. Department stores and other retailing establishments are utilizing immense areas of space in the daily press to attract the public to their counters during the period of pre-Easter and spring shopping, and most newspapers are printing issues of as many pages as their facilities will allow and even then are omitting some advertisements.

Newsprint prices are very firm, and while there is no change in the contract basis nor any likelihood for the first half of this year, according to announcements of the leading manufacturers, it is no easy matter for transient buyers to locate all the newsprint they want for quick delivery, nor are contract buyers finding it any too simple to augment their supplies by spot purchases, reflecting the sold up condition of a majority of print paper mills.

Fine papers are enjoying a fairly active demand. It is true that consumers are buying very conservatively but there is nevertheless a large and healthy movement from mills to consuming centres as a result of the busy situation in the printing trades. Prices of bonds and ledgers display a firm and rising tendency, and producers are not hesitating to mark up quotations on some lines, having plenty of justification for such action in the recent increase in raw material costs.

Coarse papers are relatively quiet although there has been improvement noted lately in the demand for both wrapping and tissue, while prices show a hardening tone. Book paper is moving in consistent fashion and in gradually climbing volume, with quotations marked by greater steadiness than in quite a while.

Building papers have slowed down but manufacturers say they expect April to be better tha nlast month. Box boards are in fair call and prices are firming. Plain chip is quoted at around $42.50 a ton f.o.b. New York, and news board at $45 and up in New York.

Quotations are as follows:

Bond	.09	@	.40
Ledger	.10	@	.35
Writing—			
Ex-superfine	.15	@	.35
Superfine	.13	@	.30
Tub size	.10	@	.20
Engine size	.09	@	.14
News—f. o. b. Mills—			
Rolls, contract	3.50	@	3.75
Rolls, transient	4.00	@	4.25
Sheets, contract	4.00	@	4.25
Sheets, transient	4.25	@	4.50
Side runs	3.25	@	3.50
Kraft—f. o. b. N. Y.—			
No. 1 Domestic	6.25	@	6.75
No. 2 Domestic	5.25	@	5.75
Manila—			
No. 1 Jute	8.00	@	8.50
No. 2 Jute	7.00	@	7.50
No. 1 Wood	4.50	@	5.00
No. 2 Wood	4.25	@	4.50
Book—f. o. b. N. Y.—			
S. & S. C.	6.25	@	6.75
M. F.	6.00	@	6.50
Lithograph	8.25	@	14.00
Coated & Enameled	8.00	@	12.00
Tissue—f. o. b. N. Y.—			
White No. 1	.80	@	.90
Manila No. 1	.70	@	.80
White No. 2	.70	@	.80
Colored	.90	@	2.00
Kraft	1.00	@	1.25
Fiber Papers—			
No. 1 Fiber	5.50	@	6.00
No. 2 Fiber	4.50	@	5.00
Card Middles	3.75	@	4.00
Common Bogus	2.00	@	2.50
Boad, per ton, f. o. b. N. Y.—			
News	45.00	@	50.00
Straw, in sheets	55.00	@	60.00
Binder Boards	80.00	@	85.00
Chip	40.00	@	45.00
Manila Lined Chip	60.00	@	65.00
Woodpulp	70.00	@	75.00

Mechanical Pulp

There is a broad range to quotations on mechanical pulp. It appears as if prices depend entirely on the position of the seller, of how anxious he is to effect sales, and also on the competitive freights from producing to consuming points. There have been reports of sales of domestic and Canadian ground wood at $30 a ton f.o.b. pulp plants and even lower, whereas some sellers are said to be asking and obtaining $35 a ton at shipping points for spruce pulp for prompt shipment. Imported ground wood is quoted around $33 or $34 a ton ex dock New York though sales at cheaper prices are now and then reported. Demand is fair but nothing out of the ordinary as far as tonnage is concerned, and indications are there is an ample supply of pulp, which explains in part the irregularity of quoted prices.

Foreign and Domestic Chemical Pulp

Signs point to a firming of prices of chemical wood pulp at primary sources, especially abroad. It is said that producers in Scandinavia are well sold up for this year and that, having but limited tonnage yet to be disposed of, they are in a position where they can insist on the prices quoted. At the same time, there has been no rise in quotations. The market is better stabilized on rather well defined levels, and the increased steadiness is attracting more paper manufacturers into the market to place orders.

Foreign unbleached strong sulphite is quoted from 2.50 to 2.75 cents per pound ex dock New York, and some large sales of this kind of pulp at such prices are reported to have been made for shipment ofter the opening of the Baltic. Swedish kraft also has sold recently in good volume at prices of between 2.50 and 2.60 cents a pound ex dock at Atlantic seaboard for No. 1 kraft. Quotations on bleached sulphite are steady, and tending to rise, the strike of pulp mill operatives in Norway having a strengthening influence. Prices ex dock New York and f.o.b. pulp mills follow:

Sulphite foreign—			
Bleached No. 1	3.75	@	4.25
Unbleached No. 1	2.60	@	2.80
Unbleached No. 2	2.40	@	2.60
Easy Bleaching	2.85	@	3.00
Unbleached news			
Bleached No. 1	4.00	@	4.50
Unbleached No. 1	2.60	@	3.00
grade	2.50	@	2.75
Sulphite, domestic—			
Easy Bleaching	2.75	@	3.00
Mitscherlich, unbleached	3.00	@	3.25
Soda, domestic, bleached	3.50	@	3.75
Kraft, foreign	2.50	@	2.75
Kraft, domestic	2.60	@	2.90
Sulphite screenings, refined	1.50	@	1.75

Domestic Rags

There have been some few changes in prices of the different classes of papermaking rags, almost without exception in a downward direction. The trend of the market is unmistakably easier, as it usually is in the spring, and paper manufacturers are buying cautiously and principally against direct requirements, thereby indicating they expect still lower prices. No. 1 roofing stock is selling at about 2.15 cents a pound f.o.b. New York, and No. 2 packing at 2 cents f.o.b. this city. Only certain roofing felt mills are reported purchas-

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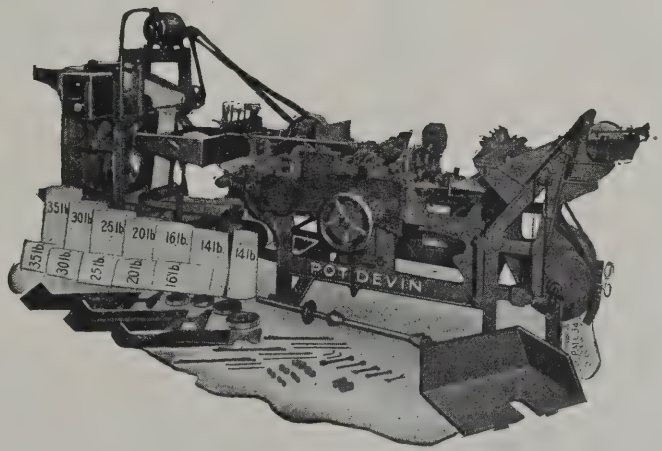

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ing rags in appreciable quantity at the moment, and the influx from Europe of such rags as are used by these consumers continues on a heavy scale. Old whites are moderately steady, and there is a steady tone to prices of thirds and blues. New cuttings of some description are tending lower though the actual changes in prices of new rags have been of slight dimensions. F. o. b. New York quotations are:

New Shirt Cuttings, No. 1	14.00	@	14.50	Overall Cuttings, Blue	9.00	@	9.25
No. 2	6.50	@	6.75	Washables	5.50	@	5.75
Fancy Shirt Cuttings	7.00	@	7.50	New Black Mixed	5.00	@	5.25
No. 1 Whites, repacked	7.50	@	8.50	Soiled Whites, house	4.00	@	4.25
No. 2 Whites, repacked	4.50	@	5.00	Soiled Whites, street	3.75	@	4.00
White Lawns	11.50	@	11.75	Thirds & Blues, repacked	3.50	@	4.00
New Muslin, unbleached	11.75	@	12.00	Thirds & Blues, misc.	3.00	@	3.25
Light Silesias	9.00	@	9.25	Black Cotton Stockings	4.00	@	4.25
Black Silesias	5.50	@	5.75	Roofing Rags, No. 1	2.10	@	2.20
				Roofing Rags, No. 2	2.00	@	2.10

Imported Rags

The market for imported papermaking rags has developed into a distinctively slow affair after the period of brisk business recently. Consumers seem to be fairly well supplied for a time and are noticeably holding off in further purchases, with the result quoted prices are moving downward. Dark colored cottons are quoted at around 2 cents a pound ex dock New York, with reports of some sales under this level. Quotations on an ex dock basis at this port are:

Lins., White, No. 1	15.00	@	16.00	German Linen, blue	5.00	@	5.25
Ger. Blue Cottons	3.75	@	4.00	German Linen, grey	6.50	@	7.00
French Light Blues	4.00	@	4.50	German S. P. F.'s	6.00	@	9.00
New Light Prints	7.00	@	7.50	German Light Prints	4.00	@	4.50
New Unbleached	10.50	@	11.00	Dk. Colored Cottons	2.00	@	2.10

Bagging, Rope, Etc.

There is a firm tone to prices of old rope and a steady movement of this article to paper mills is noted. Domestic manila rope is quoted at around 7 cents per pound f.o.b. New York, and foreign manila rope at 6.50 cents upward ex dock New York. The demand for old bagging is narrow, and prices are largely nominal. F.o.b. New York quotations follow:

Gunny No. 1	1.50	@	1.60	For. Manila Rope	6.50	@	7.00
Foreign	1.40	@	1.50	Domestic Rope	7.00	@	7.25
Wool Tares, light	1.40	@	1.50	Mixed Strings	1.25	@	1.50
Roofing Bagging	1.15	@	1.25	Scrap. Bagging, No. 1	1.40	@	1.60
Wool Tares, light	1.40	@	1.50				

Old Paper

Some improvement in the demand for certain grades of old paper has been recorded yet the market, as a whole, is still dull, with prices generally on the downtrend and with sellers seemingly anxious for business. Quoted prices bear little importance at present for the reason that consumers are most often securing the supplies desired at reductions, though it is apparent that market levels have eased to a point where dealers are hesitant about booking tonnage orders for certain grades in fear that a reaction may set in at any time.

Shavings are in slow call, hard white especially. No. 1 hard white shavings can be purchased at 3.75 cents a pound f.o.b. New York freely, and doubtless at lower rates, while No. 1 soft white shavings are quoted at 2.80 cents and less New York. Folded newspapers are bringing about 75 cents a hundred pounds f.o.b. this city. No. 1 mixed papers 60 cents, and common mixed papers 50 cents. White blank news is a weak item and can be bought at 1.65 cents a pound New York. Old kraft paper and magazine stock is moving slowly. Prices f.o.b. New York are as follows:

No. 1 Hard White Shavings	3.65	@	3.85	Ledger Stock	1.60	@	1.75
No. 2 Hard White Shavings	3.00	@	3.25	Kraft, No. 1	2.00	@	2.10
No. 1 Soft White Shavings	2.65	@	2.80	New Manila Cuttings	2.00	@	2.25
Box Board Chips	.70	@	.80	New Manila Env. Cuttings	2.75	@	3.00
No. 1 Colored Shavings	1.60	@	1.80	Bogus & Mill Wrappers	.75	@	.85
Magazine flat stock	1.25	@	1.35	News, strictly overissue	.90	@	1.00
No. 1 Crumpled	1.10	@	1.20	Folded News	.75	@	.80
Solid Ledger Books	1.80	@	1.90	No. 1 Mixed Papers	.60	@	.65
				White Blank News	1.65	@	1.75
				Common Paper	.50	@	55

Twines

There is lack of development in the twine market. Demand is along routine lines and is at best of limited dimensions, consumers in general confining their buying to supplies immediately required. Firmness in raw material, however, is sustaining prices and there is little change in quotations which are as follows:

Sisal Hay, pure	14.25	@	15.25	Jute Wrapping twine, A grade	20.00	@	
Manila Hay, pure	16.25	@	17.25	Papermakers Twine	11.50	@	
Sisal Lath yarn	13.25	@	14.25	B. C. Hemp, 18	.39	@	.40
Manila Rope, pure, ¾ inch diameter	16.25	@	17.25	B. C. Hemp, 24	.38	@	.39
Hardware Rope	14.25	@	15.25	B. C. Hemp, 36	.37	@	.38
Jute rope, ¼ diam. and over, coils	13.00	@	15.00	America Light India— No. 6	14.50	@	
Sail twine, A grade	20.00	@		No. 7	13.50	@	

Chemicals

Papermakers' chemicals are in moderate demand, with the principal movement into consuming channels against contracts. No changes of consequence are reported in quoted prices.

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Week of April 7-12

Paper

Str. Alberta, Trieste—G. W. Sheldon & Co., 49 bls. wrapping; Universal Edition, Inc., 7 cs. music paper; Order, 35 cs. cigarette.

Str. Tarantia, Glasgow—Perry, Ryer & Co., 56 cs. printing.

Str. Veendam, Rotterdam—F. C. Strype, 4 cs.; F. G. Prager & Co., 1,436 bls. hanging; C. Steiner, 4 cs. printing.

Str. Luise Hemsoth, Hamburg—Draeger Shipping Company, 6 rolls printing; C. B. Richard & Co., 68 cs. printing; National City Bank, 632 rolls hanging; Hensel, Bruckmann & Lorbacher, 6 pkgs. cardboard; Baldwin Universal Company, 10 cs. wrapping; Order, 458 rolls newsprint and 166 bls. and 130 rolls wrapping.

Str. Braga, Marseilles—American Express Company, 2 cs. filter.

Str. Hamburg Maru, Kobe—Bank of Montreal, 14 cs. copying; H. Reeve Angel & Co., 1 cse. tissue; Iwai & Co., 2 cs. tissue; R. F. Downing & Co., 12 cs. copying.

Str. Stockholm, Gothenburg—J. P. Heffernan Paper Company, 30 bls. wrapping; Gilbert Paper Company, 52 rolls and 169 bls. wrapping; R. F. Hammond, 14 bls.; Arkell Safety Bag Company, 112 rolls wrapping; D. S. Walton & Co., 1,269 rolls wrapping; Martin Walsh, Inc., 107 rolls and 98 bls. wrapping; Blauvelt-Wiley Paper Mfg. Company, 36 bls. wrapping; C. K. MacAlpine & Co., 286 rolls and 22 bls. wrapping; Wilkinson Bros. & Co., 93 bls. wrapping; Mugler & Umlauf, 32 bls. and 264 rolls wrapping; Borregaard Company, 440 bls. wrapping; Brooklyn Standard Bag Company, 337 rolls wrapping; S. Baum Company, 60 rolls wrapping; Bernard, Judae & Co., 9 cs.; Order, 66 rolls wrapping.

Str. Antonia, Southampton—T. Nevin, 8 cs.; F. B. Vandergrift & Co., 1 cse. photo; Independent Forwarding Company, 5 cs.

Str. Maine, London—Gallagher & Ascher, 3 pkgs.; F. L. Kraemer & Co., 3 cs. tissue; Defender Photo Supply Company, 1 cse. photo; Halcod Company, 1 cse. photo; Order, 3 cs.

Str. Valacia, London—W. H. S. Lloyd & Co., 39 cs. hanging; H. Reeve Angel & Co., 5 cs. drawing.

Str. Cameronia, Liverpool—F. J. Emmerich & Co., 10 bls. hanging; Meadows, Wye & Co., 15 cs. tissue; A. C. Dodman, Jr. & Co., 2 bls. hanging; Keuffel & Esser Company, 2 cs. drawing and 2 cs. bristol board; B. F. Drakenfeld & Co., 29 cs. printing.

Str. Chicago, Havre—Whiting-Patterson Company, 10 cs.; Dupont Cellophane Company, 12 cs.; Judson Freight Forwarding Company, 15 cs.; P. J. Schweitzer, 25 cs. cigarette; H. Kayser & Fils, 4 cs.; C. H. Boulin, 48 cs.; F. J. Emmerich & Co., 9 bls. hanging; J. J. Gavin & Co., 6 cs.; M. Spiegel & Sons, 8 cs. cigarette; Coenca-Morrison Company, 6 cs. writing; Japan Paper Company, 3 cs. writing.

Str. Olympic, Southampton—Guibont Freres & Co., 12 cs. writing; H. Reeve Angel & Co., 1 cse. drawing and 6 cs. filter; E. Fougera & Co., 98 cs. filter.

Str. Independence Hall, Havre—Guibont Freres & Co., 11 cs. writing; Standard Products Corporation, 40 cs. cigarette.

Str. Zarembo, Bordeaux—American Tobacco Company, 800 cs. cigarette; J. Manheimer, 54 bls, filter; from St. Nazaire—R. J. Reynolds Tobacco Company, 660 cs. cigarette; DeManduit Paper Corporation, 159 cs. cigarette.

Str. Colombo, Genoa—Japan Paper Company, 49 cs.; Order, 1 cse.

Str. Stuttgart. Bremen—Standard Products Corporation, 7 cs. parchment; Globe Shipping Company, 171 cs. photo and 8 cs. drawing; A. Frankan & Co., 5 cs.; C. Steiner, 18 cs. printing and 3 cs. writing; Martin & Bechtold, 20 cs. printing; Hensel, Bruckmann & Lorbacher, 5 cs.

Str. Aquitania, Southampton—Whiting-Patterson Company, 7 cs.

Wood Pulp

Str. Alberta, Trieste—Guaranty Trust Company, 700 bls.; E. Naumberg & Co., 701 bls.; International Acceptance Bank, 1,350 bls.

Str. Stockholm, Gothenburg—Hartig Pulp Company, 2 bls.; E. M. Sergeant Company, 254 bls. sulphite; Johaneson, Wales & Sparre, 280 bls. sulphite; Castle & Overton, 250 bls.; Hudson Trading Company, 375 bls.; Order, 200 bls.

Str. Stavangerfjord, Christiania—Guaranty Trust Company, 1.286 bls.; Mechanics & Metals National Bank, 1.500.

Str. Stuttgart, Bremen—Goldman, Sachs & Co., 1,500 bls.

Old Rope

Str. Alberta, Trieste—Guaranty Trust Company, 64 bls.
Str. Rosalind, Halifax—T. D. Downing & Co., 69 bls.
Str. Aldecoa, Barcelona—W. Schall & Co., 40 bls.
Str. Bristol City, Bristol—Brown Bros. & Co., 322 coils.

Str. Veendam, Rotterdam—Brown Bros. & Co., 67 bls. and 45 coils; Equitable Trust Company, 102 bls. and 54 coils.

Str. Antonia, Southampton—Mechanics & Metals National Bank, 20 bls.

Str. Chicago, Havre—Irving Bank-Columbia Trust Company, 164 bls.

Old Bagging

Str. Tarantia, Glasgow—G. M. Graves Company, 50 bls.

Str. Kerhonkson, Dublin—Prince & Kennedy, 71 bls.

Str. Chicago, Havre—Coal & Iron National Bank, 77 bls.; Kidder Peabody Acceptance Corporation, 119 bls

Rags

Str. Alberta, Trieste—Mechanics & Metals National Bank, 81 bls.; Guaranty Trust Company, 46 bls.; from Venice—Order, 397 bls.

Str. Ignazio Glorio, Leghorn—Order, 422 bls.; from Oran—Order, 175 bls.

St. Tarantia, Glasgow—F. P. Gaskell & Co., 35 bls.; International Acceptance Bank, 246 bls.; Guaranty Trust Company, 111 bls.; Coal & Iron National Bank, 16 bls.; Mechanics & Metals National Bank, 227 bls.; New York Trust Company, 87 bls; Order, 248 bls.

Str. Aldecoa, Valencia—Katzenstein & Keene, 344 bls.; from Barcelona—Katzenstein & Keene, 248 bls.; Order, 50 bls.

Str. London Commerce, London—Order, 702 bls.

Str. Kerhonkson, Dublin—Coal & Iron National Bank, 414 bls.

Str. Bristol City, Bristol—Guaranty Trust Company, 109 bls.; Anglo-South American Trust Company, 16 bls.

Str. Luise Hemsoth, Hamburg—Guaranty Trust Company, 267 bls.; Flintkote Company, 116 bls.; American Express Company, 198 bls.; Order, 42 bls.

Str. Toloa, Havana—M. Wolfer & Co., 17 bls.

Str. Maine, London—Order, 76 bls.

Str. Naples Maru, Hamburg—Guaranty Trust Company, 162 bls.; Order, 300 bls.

Str. Valacia, London—International Acceptance Bank, 151 bls.; New York Trust Company, 134 bls.

Str. Cameronia, Liverpool—Order, 79 bls.

Str. Independence Hall, Havre—Katzenstein & Keene, 109 bls.; S. Birkenstein & Sons, 497 bls.; P. Berlowitz, 203 bls.; Stone Bros. & Victor Galaup Company, 600 bls.; E. W. Dutton, Inc., 76 bls.; Guaranty Trust Company, 99 bls.

Str. Chicago, Havre—Guaranty Trust Company, 28 bls.; Mechanics & Metals National Bank, 83 bls.; Kidder Peabody Acceptance Corporation, 111 bls.; New York Trust Company, 61 bls.

Str. Zarembo, St. Nazaire—P. Berlowitz, 358 bls.; Goldman, Sachs & Co., 80 bls.; Katzenstein & Keene, 157 bls.; Atterbury Bros., 110 bls.; from Bordeaux—Stone Bros. & Victor Galaup Company, 2 bls.

Str. Spain Maru, Leghorn—Order, 145 bls.

Str. Stuttgart, Bremen—Chase National Bank, 272 bls.

Str. Stuttgard, Bremen—Chase National Bank, 272 bls.; American Exchange National Bank, 311 bls.

Str. Giovanna Florio, Leghorn—Guaranty Trust Company, 47 bls.; Order, 302 bls.

Paper Stock

Str. Aldecoa, Barcelona—E. J. Keller Company, 147 bls.; Katzenstein & Keene, 192 bls.

Str. Kerhonkson, Belfast—Mechanics & Metals National Bank, 71 bls.

Str. Independence Hall, Dunkirk—Salomon Bros. & Co., 5 bls.

Casein

Str. Bonheur, Buenos Aires—Bank of America, 417 bags; Order, 767 bags.

Talc

Str. Giovanna Florio, Leghorn—L. A. Salomon & Bros., 200 bags; C. Mathieu, 500 bags.

China Clay

Str. Sagaporack, Fowey—Cooper & Cooper, 70 bags; C. D. Wagner & Co., 25 bags; Pickfords Colonial, Inc., 2,254 tons and 46 cwts., 1,240 bags and 249 cks.

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Market Development For Paper Board Products

By JULIAN ARMSTRONG

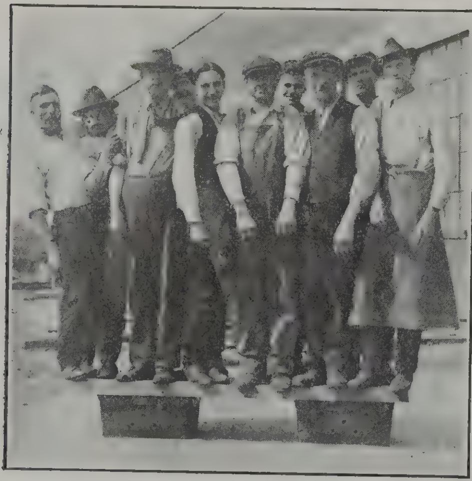
A UNIQUE operating program has been arranged by the Fibopak Company, a Delaware corporation of 100,000 shares of no par value capital stock. The new corporation, with offices in the Wrigley Building, Chicago, will take over the business of the Fibopak Sales Company of Manayunk, Philadelphia, and will undertake other activities as well, some of which are of a most unusual character.

The business of the Fibopak Sales Company has been the manufacture and sale of Fi-Bo-Pak, a fibre container for fruits and vegetables, adapted also for the shipment of bulk confections, small hardware products, and other specialties. This work will be pushed, and additional uses for Fi-Bo-Pak and other paper board products will be promoted as the Market Development Department gets under way.

The Fibopak Container is a seamless carrier, with cover, made of paper board, a laminated structure composed of three blanks folded into shape, placed together with adhesive and compressed into finished form under great pressure. The carriers fo food ae thooughly impegnated with paraffin, providing the necessary waterproof as well as preservatice qualities. Covers are sealed directly to the side walls of the box or held in place by a wire fastening device which permits of easy closing, ready examination of contents without destruction of covers or fasteners, and provides a locking feature which makes the package practically pilfer proof in transit.

Manuftcuring units for Fi-Bo-Pak will be installed in stockholding board mills contiguous to important market centers, the blanks to be purchased from the mills which can provide them most advantageously from the standpoint of price and delivery.

In 1922, the year of their introduction, some 200,000 Fi-Bo-Pak containers were sold, and in 1923 the sales increased to 800,000. This was accomplished with a limited sales organization and a minimum expenditure for advertising. Therefore the field was barely scratched. Past users may be looked upon as permanent customers almost without exception, but Fi-Bo-Pak is still unknown to the vast majority who constitute its potential market.



Two Empty Fibopak Bushels Bearing a Total Load of 1700 pounds.

The company's aim for 1924 is 5,000,000 packages.

A gerat interest has been evidenced in Fi-Bo-Pak (which is thoroughly protected by patents against imitation and infringement) by producers of paper board who see in this package not only the dawn of a new era in the fruit and vegetable field but also an avenue of consumption for the surplus of paper board which has worked a consistent hardship on the business for many years.

Combined weight of men is 542 pounds.

The development of new uses for paper board is one of the prime objects of the Fibopak Company's operations. In its broader interpretation this also encompasses the proper use of paper board, as well as its intelligent manufactue and sale. This pogram is of particular interest to the board mills, container plants, and folding box and carton factories, all of whom, with their trade, it is designed to serve. Many of the factors in these three related groups are affiliating themselves with the enterprise through stock subscriptions.

(1) New Uses for Paper Board

The board mills, with a present overproduction capacity of more than 30%, are vitally concerned with this problem, which can best be solved through discovery of new uses for paper board. New uses for paper board, howeve, will in most cases be found in new uses for containers, cartons and folding boxes, while additional benefits can be secured by market development work to broaden consumption in present fields.

Many paper board products cannot be profitably manufactured and marketed except through a special organization like the Fibopak Company. For instance, the manufacture and sale of a berry box, or "till," alone would probably be unprofitable, but in conjunction with Fi-Bo-Pak, a larger container for fruits and vegetables, these can be profitably handled and will eventually take up a considerable tonnage of board and further develop public interest in paper board products.

(2) The Proper Use of Paper Board

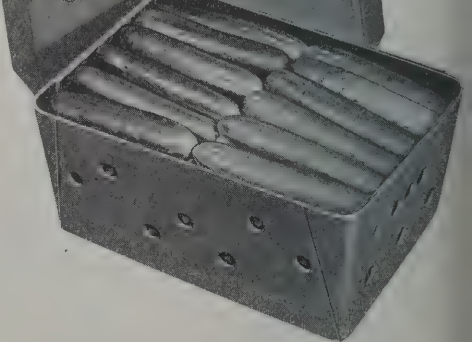
The market development department will undertake to give dependable counsel, information and data to promote the proper use of paper board. Its improper use can easily penalize the entie industry, therefore some special vehicle such as the Fibopak Company, whose operations must necessarily consider the inteersts of all, is the logical medium in which all of the factors in these related industries should center their efforts to encourage and promote the pope use of pape board, and povide against its improper use.

As an example, Fibopak has proved a safe and dependable package for fruits and vegetables, but not for all fruits and vegetables. The industry will directly benefit through the intelligent direction of the sale of Fi-Bo-Pak, but the general development of the use of fibre containers would suffer a substanital setback through its unintelligent direction and the failure of Fi-Bo-Pak to make good.

(3) Intelligent Manufacture of Paper Board

It is not surprising that board milsl and fabricating plants, like any other manuacturing concerns, can be greatly benefited by the advice of experienced engineers. It is far too easy to allow a machine to run as it is, to the apparent satisfactionof the mill superintendent, rather than to make changes in keeping with progress in machine development and mill arrangements.

While it is true there are exceptions to this rule, it is the exception rather than the rule to find plant operations and machine and equipment especially supervised and kept up-to-date, and the education of backward competitors in this respect has proved a profitable co-operative effort.



Cucumbers in Fibopak, ventilated type.

(4 Intelligent Sale of Paper Board and Paper Board Products

The Market Development Department

will gateher market information and data broadly [illegible] entire field of interest to [illegible] company. Therefore it will have [illegible] information covering the current [illegible] rice of paper board, conditions o[illegible] and demand, and simila inforamtion pertaining to the raw material market, as well as the seasonal demand, territorial demand, and possibilities for profitable market devolpement work for its fabricated poducts.

Showing perfect condition of Fibopak upon opening of car door at end of 900-mile trip.

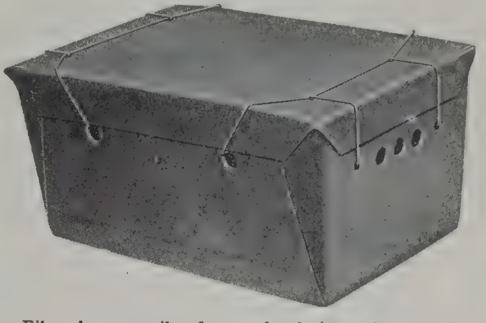
It will gather such information through every reliable source. It will digest government statistics and have such data available in graphic form, which will be of inestimable value in the intelligent manuftcure and sale of paper board and paper board products. This inforamtion will be gathered from individual buyers and sellers.

The following is one exampel of the market development work already accomplished, this in the interest of growers who suffer from overproduction of citrus fruits:

A carload of the Fi-Bo-Pak square box (a smaller container with a capacity for one dozen grapefruit or two dozen oranges shipped, sealed and pre-cooled, direct from the Citrus Fruit Exchange) was purchase for sale on March 20 by R. H. Macy & Company of New York. The sale was announced by an eleven inch advertisement in the New York Times, and by mid-afternoon the car of approximately 2,600 Fi-Bo-Pak boxes had been oversold by 500.

An important and interesting point in this conection lies in the increase in the unit of sale from the customary six or a dozen oranges in paper bags to two dozen in Fi-Bo-Pak. This instance has been duplicated by one of the larger Philadelphia store recently, and a similar intensive merzation in Boston.

Fi-Bo-Pak has been in a measure responsible for the building up of a large and remunerative business in New York, through the repacking of fruits and vegetables, shipped by the growers in Fi-Bo-Pak of standard sizes. Ths New York dischandising plan on the same package is being introduced by a chain store organi-tributor repacks n unique folding boxes or cartons which fit into the larger Fi-Bo-Pak, and delivers the selected fruit to the retailer for resale to the consumer, thus presenting an attractive, saleable unit and minimizing its handling.



Fibopak, unventilated type, for fruits and vegetables. Wires hold cover tightly in place.

Report of the Committee on Waste

By **R. B. WOLF — G. D. BEARCE**

Chairman *Vice-Chairman*

THE Committee on Waste has accumulated information, made investigations and rendered reports during the past two years upon the following subjects:

1. White water losses and their reduction.
2. The utilization of bark and wood refuse.
3. The reduction of broke losses.
4. Heat losses in pulp and paper mills.
5. Handling materials in pulp and paper mills.

White Water Losses

1. The report on White Water Losses covered the results of a number of tests supervised by representatives of the Committee and contained figures supplied by companies interested in this particular problem. The report brought out the fact that the important things to be considered in an attempt to reduce the white water losses in pulp and paper mills are:

1. The reduction of stock loss through re-utilization of white water by means of self-cleaning shower pipes and other methods.
2. The reclamation of fiber and other material in white water by means of various types of savealls.

The sedimentation tank appears to be admirably suited to mills using stock that contains considerable filler. Mills which use a small amount of filler apparently get the best results by a combination of screen saveall and sedimentation tank. The mills that use a long fiber stock exclusively, obtain satisfactory results with one of the various types of screen savealls.

It was pointed out that it is feasible under operating conditions to reduce the fiber and filler to less than 5 lb. of material per 10,000 gallons of waste white water. The maximum allowance for losses based upon pulp or paper production, as indicated in previous reports, is estimated as follows:

1. All long fiber stock 0.5 per cent.
2. Mixed long and short fiber 1 per cent.
3. Short fiber stock 1.5 per cent.

In connection with white water losses the problem of steam pollution cannot be over-emphasized. Many states have laws or pending legislation regarding stream pollution. Among these are the states of Massachusetts, Michigan, Wisconsin and Pennsylvania. If the individual pulp and paper mills study and solve their problems they will not only reclaim fiber that is of appreciable value, but will also meet the requirements of any laws or inevitable legislation regarding stream pollution.

The future work on white water and fiber losses must necessarily be done by the individual companies. The information regarding the tests is available and the data will show them just what can be accomplished at their own mills under their particular operating conditions. The Forest Products Laboratory in cooperation with the Committee is developing a method of comparing the white water losses at different mills. They will ask a number of mills that make the same product to report their stock loss figures to the Laboratory on a standard form. This information will be tabulated and returned to the participating companies so that they will be able to compare results with one another.

Bark and Refuse Utilization

2. The complete report on Bark and Refuse Utilization will be presented in the near future and contains all available data upon bark presses and the furnaces now used in the utilization of wood and barking refuse. The report will cover the various methods of handling this problem under different conditions, and will give figures that will indicate the improved results that can be obtained with adequate equipment control.

Appreciable savings can be effected by the more economical utilization of bark and while tests indicate that each mill has its own particular problem, the construction of the furnace, control of the air, and the method of feeding the fuel are three points that must be given special attention. In general all refuse must be approximately 50 per cent dry in order to be burned with reasonably good efficiency.

Heat Losses

4. The report of Heat Losses in Pulp and Paper Mills outlined the various sources of loss in the entire mill. Each mill has its particular problem and a more detailed study by departments can doubtless be made by the Heat, Light and Power Committee which will result in further valuable information. The heat losses in the sulphite, soda, and sulphate mills should also be considered by the committee that deal with the manufacture of these pulps.

The Utilization of Decayed Wood for Pulp

This is one of the most important problems that confronts pulp and paper mills at the present time. Realizing that it is an international problem a Joint Committee was appointed to cooperate on this work, representing the Technical Association, Woodlands section of the Canadian Pulp and Paper Association, the Forest Products Laboratory, and the News Print Service Bureau. During the present year the cooperation of the Woodland section of the American Paper and Pulp Association. Much valuable information has already been obtained and further reports will be submitted to the Technical Association as the work progresses.

Recommendations

The Committee believes that its main function in the future should be to assist the regular standing committees to take up problems dealing with the elimination of waste in their respective fields. The Committee should act as a coordinating medium with such organizations as the Forest Products Laboratory and the Bureau of Standards in order to make available the results of their findings. The Committee should also assist these agencies to continue their cooperative studies on waste elimination problems at the various mills interested in this work.

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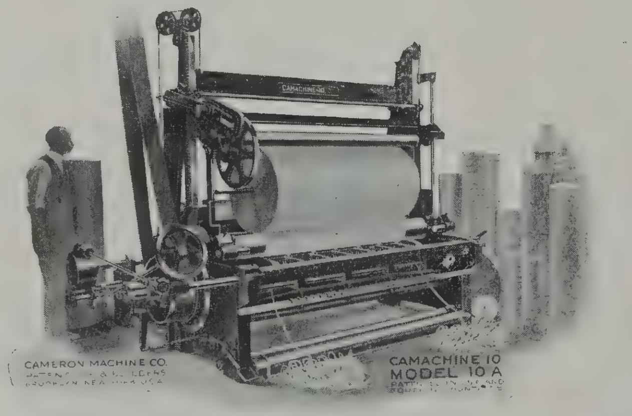

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Zaremba Co., 508 Niagara Life Bldg., Buffalo, N. Y.
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International Process Co., 5 Beekman, New York City.
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Hoornbeek's, John C., Sons, (ground wood, dry), Napanock, N. Y.
American Woodpulp Corp., 347 Madison Ave., (wood, chemical & mechanical, Kraft), New York City.
ANDERSEN—J. & Co., 21 East 40th St., (Imptrs. of chemical Pulps, Kraft), New York City.
Atterbury Bros., 145 Nassau, (foreign & domestic wood), New York City.
Beebe & Co., Ira L., 132 Nassau, (wood pulp), New York City.
Butterworth, E. & Co., 1123 B'way, (wood & bleached sulphite pulp), New York City.
CASTLE & OVERTON, 200 Fifth Avenue, (wood sulphite), New York City.
CRAIG-BECKER Co., Inc., 52 Vanderbilt Ave., (wood), (Mill Agts., Imp. & Exp.), New York City.
De Bary, Albert, Jr., Inc., 6 Church, (Exptrs.), New York City.
Great Northern Paper Co., 49 Wall, (ground wood pulp), New York City.
Helwig, Rudolph, 451 Wash'n., (sulphite pulp), New York City.
International Paper Co., (ground wood pulp & sulphite), New York City,.
International Pulp Co., 41 Park Row, (asbestine), New York City.
Interstate Pulp & Paper Co., Inc., Grand Central Terminal, (wood), New York City.
Meigs Pulp Wood Co., Inc., 10 East 43rd, (pulp wood), New York City.
Nashwaack Pulp & Paper Co., Ltd., (Canadian bleached sulphite), New York City.
New York Overseas Co., Inc., 44 Beaver, (imp), (wood), New York City.
New York & Penna. Co., 200 Fifth Ave., New York City.
Oxford Paper Co., 200 Fifth Ave., New York City.
Paine, A. G., Jr., 200 Fifth Ave., New York City.
PERKINS-GOODWIN Co., 33 W. 42nd St., New York City.
Price & Pierce, 30 East 42nd St., New York City.
Union Bag & Paper Corp., Woolworth Bldg., (ground wood, sulphite & kraft pulps), New York City.
SCANDINAVIAN Pulp Agency, (Inc.), 342 Madison Ave., (wood pulp), New York City.
Cliff Paper Co., (fibre & ground wood, dry), Niagra Falls, N. Y.
Defiance Paper Co., (ground wood), Niagara Falls, N. Y.
Niagara River Mfg. Co., (ground wood pulp), Niagra Falls, N. Y.
Pettebone-Cataract Paper Co., (ground wood), Niagara Falls, N. Y.
Defiance Paper Co., (ground wood), Norwood, N. Y.
Martin Pulp & Paper Co., (wood), Ogdensburg, N. Y.
Lake Champlain Pulp & Paper Corp., (Dry ground pulp), Plattsburg, N. Y.
Saranac Co., (ground wood pulp), Plattsburg, N. Y.
Underwood Paper Mills, Inc., (ground wood), Plattsburg, N. Y.
Hannawa Falls Water Power Co., (ground wood, pulp), Potsdam, N. Y.
Raquette River Paper Co., (ground wood sulphite), Potsdam, N. Y.
Johnston & Son, (dry ground wood), Port Leyden, N. Y.
St. Regis Falls Wood Corp., (ground wood pulp), St. Regis Falls, N. Y.
American Wood Board Co., (ground wood pulp), Schuylerville, N. Y.
Blandy Paper Co., (ground wood), Schuylerville, N. Y.
Iroquois Pulp & Paper Co., (ground wood pulp), Thomson, N. Y.
Ticonderoga Pulp & Paper Co., (Soda Fibre, Wood), Ticonderoga. N. Y.
Santa Clara Lumber Co., (pulp), Tupper Lake, N. Y.
Schroon River Pulp & Paper Co., (ground wood, dry), Warrensburg, N. Y.
Diana Paper Co., (ground wood pulp), Watertown, N. Y.
St. Regis Paper Co., (ground, wood, dry sulphite fibre), Watertown, N. Y.
SHERMAN Paper Co., (ground wood pulp), Watertown, N. Y.
Champion Fibre Co., (paper pulp), Canton, N. C.
Halifax Paper Corpn., (sulphite fibre & ground wood), Roanoke Rapids, N. C.
Mead Pulp & Paper Co., (soda fibre), Dayton, Ohio.
SRERE Pulp & Paper Co., Franklin, Ohio.
Williamette Pulp & Paper Co., (sulphite fibre, also paper), Oregon City, Ore.
Oregon Pulp & Paper Co., (bleached & unbleached sulphite pulp), Salem, Ore.
Bayless Mfg. Corp'n (ground wood, sulphite fibre, also paper), Austin, Pa.
Durham Paper & Pulp Co., Durham, Pa.
Williams & Co., C. K., (mineral), Easton, Pa.
HAMMERMILL Paper Co., (unbleached sulphite), Erie, Pa.
Analomink Paper Co., (ground wood pulp), North Water Gap, Pa
Cherry River Paper Co., (sulphite pulp), 2129 Land Title Bldg., Philadelphia, Pa.
Dill & Collins Co., 140 N. 6th, (soda fibre, paper), Philadelphia, Pa.
Jessup & Moore Paper Co., Com'l Tr. Bldg. (soda pulp), Philadelphia, Pa.
Parson Pulp & Lumber Co., (spruce bleached & unbleached sulphite pulp), Finance Bldg., Philadelphia, Pa.
Bare, D. M., Paper Co., (soda fibre, also paper), Roaring Spring, Pa.
Glatfelter, P. H. Co., (soda fibre. also paper), Spring Grove, Pa.
Carolina Fibre Co., (ground wood, dry, sulphite also paper), Hartsville, S. C.
Tenn. Fibre Co., (cotton hull, fibre, dry), Southern Ry & Linden, Memphis, Tenn.
Yellow Pine Paper Mill Co., (sulphite fibre), Orange, Tex.
Sugarland Pulp & Paper Co., Sugarland, Tex.
Ryegate Paper Co., (Pulp), East Ryegate, Vt.
Parks Paper Co., (ground wood), Fitzdale, Vt.
Groton Mfg. Co., (wood pulp), Groton, Vt.
Columbian Paper Co., (soda fibre), Buena Vista, Va.
Hummel-Ross Fibre Corp., (sulphate pulp), Hopewell, Va.
Stamsocott Co., The, Inc., (cotton linter pulp), Hopewell, Va.
Virginia Carolina Tie & Wood Co., (wood), Norfolk, Va.
Chesapeake Corp., (papermakers' pulp), Westpoint, Va.
Washington Pulp & Paper Co., (ground wood), Port Angeles, Wash.

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Harpers Ferry Paper Co., (ground wood, dry), Harpers Ferry, W. Va.
Cherry River Paper Co., (sulphite fibre), Richwood, W. Va.
Combined Locks Paper Co., (sulphite fibre), Appleton, Wis.
Marshall Paper Co., (wood), Appleton, Wis.
Riverside Fibre Co., (bleached — unbleached sulphite fibre also paper), Appleton, Wis.
Ashland Paper Co., (spruce ground wood), Ashland, Wis.
Wausau Paper Mills Co., (ground wood, sulphite fibre), Brokaw, Wis.
Crivitz Pulp & Paper Co., (ground wood pulp), Crivitz, Wis.
Dellis Paper & Pulp Co., (sulphite fibre), Eau Claire, Wis.
Green Bay Paper & Fibre Co., (sulphite pulp & chemical fibre), Green Bay, Wis.
Kaukauna Ground Pulp Co., Kaukauna, Wis.
Outagamie Paper Co., (ground wood), Kaukauna, Wis.
Thilmany Pulp & Paper Co., (sulphate pulp), Kaukauna, Wis.
Great Western Paper Co., (ground wood, paper, sulphite fibre), Ladysmith, Wis.
Marinette & Menominee Paper Co., (wood & sulphite fibre), Marinette, Wis.
Medford Lumber Co., (wood), Medford, Wis.
Mellen Lumber Co., Mellen, Wis.
Island Paper Co., (sulphite fibre), Menasha, Wis.
Ewing Everest Pulp Co., (ground wood), Merrill, Wis.
Grandfather Falls Co., (ground wood pulp), Merrill, Wis.
Mosinee Land Log & Timber Co., (wood), Mosinee, Wis.
Wausau Sulphite Fibre Co., (sulphate fibre), Mosinee, Wis.
Kimberly-Clark Co. (wood), Neenah, Wis.
Wisconsin Pulp Wood Co., Neenah, Wis.
Wis. River Paper & Pulp Co., dry gound wood pulp), Neenah, Wis.
Nekoosa-Edwards Paper Co., (ground wood and sulphite fibre), Nekoosa, Wis.
Falls Mfg. Co., (sulphite fibre, dry), Oconto Falls, Wis.
Union Mfg. Co., (ground wood), Oconto Falls, Wis.
Flambeau Paper Co., (ground wood, paper), Park Falls, Wis.
Nekoosa-Edwards Paper Co., Inc., (spruce ground wood), Port Edwards, Wis.
Rhinelander Paper Co., (sulphite & ground wood pulp), Rhinelander, Wis.
Marathon Paper Mills Co., (ground wood & sulphite fibre, bleached & unbleached), Rothschild, Wis.
Wolf River Paper & Fibre Co., (sulphite fibre, dry, paper), Shawano, Wis.
Eldred, Anson, Co., (ground wood pulp), Stiles, Wis.
Tomahawk Pulp & Paper Co., (ground wood pulp), Tomahawk, Wis.
Consolidated Water Power & Paper Co., (groundwood, paper), Wisconsin Rapids, Wis.
Interlake Pulp & Paper Co., Wisconsin Rapids, Wis.

PULPERS

Mason & Co., Marcus, Framingham, Mass.
Squier Mfg. Co., Geo. L., B'way & Mortimer, Buffalo, N. Y.
Angus Engineering Co., 10 Hanover, New York City, N. Y.
Bakers, Joseph, Sons, & Perkins Co., Inc., (paper, etc.), White Plains, N. Y.
Blymer Iron Works Co., Spring Grove Ave. & Terrace, (coffee), Cincinnati, Ohio.
Smalley Mfg. Co., (vegetable), Manitowoc, Wis.

PULPSTONES

International Pulp Stone Co., Elyria, Ohio.

PUMPS

Paper & Pulp Mill

Aurora Pump & Mfg. Co., 510 Loucks St., Aurora, Ill.
Dayton-Dowd Co., 307 York, Quincy, Ill.
Connersville Blower Co., Connersville, Ind.
Roots, P. H. & F. M., Co., The, Connersville, Ind.
American Steam Pump Co., Maple & Jefferson Sts., Battle Creek, Mich.
Farrar Pump & Machinery Co., Granite Bldg., St. Louis, Mo.
Morris Machine Works, 20 E. Genesee St., Baldwinsville, N. C.
Cameron Steam Pump Works, A. S., 11 B'way, New York City, N. Y.
Worthington Pump & Machy. Corp., B'way & Cedar Sts., New York City, N. Y.
Goulds Mfg. Co., 150 Fall Street, Seneca Falls, N. Y.
BLACK-CLAWSON Co., Hamilton, Ohio.
Nash Engineering Co., South Norwalk, Conn.
McGowan, John H. Co., 54-58 Central Ave., Cincinnati, Ohio.
Aldrich Pump Co., 1 Pine Street, Allentown, Pa.

PRESSES Wood Pulp

Economy Baler Co., Dept. "T", Ann Arbor, Mich.
Dunning & Boschert Press Co., Inc., 382 W. Water, Syracuse, N. Y.
Hydraulic Press Mfg. Co., 83 Lincoln Avenue, Mt. Gilead, Ohio.
Southwark Foundry & Machine Co., 1150 So. 4th Street, Philadelphia. Pa.

RAGS

American Woodpulp Corporation, New York.
Keller Co., Inc., E. J., New York.
CASTLE & OVERTON, New York.

RAG CUTTERS

BLACK-CLAWSON Co., Hamilton, Ohio.

REGULATORS

TRIMBEY Machine Works, (consistency-stock), Glens Falls, N. Y.

ROLLER CHAIN DRIVE

LINK-BELT Co., Chicago, Ill.

ROPE DRIVE

LINK-BELT Co., Chicago, Ill.

SCREENS

Paper & Pulp Mill

Pusey & Jones Co., Wilmington, Del.
Harrington & King Perforating Co., 623 N. Union Avenue, Chicago, Ill.
Johnston & Chapman Co., 2929 Carroll Ave., Chicago, Ill.
LINK-BELT Co., Chicago, Ill.
Waterville Iron Works (pulp wood chip screen), Waterville, Me.
Union Machine Co., Fitchburg, Mass.
Jolly, J. & W., Inc., (oscillating), Holyoke, Mass.
Jones, E. D. & Sons, Co., Pittsfield, Mass.
Rice, Barton & Fales Machine & Iron Co., Worcester, Mass.
Orrman. H. L. (centrifugal), Dayton. Ohio.
BLACK-CLAWSON Co., Hamilton, Ohio.
Hendrick Mfg. Co., 75 Dundaff, Carbondale, Pa.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., (flat pulp), Appleton, Wis.
Eisner, L. H. (woven wire), Appleton, Wis.
Valley Iron Works Co., Appleton, Wis.
International Wire Works, Menasha, Wis.

SHAFTING

LINK-BELT Co., Chicago, Ill.

SHEATHING PAPER

BROWN Company, Portland, Me.

SHELLS

Pulp Digesters

McNeil Boiler Co., The, Akron, Ohio.

SHREDDERS

Fibre

Gruendler Patent Crusher & Pulverizer Co., 900 N. 1st St., St. Louis, Mo.
Williams Patent Crusher & Pulverizer Co., 807 Montgomery St., St. Louis, Mo.
Jeffrey Mfg. Co., 956 N. 4th, Columbus, Ohio.

SIZE Paper

Vera Chemical Co., Stoneham, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
McMeekam Mfg. Co., David, 1070 Pacific St., Brooklyn, N. Y.
Corn Products Refining Co., 17 Battery Place, (Paper Mill), New York City, N. Y.
Ducas, B. P. Co., 11 So. William, New York City, N. Y.
National Gum & Mica Co., 60th & 11th Ave., New York City, N. Y.
Paper Makers Chem. Co., (combination), Easton, Pa.
Boley, C. H. Co., Erie Ave. & Randolph, Philadelphia, Pa.
Philadelphia Quartz Co., 121 S. 3rd, Philadelphia, Pa.

SLASHERS

Saco-Lowell Shops, 77 Franklin, Boston, Mass.
Simonds Mfg. Co., (Saw), Fitchburg, Mass.
Entwistel, T. C. Co., Lowell, Mass.
Garland Co., M., (Saw), Bay City, Mich.
Standard Machinery Co., (Slab), Owosso, Mich.
MURRAY Mfg. Co., D. J., Wausau, Wis.
Diamond Iron Works, 2d & 18th Ave., N., (Saw), Minneapolis, Minn.
Ryther & Pringle Co., (Pulp), Carthage, N. Y.
Cohoes Iron Foundry & Machine Co., (Cylinder; Hot Air), Cohoes, N. Y.
Textile Finishing Machinery Co., 83 Exchange Place, Providence, R. I.
Allis-Chalmers Mfg. Co., (Saw Slab), Milwaukee, Wis.
Filer & Stowell Co., (219-45 Becher), (Saw Slab), Milwaukee, Wis.

SODA

Ash

DIAMOND Alkali Co., Pittsburgh,
MATHIESON Alkali Works, Inc., 25 W. 43rd St., New York, N. Y.

SODA

Pulp

Mead Fibre Co., The, (Bleached in Bales for Export; in rolls for Domestic Use), Kingsport, Tenn.

SODIUM SULPHATE

(Salt Cake)

Cooper & Cooper, Inc., 23 Cliff St., New York.

SPLITTERS

Wood

Grace, C. M. & Co., Huntsville, Ala.
Ripley, Lewis R., Harvard, Mass.
Diamond Iron Works, 2d & 18th Ave., Minneapolis, Minn.
Ryther & Pringle Co., Carthage, N. Y.
Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Multnomah Iron Works, Portland, Ore.
Scott, Olin, Est. of, Bennington, Vt.
Appleton Machine Co., Appleton, Wis.
Valley Iron Works, Co., Appleton, Wis.
Smalley Mfg. Co., Manitowoc, Wis.

SPROCKET WHEELS

LINK-BELT Co., Chicago, Ill.

STOCK REGULATORS

TRIMBEY Machine Works, Glens Falls, N. Y.

STONES

Wood Pulp

Pusey & Jones Co., (Kollergang), Wilmington, Del.
Fibre Making Processes, Inc., 6 No. Michigan Ave., Chicago, Ill.
Lombard & Co., 238 A Street, Boston, Mass.
JONES Bros. Co., Boston, Mass.
Cleveland Stone Co. of N. Y., 283-285 Front, New York, N. Y.
Cleveland Stone Co., 1836 Euclid Avenue, Cleveland, Ohio.
Empire Pulp Stone Co., Empire, Ohio.
C. & M. Quarries Co., Marietta, Ohio.
Smallwood Stone Co., Steubenville, Ohio.
American Stone Co., Wheeling, W. Va.
JONES Bros. Co., Barre, Vt.

SUCTION BOX COVERS

Menasha Wood Split Pulley Co., Menasha, Wis.

SULPHATE MILL EQUIPMENT

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.

SULPHITE FITTINGS

EASTWOOD Wire Mfg. Co., Belleville, N. J.

SULPHUR

UNION Sulphur Co., New York.

SULPHUR BURNERS

STEBBINS Eng. & Mfg. Co., Watertown, N. Y.
TRIMBEY Machine Works, Glens Falls, N. Y.

CHAIN DRIVE SILENT

LINK-BELT Co., Chicago, Ill.

TANKS

Settling & Pulp Thickening

Chicago Bridge & Iron Works, 2036 Transportation Bldg., Chicago, Ill.
Eagle Tank Co., 2436 No. Crawford Ave., Chicago, Ill.
Johnson & Carlson, 848 Eastman, (Wood), Chicago, Ill.
New York Central Iron Works Co., Inc., Hagerstown, Md.
New England Tank & Tower Co., Boston Postal District, Everett, Mass.
Acme Tank Co., 41 Cortlandt St., (Wood), New York City, N. Y.
Biggs Boiler Works Co., Kent St. & B. & O. R. R., Akron, Ohio.
Hendrick Mfg. Co., 75 Dundaff St., Carbondale, Pa.
Schlichter, E. F. Co., Fuller Bldg., Philadelphia, Pa.
Woodford Wood Tanks, Lincoln Bldg., Philadelphia, Pa.
Petroleum Iron Works Co., Drawer 539, Sharon, Pa.
Newport Foundry & Machine Corp., (Siphon), Newport, R. I.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
Manitowoc Eng. Works, Manitowoc, Wis.

TEXTILE MACHINERY

Nash Engineering Co., South Norwalk, Conn.
Textile Finishing Mach. Co., Providence, R. I.

TRANSMISSION MACHINERY

LINK-BELT Co., Chicago, Ill.

DE-INKING PROCESS

CASTLE & OVERTON, New York.

DIFFUSERS

Manitowoc Eng. Works, Manitowoc, Wis.

VALVES

Pulp Mill Grinder

Baker Mfg. Corp., (White Metal), Saratoga Springs, N. Y.

WATER-INTAKE SCREENS

LINK-BELT Co., Chicago, Ill.

DANDY ROLLS

Appleton Wire Works, Appleton, Wis.

WAXED PAPER

KALAMAZOO Vegetable Parchment Co., Kalamazoo, Mich.
WOLVERINE Paper Co., Otsego, Mich.

CYLINDER WIRES

Appleton Wire Works, Appleton, Wis.
Cheney Bigelow Wire Works, Springfield. Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.
Lindsay Wire Weaving Co., Cleveland, Ohio.

WET FELTS (Woolen)

H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.

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H. N. Hill & Co., 308 Chestnut Street, Philadelphia, Penna.
EASTWOOD Wire Mfg. Co., Belleville, N. J.
CHENEY-BIGELOW Wire Works, Springfield, Mass.
LINDSAY Wire Weaving Works, Cleveland, Ohio.
WM. CABBLE Excelsior Wire Mfg. Co., Brooklyn, N. Y.
INTERNATIONAL Wire Works, Menasha, Wis.
GREEN BAY Wire Works, Green Bay, Wis.
APPLETON Wire Works, Appleton, Wis.
WISCONSIN Wire Works, Appleton, Wis.

WET MACHINES

BLACK-CLAWSON Co., Hamilton, Ohio.

CYLINDER MOLDS

Appleton Wire Works, Appleton, Wis.
BLACK-CLAWSON Co., Hamilton, Ohio.
Cheney Bigelow Wire Works, Springfield, Mass.
Eastwood Wire Mfg. Co., Belleville, N. J.

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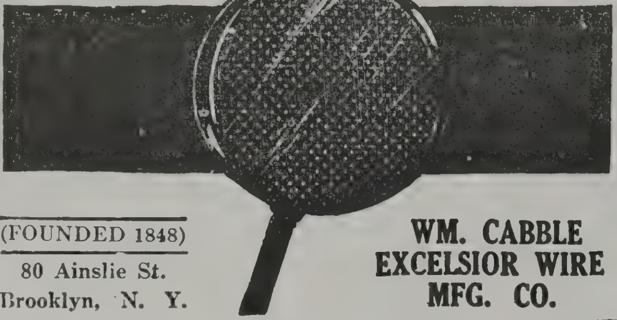

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Advertisements in this department cost $1.00 for 25 words or less, payable in advance. Additional words, two cents each. This price covers the cost of remailing answers directed to boxes, care of this office. Matter for insertion should reach the office of PAPER not later than the Saturday preceding date of issue.

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POSITIONS WANTED

TECHNOLOGIST in stained paper field, about 30 years' practical experience, specialist in paper, cardboard and paper board fields. Can furnish formulae. Solve manufacturing industries and install new improvements, particularly in the following fields—glazed paper, chromo papers, art printing papers, stained paper, marbled paper, carbon paper, waxed paper, etc. Can secure all materials as well as machines. Regular technical advice given.

WILHELM REINICKE,
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Crimmitschau i.Sa., Germany

Graduate Chemical Engineer—Two years' experience in research laboratory, lately manager of a coated paper factory in France, desires position. Best references. Address Box 1298, care of PAPER.

Capable, resourceful, energetic man, 20 years' experience in handling of pulp and paper mill stores—stores accounting—cost work and general office routine, desires position of purchasing agent, assistant purchasing agent or any executive position connected with pulp and paper mill supplies. Satisfactory references. Address Box 1299, care of PAPER.

Single young college man, American with several years experience with Canadian newsprint manufacturers now ready for position of wider opportunity. This with approval and assistance of present employers. Experienced in paper mill, in engineering dept., sales office and especially in handling statistics. Capable of organizing and maintaining statistical department, chart control, reports, etc., or making himself useful in sales or manufacturing departments. Excellent references. Address Box 1292, care of PAPER.

ACCOUNTANT-EXECUTIVE, specializing in the solution of problems in the stores, cost and accounting departments, wants permanent position with manufacturing concern. Good accounting education and fourteen years' experience in varied lines of industry, including public accounting work in the installation of stores, cost and accounting systems. Successful in handling situations requiring tact and diplomacy. Progressive and up-to-date. Age 36. Present location Central States and location considered. Address Box 1293, care of PAPER.

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FOR SALE—Unlimited quantities of finest pulpwood. F.o.b. mill in New York State, $23.75 per cord. Address Box 236, care of PAPER, 1478 Broadway, New York City.

POSITIONS WANTED

CANADIAN, 26, college trained, with 3 years in big news mill office and control work, wants a chance in export or selling organization. Address Box 1294, care of PAPER.

GRADUATE CHEMIST, age 21, wishes position as junior in pulp and paper mill. Available May 1. Address Box 1295, care of PAPER.

PAPER SALESMAN—University graduate with chemical experience in the manufacture of pulp and paper desires to connect with a firm where hard work and results will be rewarded. All correspondence strictly confidential. Address Box 1287, care of PAPER.

GRADUATE mechanical engineer, age 31, married; practical experience in newsprint and fine writings; assistant superintendent of specialty mill; at present selling; desires to give up traveling and join paper organization in production capacity. Address Box 1297, care of PAPER.

SULPHITEMAN, university graduate, with five years' experience as laborer, foreman and chemist at mills making both strong and easy bleaching pulp desires position. At present employed, as chemist but desires change and prefers a position as superintendent or assistant. Address Box 1296, care of PAPER.

FOR SALE

Beaters—One N & W 48x48 rolls, 21"-6". Two iron tub rolls 52"x40".

Bed Plates—Large lot, all sizes. New.

Calenders—One 7 roll 72"; one 9 roll 72"; one 5 roll 78"; one 7 roll open side 84". One 7 roll 124".

Calender Rolls—Large assortment, all sizes; one 14x86"; one 18x84"; one 18x100" and many others.

Coaters—One 45" Waldron, double coater, and others.

Cutters—One 38" Guillotine.

Cylinder Moulds—One 36"72"; one 30"x52"; one 12"x22".

Drives—One No. 1 Reeves Class E; two No. 3 Reeves Class E, 4 to 1; one No. 3 Class E; one No. 6 Large Reeves; one No. 10 Reeves, F-3 to 1 with extra disc.

Dryers—48x116.

Exhausters—One Sturtevant.

Fans—3 Hunberry; 2 Perkins.

Jordans—One N & W Monarch, with new shell two Horne; two Emerson, large size, one base; one N & W Pony, with extra plug.

Pulleys—One 98"x34" face, double arm, modern, Iron pulleys; Cone pulleys for Marshall Drives.

Pumps—One dry suction Knowles 12x22x18; one 1000 gal. Blake Tank pump; two Lawrence Mch. Co.'s Class A 8" high duty; two 6" Emerson make; one 4" Centrifugal; one Type 4 Gould 5" triplex, self contained. Two Lawrence Machine Co.'s Class A, No. 4, double suction pump for high elevation or for low speed. Thoroughly rebuilt and ready for shipment.

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Rag Cutters—Two No. 2 Daniels; one Perkins.

Screens—4-8 pl. New Success.

Slitters—One 86" P & J.

Winders—One 86" P & J; one 100" P & J; one 112" M & W.

Wet Machines—One N & W with cut offs, mould 30x52"; two spare moulds.

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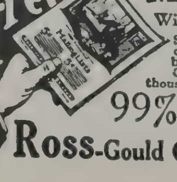

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The annual balance sheet of the Birnie Paper Co., of Springfield, Mass., shows total assets of $208,580, of which $72,729 is represented by real estate, $87,638 by merchandise and $29,573 by accounts receivable. The company's capital is $60,000; mortgages represent $50,000 and the surplus is given as $17,278.

* * *

J. H. Malone Dies

James H. Malone, former mayor of Chelsea, Mass., and one of the best known dealers in wrapping and kraft papers, died at his home in Chelsea April 8. He was the first mayor of Chelsea after the great fire which destroyed that city, was a director in several banks and trust companies and otherwise prominently identified with the city. He leaves a wife, two brothers and a sister.

* * *

Trade Opportunities

Washington, D. C.—The Bureau of Engraving and Printing is taking bids until May 12 for annual supplies, including pulp, internal revenue paper, postage stamp paper, etc.

Philadelphia, Pa.—The Foreign Trade Bureau of the Philadelphia Commercial Museum, Thirty-fourth Street, near Spruce Street, has received an inquiry from Japan (No. 42135) from a company desiring to locate selling agents for parchment paper, white glazed printing paper and novelty colored paper. Full information on request.

GOVERNMENT BIDS

TREASURY DEPARTMENT, Office of the Secretary, Washington, D. C., March 15, 1924. Sealed proposals will be received at this office until 11 o'clock a. m., Wednesday, April 16, 1924, from manufacturers of bond, bank-note and other fine papers for furnishing bank-note paper of the highest quality containing the distinctive feature now in use by the Department, for the printing of United States currency and public debt securities, national and Federal reserve bank-notes, Federal reserve notes, etc., for the fiscal year beginning July 1, 1924. Blank forms for submitting proposals, with specifications and further information will be furnished manufacturers who intend to bid upon application to this office, where samples of the paper required may be examined. A. W. MELLON, Secretary of the Treasury.

Treasury Department, Bureau of Engraving and Printing, Washington, D. C., April 2, 1924. Sealed proposals are invited to furnish this Bureau with Postage Stamp Paper and Internal Revenue Paper, Brass and Iron Castings, Cleaning of Windows, Purchase of Pulp, Ink Scrapings, Distinctive Paper Shredded Trimmings and Postage Stamp and Internal Revenue Paper Trimmings, during the fiscal year beginning July 1, 1924. Proposals to be received not later than 2 P. M., Monday, May 12, 1924. Blank forms with specifications for proposals for the several schedules and further information will be furnished on application to Paul E. Twyman, Assistant Director.

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4—Mammoth Junior Jordon Engines.

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4—Shevlin Screens (Rotary)
2—Shevlin Screens, Flat.
7—Baker and Shevlin, 14-plate Flat Screens 3 equipped with .016 plates, 4 with .014 plates—2 extra sets .014 plates. Spare Cams—springs and riders—Size of plate 12″ x 43″.

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1—18 x 10 x 12 Underwriters Pump.

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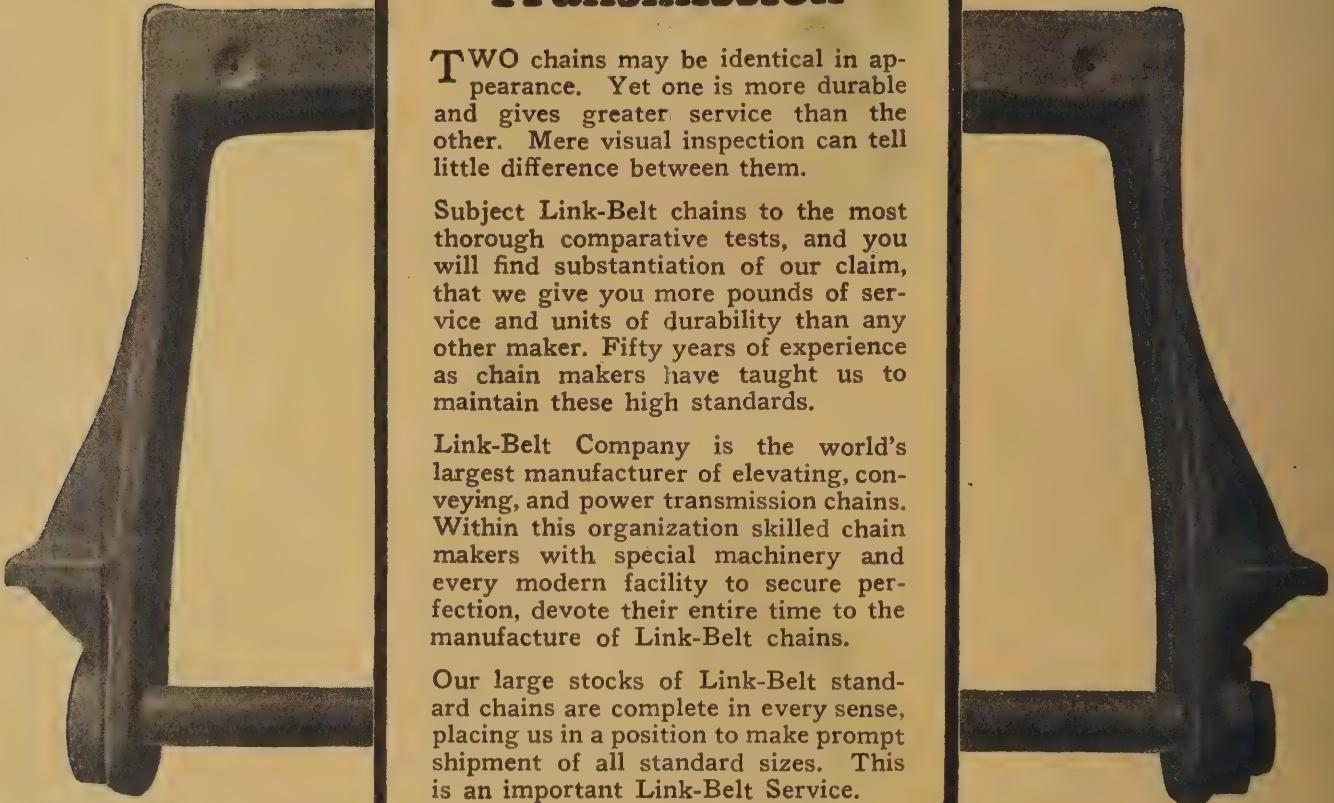

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MATHIESON System

An Existing Bleach Plant

Readily Adapted to the Use of Liquid Chlorine

THE accompanying drawing illustrates how the existing bleach plant of the Crystal Tissue Company, Middletown, Ohio, was easily converted to the use of Liquid Chlorine by the Mathieson System. Necessary additional equipment consisted only of the chlorine connections and supply line and the lead expansion coil installed in one tank.

The two former bleach-mixing tanks now operate as a single unit, the combined capacity being sufficient to take the full contents of a ton container of Liquid Chlorine. The Liquid Chlorine enters the upper end of the lead coil through an expansion valve, vaporizes in the coil and is discharged as a gas into the suction of the pump, where it is absorbed by the circulating milk of lime solution. The temperature of the liquor is kept within safe limits by the refrigerative effect of the Liquid Chlorine vaporizing in the immersed coil.

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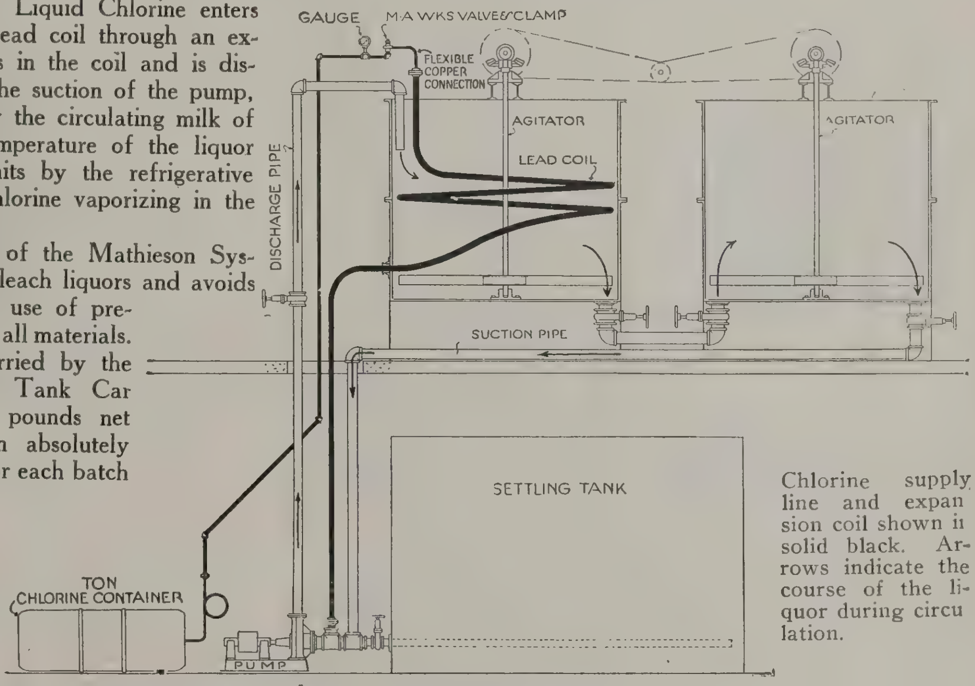

Chlorine supply line and expansion coil shown in solid black. Arrows indicate the course of the liquor during circulation.

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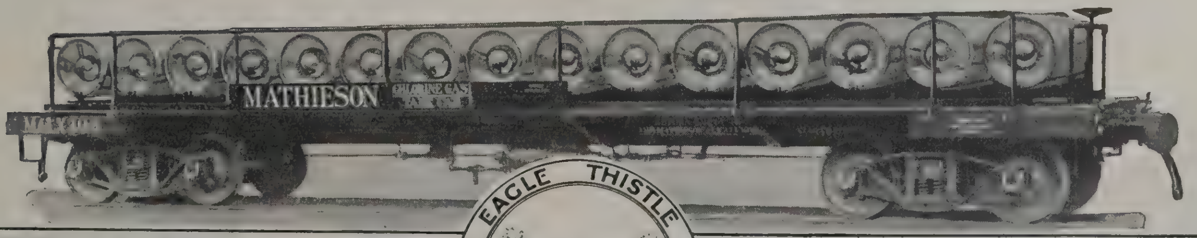

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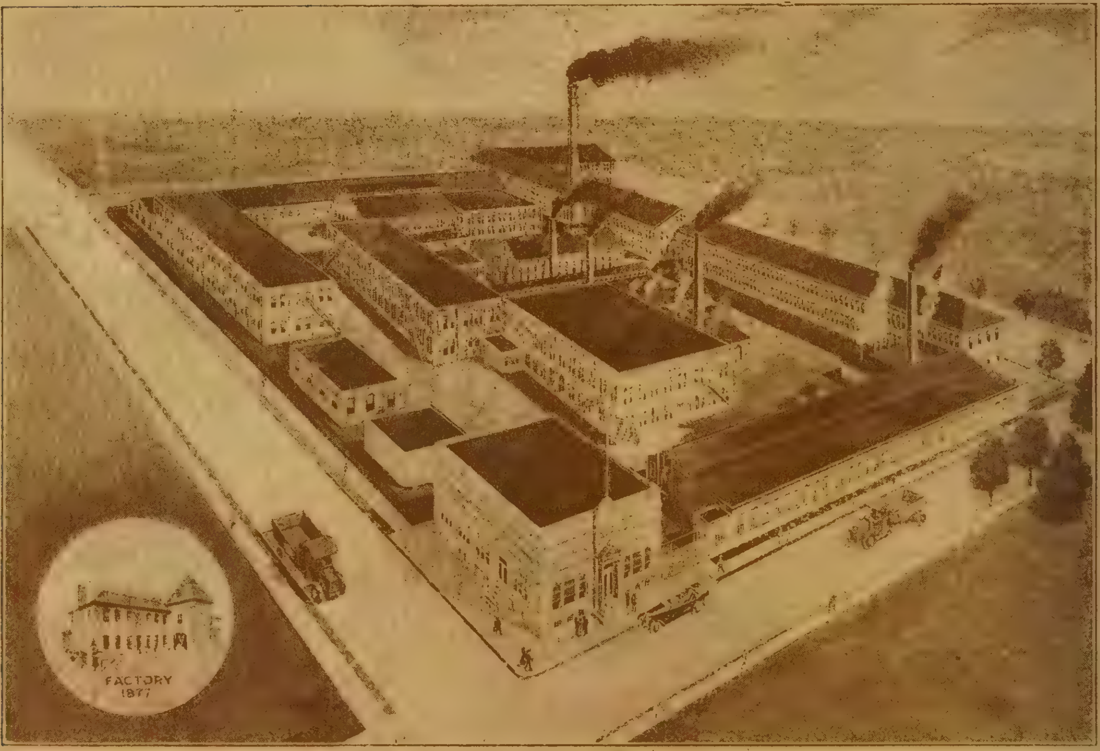

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